MAPPING MIDDLEPORT:

A CASE STUDY IN SOCIETAL ARCHAEOLOGY

by

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"What does it gain us to know that one culture came after another and was in some way related, if we know little or nothing of either culture as it existed in the past among the people to whom it belonged."

Walter W. Taylor (1948:178)

Artist's Rendition of An Effigy From the Lawson Site (AgHh-1: 15,447)

ABSTRACT

The detailed analysis of a local sequence of Iroquoian components in the London Ontario area is presented. This sequence consisted of three discrete communities in the Early Ontario Iroquoian Stage that merged to form a single community at the initiation of the Middle Ontario Iroquoian Stage in the late thirteenth century. That community subsequently relocated through a series of sequential villages with associated hamlets and camps until it reached the Lawson site during the Late Ontario Iroquoian Stage, circa A.D. 1500.

Interpretations are presented under a variety of categories concerning material culture, socio-political organization, and ideology in order to explain how and why the communities in this sequence evolved as they did.

It is argued that adopting a societal, as opposed to cultural, framework for analysis allows prehistorians to understand better the human groups that participated in these local sequences. This permits the examination of processes of social interaction and the explanation of sociocultural change in terms of endogenous factors, as well as calling into question the validity of traditional "cultural" classifications and the explanation of change using exogenous factors.

RÉSUMÉ

Nous présentons l'analyse détaillé d'une séquence locale des composants iroquois aux environs de London, Ontario. La séquence consiste de trois communautés distinctes dans la première période iroquoise-ontarienne qui se sont fondues dans une seule communauté au commencement de la deuxième période iroquoise-ontarienne, vers la fin du XIII^{e} siècle. La communauté s'est déplaceé ensuite par moyen des villages séquentiels, avec des hameaux et des camps associés, jusqu'à son arrivée au gisement Lawson pendant la troisième période iroquoise-ontarienne, environ 1500 ans apr. J.-C.

Nous proposons des intérpretations des catégories diverses, au sujet de la culture materiélle, de l'organisation socio-politique, et de l'idéologie, afin d'expliquer l'évolution des communautés séquentielles.

Nous affirmons qu'une analyse qui se fond sur l'aspect social, au lieu de l'aspect culturel, permet aux préhistoriens de mieux comprendre les groupes humaines qui participaient dans les séquences locaux. Ceci permet l'examininations du processus de l'intéraction sociale et l'explication des changements socio-culturels par rapport aux éléments internes. Il permet également la mise en question de la validité des traditionnelles classifications "culturelles", aussi bien que la mise en question de la validité de l'explication des changements par rapport aux éléments externes.

PREFACE AND ACKNOWLEDGEMENTS

While based in part on data collected and analysed by other researchers, this thesis makes the following specific contributions to Iroquoian studies: an overview of Iroquoian cultural classification and a critique of the concept of "culture" as applied to Iroquoian research; a detailed application of a "societal approach" to local sequences for the first time in Ontario Iroquoian studies; archaeological investigations and interpretation of data from the Edwards, Drumholm, and Lawson settlements, as well as from numerous hamlets associated with the latter site; and the presentation of data in terms of a local sequence of evolving communities. More generally, it suggests that Ontario Iroquoian prehistory can now be interpreted as a series of community sequences rather than within the existing framework of poorly-defined "cultures" spread over large geographical regions. A historical statement of previous investigations is contained in Chapters 2 and 3.

The production of this thesis has been assisted by my graduate committee, Dr. Bruce Trigger, Dr. Fumiko Ikawa-Smith, and Dr. Michael Bisson; by fellow graduate students at McGill University; and by Dr. William D. Finlayson, Executive Director, Museum of Indian Archaeology (an Affiliate of the University of Western Ontario, London).

The birth of the idea that would ultimately grow into this thesis occurred in the fall of 1974 when I met William D. Finlayson. At that time I was beginning research for my Master of Arts thesis at Trent

University and Bill came there as a guest speaker. After his talk we spoke at length about Iroquoian studies in Ontario and of his growing involvement with the Museum of Indian Archaeology at the University of Western Ontario, which included excavation of the Lawson site and investigations of other Iroquoian sites in the London area. The next summer found me working for Bill and the Museum at the Draper site near Pickering. After Draper, I returned to Trent to finish my Masters, a task that was greatly assisted by Dr. Richard B. Johnston. Upon graduation in April, 1977 I feared joining the ranks of the unemployed until one day that same April I received a phone call from Bill, then Executive Director of the Museum of Indian Archaeology. The next day witnessed a hectic trip to London that resulted in my appointment as a Research Assistant to edit the Draper site catalogue and then to undertake the analysis of the rim sherds from that site. Soon after, I became Staff Archaeologist responsible for the Lawson site project (excavation, reconstruction, and interpretation) from 1978 to 1980. Except for a hiatus to fulfill residence requirements at McGill University in 1980-1981, I have been employed at the Museum and owe a sincere debt of gratitude to Bill for nurturing my archaeological career and personal development. He alone created opportunities for me to excavate the Lawson site, analyze the Dr. W. Wilfrid Jury Collection at the Museum (which includes some of the Iroquoian sites discussed in this thesis), investigate the Edwards and Drumholm sites, and direct excavations at some of the hamlets associated with the Lawson site. Bill has supported my thesis in countless ways and has provided an ideal work situation in which the goals of the Museum and my personal research objectives frequently were combined. It was often impossible to separate the two and so, more than anyone else, I thank Bill for his assistance, cooperation, and support. He also directed a

fluctuating Museum staff, many of whom assisted in small ways with this thesis.

One of those staff members is David G. Smith. I first met Dave on the Draper site in 1975. We soon discovered that we shared a number of common interests, one of which was Iroquoian archaeology. Through these interests and periodic co-employment at the Museum we have spent many nights (and early mornings) discussing all facets of archaeology and Iroquoian studies. By co-authouring two papers for presentation at conferences we jointly developed some of the ideas discussed herein.

It was Dave who persuaded me to take up doctoral studies at McGill in the fall of 1980 and introduced me to the reason I chose McGill in the first place, Dr. Bruce Trigger. I thank Dave for that and Dr. Trigger for his considerable input into this thesis. Through weekly meetings he and I ironed out its topic and subject matter. I wish to also thank him for agreeing, at the request of his graduate students, to co-chair a seminar on the concept of culture which resulted in Chapters 2 and 3 of this thesis, for reading and commenting in detail on earlier drafts, and for suggestions concerning the interpretation of data.

While at McGill, I had the pleasure of studying with a number of archaeologists who contributed to my education and research. These were Dr. Fumiko Ikawa-Smith, Dr. Michael Bisson, and fellow students Ronald Williamson, Bruce Jamieson, David Smith, David Denton, Pierre DeRosiers, Moira McCaffrey, Clare Fawcett, and Bill Fitzgerald. Also included on this list are two current McGill graduate students who, while not at McGill when I was there, were employed at the Museum of Indian Archaeology and were involved indirectly with my research: Alexander von Gernet and

Peter Timmins. I wish to especially acknowledge Ronald Williamson for allowing me to use some of the data he collected from Glen Meyer period sites in the Mount Brydges cluster, which will be discussed in detail in his doctoral dissertation from McGill.

Although the list of people who assisted in research on the sites discussed in this thesis is lengthy, special mention must be made of key individuals who served as project managers and/or field and lab assistants under my direction. On the various Lawson site projects from 1978 to 1980 these included Martin Copper, Marilyn Cornies, and Scarlett Janusas. On the Edwards and Drumholm sites in 1981 were Mark Borland, Tom Arnold, and John MacDonald. On the City of London Survey in 1982 were Peter Timmins and Tom Arnold. On the excavation and analysis of the Lawson site hamlets in 1981 and 1983 were, among others, Tom Arnold, Mark Borland, Peter Timmins, Alexander von Gernet, John MacDonald, and Terry Lumsden.

These projects and excavations have received diverse funding. The Ontario Heritage Foundation contributed to the excavations of Edwards, Lawson, and three of the Lawson site hamlets; they also supported my analysis of the Jury Collection. The Museum of Indian Archaeology has been the recipient of numerous federal and provincial job creation grants under the names of Young Canada Works, Summer Student Projects, and Community Development Projects. Some of these funds were used to assist excavations at the Lawson site from 1978 to 1980, excavations of some of the Lawson site hamlets, and the City of London Survey in 1982. The Museum has also been involved in the federal government's "Katimavik" program; some of its energetic participants assisted in the excavation of the Smallman site. Indirect funding for some of the varied projects at Lawson has been supplied by Wintario, the Richard and Jean Ivey Fund, the

Tom Lawson family, and the Museum of Indian Archaeology.

All but one of the Lawson site hamlets found and excavated to date were discovered as a result of archaeological resource assessments of developer-owned lands carried out by the Museum of Indian Archaeology. These projects were all funded voluntarily by the developers as good corporate citizens. The developers also contributed funds for the excavation and analysis of the hamlets discovered on their property and provided earth-moving equipment free of charge. They include the Ronto Development Corporation (Ron Forrest and Jack Solomon), the Matthews Group (Jack Matthews), Alcor Investments Limited (Lloyd Bishop and Tom Burns), and Colony Investments Limited (Mario Liberatore). Each of these assessments, and the resulting hamlet excavations, were arranged by Bill Finlayson with the Museum providing equipment, supplies, laboratory space, office facilities, administration, computing facilities, graphics, word processing, and support personnel.

Additional funds were provided in the form of a Summer Research Fellowship to the author from the Faculty of Graduate Studies, McGill University. These were used to investigate the Drumholm site in 1981.

The University of Western Ontario is thanked for supplying goods and services to the Lawson site projects and for looking after the financial accounts on all of the projects by management agreement with the Museum of Indian Archaeology. The Department of Anthropology at Western also supplied goods and services to the Lawson site project in 1978, and arranged for the Museum to conduct four field schools at that site.

A number of individuals assisted with this thesis by providing analyses of specific artifacts or artifact classes, comments on certain

artifacts, and insights into a number of problems. These include John MacDonald (lithic and floral analyses), Jim Burns (faunal analyses), Charlie Turton and Rudy Fecteau (floral analyses), and Scarlett Janusas (identification of chert types). Bill Fox offered helpful comments on some Iroquoian sites in this area (including Glen Meyer period ones east of London), exotic chert types, and the whole question of who the Western Basin peoples were and why they were in southwestern Ontario.

I have benefited from knowing Dr. James V. Wright and from several conversations with him. He has provided an inspiration to all current Iroquoianists and I am no exception.

Because of the varied data base employed herein and the large number of people who have studied these sites, ideas have been derived from many sources. Chief among these I would list Dr. W. Wilfrid Jury, Dr. James V. Wright, Dr. William D. Finlayson, Ronald Williamson, David Smith, Dana Poulton, and Bill Fox. I have attempted to acknowledge their contributions in the appropriate places and apologize if I have been remiss in doing so in any particular instances.

Marilyn Tate of the Museum of Indian Archaeology word processed an early draft of Chapter 2 on a Cybernex XL-84 terminal linked to the DEC10 computer at the University of Western Ontario. I edited that chapter and word processed the remainder of the text and some of the tables and figures on that same system, while the others were produced by various personel at the Museum of Indian Archaeology. The line drawings were created by Karen Niece while the references were entered and edited by Shirley Hokansson on the Cybernex/DEC interactive system using a custom designed BIBLIOGRAPHY program.

Finally, I wish to dedicate this thesis to my family for continued support in many ways and to the late Dr. W. Wilfrid Jury. Had it not been for a trip with Wilf and Elsie Jury in June 1978 my thesis would probably have been concerned solely with the Lawson site and the fate of its inhabitants. As a result of that trip, Wilf told me about and took me to the Middleport period sites he had investigated fifty years earlier in Lobo Township and I became interested in how they related to Lawson. I subsequently analyzed his collections from these sites and conducted investigations at two of them, Edwards and Drumholm. These sites constitute a major part of this thesis and without them, or Dr. Jury, I would not be presenting it.

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CHAPTER 1

INTRODUCTION

AIMS

This thesis concerns the prehistoric Iroquoians who occupied the Lawson site located in what is now London, Ontario and their ancestors. It begins with the spatial distribution of known Iroquoian sites in the London area interpreted within the established culture history of southwestern Ontario and then attempts to interpret the sociocultural changes that occurred to the Iroquoian communities that occupied this locality. I will argue that at least two, and perhaps three, distinct Glen Meyer communities that had been in existence for over two centuries merged circa A.D. 1245-1315 to form a single large Middleport community on Oxbow Creek just west of London. This community gradually moved eastward until it occupied the Lawson site, circa A.D. 1500. While at Lawson it consisted of more than an estimated 1400 individuals living in a tightly nucleated settlement provided with complex defensive fortifications. The Iroquoians living there had a settlement/subsistence system consisting of a number of nearby hamlets (single cabin sites) that were used not only to grow crops but also as processing centres for food products obtained by men, women, and children through hunting, fishing, and gathering.

In presenting evidence to support this reconstruction, I will review most of the data currently available for the sites that participated in this five century-long local sequence and draw additional supporting documentation from contemporaneous sites elsewhere in southwestern Ontario and neighbouring New York State. These data relate to changes in material

culture, socio-political organization (including settlement pattern, population size estimates, subsistence practices, burial practices, warfare, intergroup exchange, and the spread of ideas), and ideology. This leads to a set of conclusions that support this interpretation and seek to explain how and why the communities involved in this local sequence evolved and changed over time. These conclusions go beyond a refinement of local culture history and of the existing cultural historical paradigm to initiate a detailed understanding of socio-political change as it relates to regional continua of Iroquoian settlement manifested by local sequences. The approach taken here is one that allows sites and artifacts to be used not only to build a cultural chronology but also to gain an understanding of social and cultural development. In the words of Dr. W. Wilfrid Jury, the intent is to put the "story" back into prehistory.

There has been a noticable shift in the past two decades to the analysis of Iroquoian sites within small, natural, or ethnographically-defined localities and to the study of local sequences of community development within those areas (White 1961, 1972; Noble 1975a, 1978; Fox 1976). One of the most innovative contributions to Iroquoian research was Tuck's (1971) demonstration of how the Onondaga nation formed through the fusion of at least two communities, each representing a local sequence extending back to Owasco times, and the later conclusion of a political alliance between the resulting community and another smaller one. Peter Ramsden's (1977) doctoral dissertation on prehistoric, protohistoric, and historic Huron sites in southcentral Ontario also made a significant contribution to community studies. He stated "that Iroquoian cultural events in Ontario took place within an essentially

local context of a few villages restricted to a local drainage system or a few square miles of territory" (ibid., 295). He has followed his original statement with a detailed survey and site testing project focused on a cluster of Huron sites in the Balsam Lake area. This has led to a set of tentative conclusions concerning social differentiation within the Benson site and the participation in a local sequence by at least two separate Iroquoian communities (1978).

Attempts to define prehistoric communities and to delineate local sequences reveal the severe limitations of the concept of supposedly homogeneous "cultures" spread over large geographical regions (i.e., the Glen Meyer, Middleport, and prehistoric Neutral "cultures"). One of the aims of this thesis is to show that Ontario Iroquoian prehistory can now be viewed as a series of interacting communities. Another aim is to show that, while such communities may have shared numerous developments in common, each local sequence had its own unique history. It is a misconception to think that the series of events leading to late prehistoric Iroquoian sites in the Hamilton area was identical to that leading up to the Lawson site. Such a view is a fallacy resulting from reliance on the Direct Historical Approach and the "culture" paradigm.

This thesis adopts an explicitly "societal", as opposed to cultural, approach. It is based on the concept of community and equates local sequences of archaeological components (villages with associated hamlets and camps) with a single community of people (Willey and Phillips 1958:24-25, 49), rather than treating those components as representative of larger regional sequences (ibid., 27) or particular "cultures" thought to have extended over a large geographical region. It attempts to understand sociocultural rather than merely cultural change and to

demonstrate how the changes observed in the archaeological record relate to groups of people who lived and worked together. This approach creates the most favourable opportunity to interpret such changes in terms of endogenous factors rather than, as was the case with the older cultural paradigm, attributing them mainly to exogenous factors such as migration, conquest, and diffusion.

The results of this thesis therefore have important implications concerning the nature of Iroquoian culture change and, as a corollary, how prehistoric Iroquoian assemblages are classified. To provide the historical background for the analyses presented here and in particular for the arguments advanced in the concluding chapter, Chapter 2 presents a historical review of Iroquoian cultural classification and Chapter 3 an overview of the concept of culture and how culture change has been explained. Chapter 3 also presents a summary of the societal approach and of the methodological and theoretical concepts that are employed in this thesis.

SOURCES

Sections of Chapters 2 and 3 were first drafted while the author was in residence at McGill University in 1980-1981 for a graduate seminar on the concept of culture chaired by Dr. Bruce Trigger and Dr. Fumiko Ikawa-Smith. I presented portions of those chapters in that seminar and in February 1982 at the "Ontario Iroquois Tradition Revisted" symposium at McMaster University (Pearce 1982b).

The analyses of material culture (Chapter 5) and socio-political and ideological change (Chapter 6) represent syntheses of old data, data

collected in recent years by other researchers, and data collected by the author for this thesis. The latter include information on the Middleport period Edwards and Drumholm sites along Oxbow Creek and on the Lawson site and its hamlets. My use of other researchers' data is acknowledged throughout the text and is briefly summarized in Chapter 4.

The artifacts and data for all sites discussed here, except the Glen Meyer period ones in the Arkona and Mount Brydges clusters, are curated at the Museum of Indian Archaeology. The collections from the Mount Brydges cluster of sites were viewed by the author in the fall of 1982 at the Longwoods Road Conservation Area through the courtesy of Mr. Ronald Williamson. He generously supplied a set of tables describing the ceramic attributes from those sites as of that time, which are the figures used here. These sites will be the subject of Mr. Williamson's forthcoming doctoral dissertation from McGill University. He has since acquired additional material from some of these sites. As a result, the figures used here for the Mount Brydges sites are provisional, but it is believed they will not change enough to alter the interpretations presented in this thesis.

STATEMENT OF HYPOTHESES

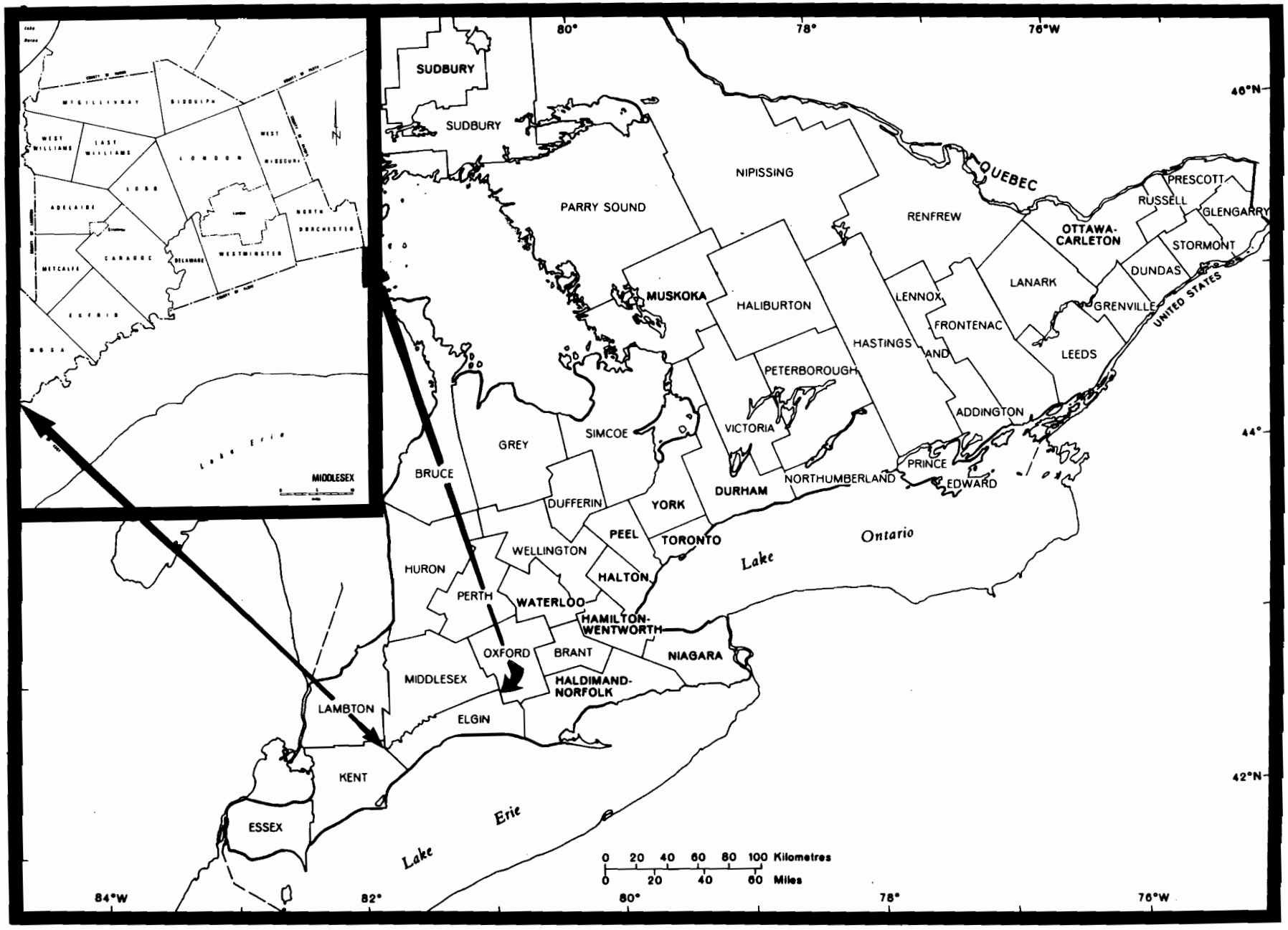
It can be demonstrated that within the physiographic region west and southwest of London known as the Caradoc sand plain, the only Iroquoian sites that occur can be assigned to the Glen Meyer period. These occur in two spatial clusters. One is in the Mount Brydges area and the sites there form a developmental sequence that Williamson will discuss in his dissertation. They consist of at least three sequential villages (MiV18, Smale, and Roeland) and a variety of special purpose camp sites and

hamlets (Kelly, Yaworski, Little, and Berkmortel). The second cluster of Glen Meyer period sites occurs in the Byron area, a subdivision annex in southwest London. These consist of at least two villages (Dunn and AfHi-78) as well as a variety of hamlets (Willcock, Mariem I, and Mariem II) and camp sites (McGrath). Glen Meyer period burials have also been encountered in this area. A third more distant cluster of Glen Meyer period sites is found in the vicinity of Arkona, located northwest of Mount Brydges and Strathroy and just southeast of the present day Pinery Provincial Park. These include at least three villages (Faulds, Butler I, and Crawford) and several hamlets or camp sites (Holmes, Utter, and Butler II). As with the Mount Brydges and Byron communities, all of the Glen Meyer period sites near Arkona are located on sandy soil.

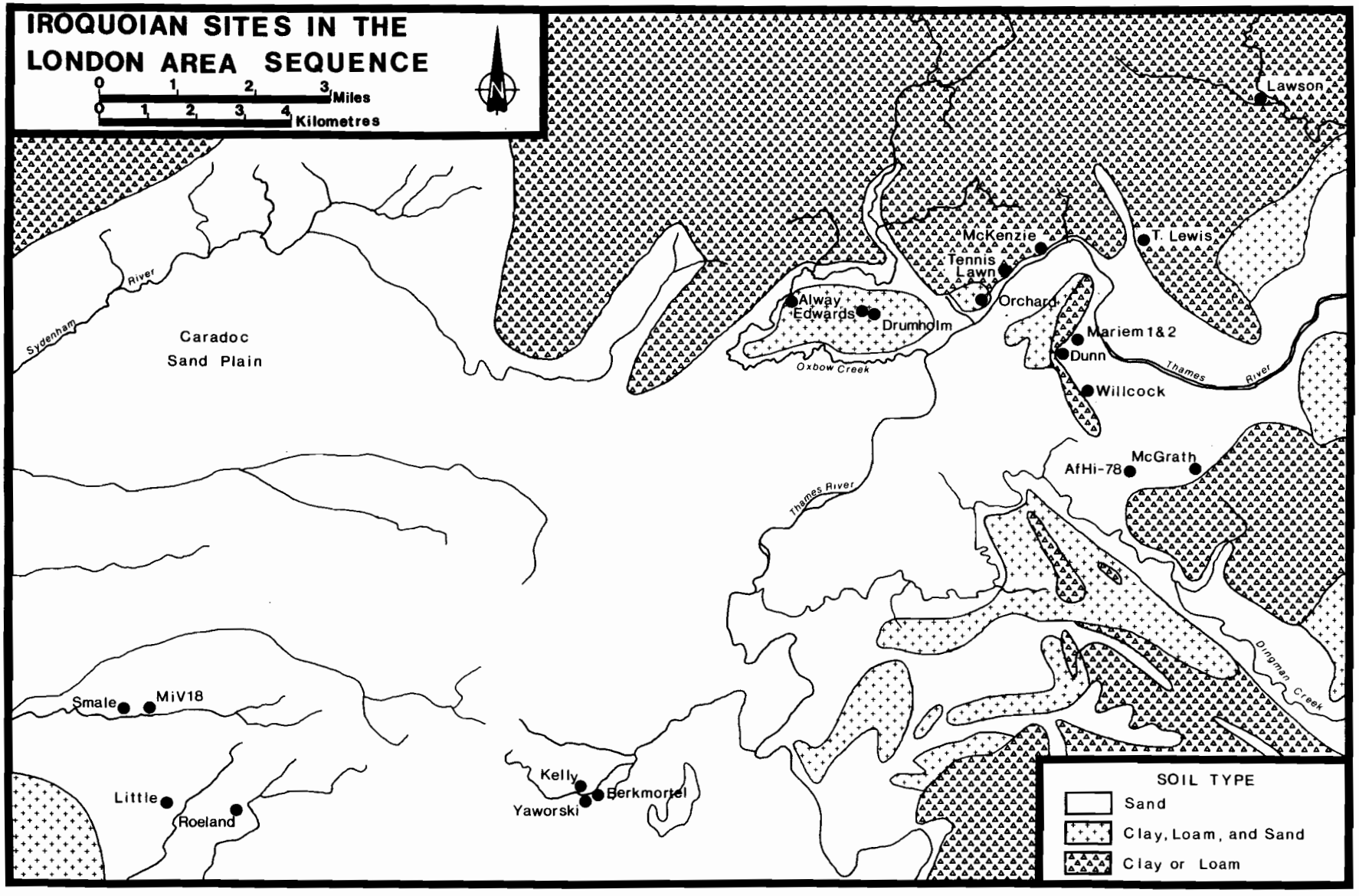
Extensive archaeological surveys of the Caradoc sand plain and of the area of sandy soils around Arkona have not encountered any Middle or Late Ontario Iroquoian sites. Instead, a cluster of three Middleport period sites is known to occur on the first available pocket of non-sandy soil northeast of the Caradoc sand plain and northwest of Byron. These are the Edwards, Drumholm, and Alway villages along Oxbow Creek. It is proposed, therefore, that the peoples who formed the Mount Brydges and Byron communities, and perhaps the Arkona community, joined together in the late thirteenth century to form the cluster of Middleport period sites along Oxbow Creek.

It is further proposed that this community occupied three villages along Oxbow Creek in the sequential order of Edwards, Drumholm, and Alway, then moved eastward along the north bank of the Thames River. They first occupied three poorly-known villages at Dolway Place (Orchard, Tennis Lawn, and McKenzie), and eventually the Lawson site and its associated

hamlets. This proposed local sequence will be discussed in greater detail in Chapters 5, 6, and 7. The general locations of these sites are indicated on Maps 1 and 2. The proposed local sequence is depicted in Figure 1.

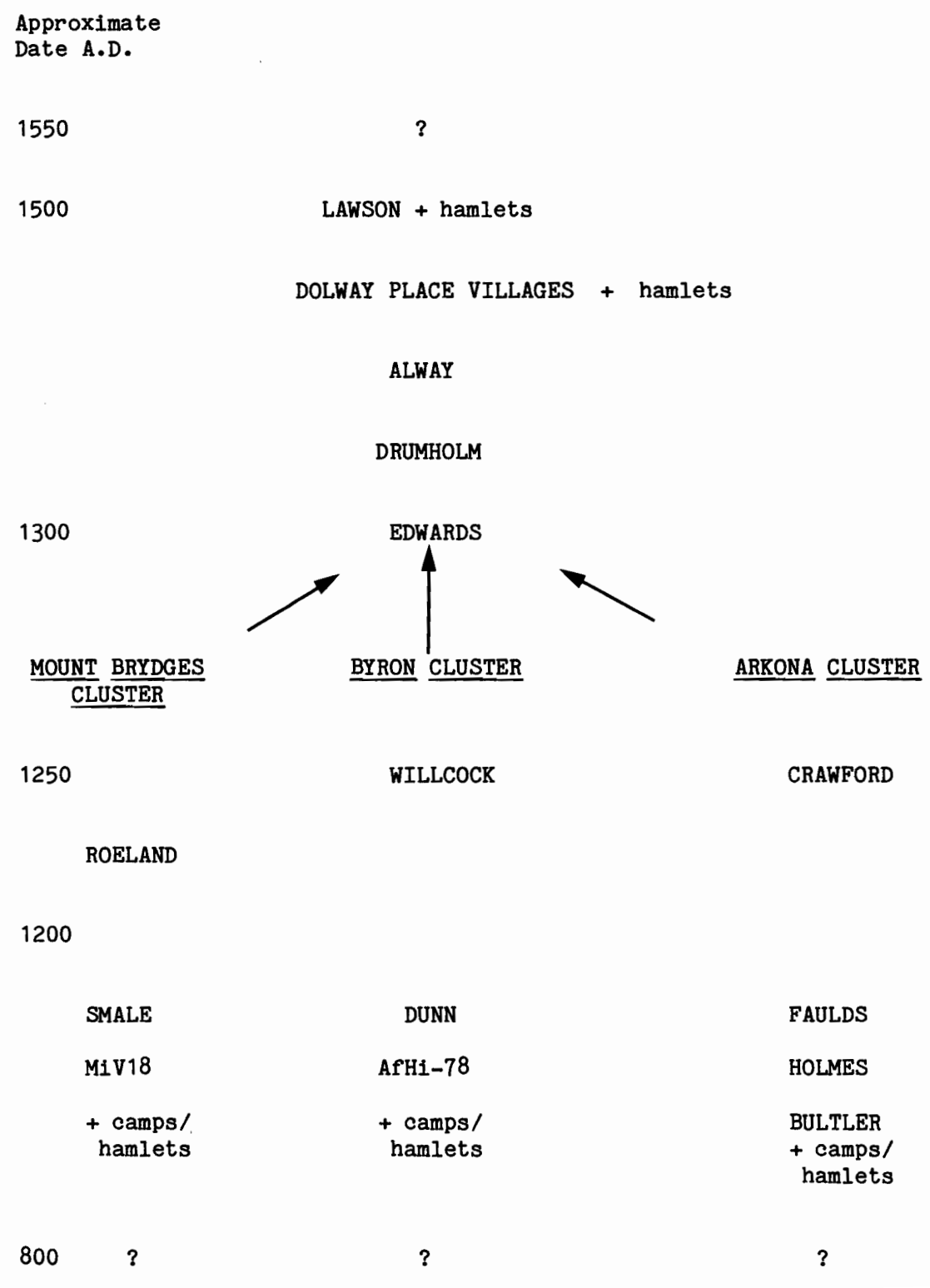


MAP 1: LOCATION OF THE STUDY AREA



MAP 2: IROQUOIAN SITES IN THE LONDON AREA SEQUENCE

FIGURE 1: RELATIVE CHRONOLOGICAL ORDER OF SITES IN THE PROPOSED LONDON AREA IROQUOIAN SEQUENCE



CHAPTER 2

HISTORICAL OVERVIEW OF IROQUOIAN CULTURAL CLASSIFICATION

INTRODUCTION

This chapter presents a historical review of Iroquoian cultural classification. It begins with a brief discussion of the names that European visitors assigned to the historic Iroquoian tribes that lived in Ontario in the seventeenth century, then surveys the various interpretive and theoretical frameworks that archaeologists and others have used to classify these same groups and their predecessors. It is argued that these frameworks have shaped present-day interpretations of Iroquoian prehistory and methods of cultural classification and that it is therefore essential to understand them from a historical point of view in order to discuss the problems involved with their use.

SELF-IDENTIFICATION AND SEVENTEENTH CENTURY CLASSIFICATION

The names by which the historic Huron, Petun, and Neutral were known to Europeans in the seventeenth century were recorded by French explorers; principally Champlain, Jesuit priests, and Recollect missionaries (Thwaites 1896-1901; Biggar 1924;1922-1928; Wrong 1939).

The historic Huron called themselves Ouendat (Wendat) (Heidenreich 1971, 1978; Trigger 1976), a term that perhaps meant "the islanders" or "dwellers on the peninsula" (Hewitt 1907, quoted in Tooker 1964:9; Heidenreich 1971:22). Champlain called the Ouendat 'Huron', derived from the French word 'hure' meaning boar's head or bristly head. It either

referred to the Huron method of cutting their hair (Heidenreich 1978:387) or designated them as knaves or rustics (Heidenreich 1971:21; 1978:387). Each of the five distinct tribes that made up the Huron confederacy had its own name: Attignawantan, Attigneenongnahac, Arendaronon, Tahontaenrat, Ataronchronon (ibid.; Tooker 1964; Trigger 1976; for variations and synonymy, see Heidenreich 1978:387).

The Petun called themselves, or were called by the Huron, Khionontateronon (originally spelled Quieunontateronon) (Garrad and Heidenreich 1978:394,396). Champlain designated this group 'Petun', a Brazilian word for tobacco (ibid., 396), since they cultivated and traded large amounts of this substance. The French also referred to them as the Tobacco Nation (ibid., 396) and more often as the Tionontati (Tooker 1978b:404). The Petun are thought to have been made up of two related tribes or clans. The names of these entities were not recorded.

After the great defeat and dispersal of the Huron and Petun in the mid-seventeenth century (Trigger 1969, 1976), a mixed group of Huron and Tionontati became known to the English as Wyandot, a corruption of Wendat (Trigger 1969:2). This same group were called Tionontati by the French (Tooker 1978b:398), since there was a majority of former Petun among them.

It is not known what the Neutral called themselves. They were called "la nation neutre" by Champlain and became the Neutral from this coinage in all subsequent French references (White 1978:410). The Huron called the Neutral Attiuoindaron or Atiouandaronks, meaning "they (who) understand the [our] language" (ibid., 411). The Neutral called the Huron by this same term (Tooker 1964:13). Today, it is applied to the Neutral alone and generally spelled Attawandaron (i.e., Jury 1974). The several

tribes or groups within the Neutral confederacy were individually named (White 1972:71; 1978:410-411; Noble 1978), but it is not known how many tribes made up this confederacy as some historically documented names may have referred to villages rather than tribes (ibid.).

Tooker (1970:90) and White (1978:410) have noted that the French had no term other than 'nation' to apply to the several different levels of socio-political organization, so that they did not distinguish confederacy from tribe or even clan. We do not know therefore exactly to what many names contained in the ethnographic literature refer. At least one Huron tribal name was also a clan name (Attignawantan = Bear People) and the same situation may have applied to the two Petun tribes or clans, known only as Wolves and Deer.

The French thus recognized three separate 'nations', the Ouendat, Petun, and Neutral, but they and all researchers to the present day are unclear about the units of which each of these was composed: named or inferred tribes, villages, phratries, clans, and clan segments (see Tooker 1964:12; 1970). Even the precise composition of, and relationship between, the nations is uncertain. It is not fully understood how, in the early historic period, the Huron and Petun were related to each other; and how, in the late prehistoric and historic periods, the Erie and Wenro were related to the Neutral. It is even less clear how the Huron and Neutral were constituted as confederacies and how the segments (tribes, clans, etc.) within these confederacies distinguished themselves from each other. For example, we do not know if members of each tribe dressed in a distinctive manner or identified themselves in some way to make themselves recognizable as members of that group (see Hodder 1982 [ed.]).

"INDIANS" AND THE MOUND-BUILDER MYTH

The information contained within the French ethnographic sources cited above was largely inaccessible until these works were translated into English in the late nineteenth and early twentieth centuries. For this reason, the early white surveyors and first settlers in Ontario generally were not aware of such tribal distinctions as Huron, Neutral and Petun. They simply attributed any aboriginal site or artifact they discovered to 'Indians' (or prehistoric Indians to distinguish between the aboriginal inhabitants of southern Ontario and modern re-settled Indians, such as the Mississauga, Chippewa, and the Six Nations Reserve Iroquois).

This classification as 'Indian', or variants such as 'red race' or 'red Indian' (i.e., Hale 1883; Wilson 1884), marked the intensification of European and White North American interpretations of the aboriginal population of this continent in terms of derogatory stereotypes and a belief in their racial inferiority (Tooker 1978a:8; Trigger 1980c). In addition, this form of classification left the impression that all 'Indians' were the same and that they had lived in North America for no more than a few thousand years, undergoing little if any change. Thus it would have been entirely possible for White settlers in southwestern Ontario to find an Early Archaic bifurcate-based projectile point and attribute it to more recent, and non-indigenous, occupants of the region, such as the Chippewa.

From 1785 to the late 19th century, a myth concerning a mysterious race of "Mound-Builders" was perpetuated by explorers and armchair scholars. It maintained that the numerous mounds and earthworks found in Ohio and throughout northeastern North America had been built by a long

extinct civilized race that was far superior to the Indians who had lived there in historic times (Willey and Sabloff 1974:30; Silverberg 1968). One example of this type of thinking concerned the Southwold Earthworks site, now identified as a major late prehistoric Neutral period village near St. Thomas (Smith 1977). In 1877, this site was attributed to a non-Indian group of people who, because they constructed an earth embankment around their village, were "far in advance of the Indians, as we have known them" (Canadian Illustrated Monthly 1877[15]: 34). The Southwold Earthworks were known to Rev. L.C. Kearney of St. Thomas who believed all North American Indians were "descended from the two lost tribes of Israel which the 'Sacred Volume' informs us separated from the other ten" (AARO 1900:164-165; see also Killan 1980:4-5).

The great popularity of the "Mound-Builder" myth stemmed from the fact that "few people were prepared to credit the Amerindian tribes or their ancestors with the intelligence or the degree of civilization required to construct such elaborate earthworks" (Killan 1980:5; 1983:83; see also Trigger 1980c:665-666). It was not until after the 1890s, following the acquisition of more reliable data by researchers such as Squier, Davis, and Thomas (Willey and Sabloff 1974:30), that the myth of the "Mound-Builders" was finally laid to rest (Silverberg 1968; Killan 1980). Yet this myth prompted a great deal of valuable research, as archaeologists attempted to discover the true nature of the supposed "Mound-Builders" (Squier and Davis 1848; Thomas 1894).

THE BEGINNING OF PROFESSIONAL RESEARCH AND PUBLICATION

The latter half of the nineteenth century saw the formation of a host of naturalist and historical societies in major centres throughout Canada

and the United States (Willey and Sabloff 1974:42). These societies exhibited a vast range of interests in the scientific and intellectual realms, including a curiosity about Indian culture. One such society was the Canadian Institute (today the Royal Canadian Institute), founded in Toronto in 1851 (Killan 1980; 1983:82-84). After 1884, this Institute provided the opportunity for David Boyle, Ontario's first professional archaeologist, to promote an awareness of archaeology and Indian culture among Toronto's social, economic, and intellectual elite. In the late 1800s another organization, the London Ornithological Society (Judd 1979), actively sponsored week-end outings to what is today known as the Lawson prehistoric Neutral site to collect artifacts for study. One of its members, Dr. Solon Woolverton, was instrumental in drawing the Lawson site to the attention of David Boyle in 1895 (Pearce 1980a:4). Both of these organizations published learned journals or newsletters or held monthly meetings which provided outlets for articles and presentations about sites and artifacts. Prior to that time, only newspapers had normally printed accounts of archaeological findings. Such developments made educated people increasingly aware of the rich cultural heritage of Ontario (and other regions). It was a period during which many sites were documented and recorded. Unfortunately, it was also a period when many of these sites were looted (see Ridley 1961).

David Boyle can be credited with a number of major achievements including his promotion of systematic archaeological research through the pages of The Annual Archaeological Reports for Ontario (Killan 1983). These were published between 1887 and 1928 as appendices to the annual report of the Minister of Education in Toronto. Boyle was the first to

classify archaeological sites in Ontario as being either Iroquoian or Algonkian or even as "Neutral", "Huron", or "Seneca" (1906). This dramatic shift can be directly attributed to Reuben Thwaites' (1896-1901) publication of The Jesuit Relations and Allied Documents. This widely distributed translation of original French documents provided useful information concerning the historic location of numerous tribes throughout northeastern North America, as well as descriptions of the various tribal cultures. Archaeologists utilized this information to classify a site as "Neutral", for example, because it was located in territory that apparently had been occupied prior to 1650 by the Neutral tribe (i.e., Boyle 1906; Orr 1917; Beauchamp 1900; Wintemberg 1939). Also contributing to this shift may have been Francis Parkman's (1867) earlier interpretation of the Jesuit missions in Huronia.

Three major developments took place during the period from 1880 to 1939. The first was a penchant for educated people to attempt to identify known archaeological sites as ones recorded in The Jesuit Relations and Allied Documents or on historical maps such as Sanson's 1656 "Le Canada". The literature of the period contains several descriptions and identifications of this sort, albeit often without any solid archaeological evidence to support such claims (Coyne 1895; Harris 1901; Houghton n.d.). We have, for example, Coyne's 1895 report which identified the Southwold Earthworks as the historic Neutral village of St. Alexis. Although Sanson's map placed St. Alexis in the general area of the Southwold Earthworks, this site has failed to yield a single European artifact and is certainly not historic (Smith 1977). Nor is any other Iroquoian site in the London-St. Thomas area.

The second major development of this period concerned attempts to discover an origin for the Iroquoians. It was commonly believed that Iroquoian culture was superior to an indigenous Algonkian one and that the Iroquoians must have originated elsewhere. Theories about the origin of the Iroquoians took various forms but one of the most notable and longest-surviving theories had them originating in the Ohio-Illinois area and migrating to the northeast from there.

The basic premise of this "Southern Hypothesis" was that all known Iroquoian groups had their homeland in the Ohio-Illinois-Mississippi River Valleys. While in that area, they acquired their distinctive culture, including village life, corn agriculture, and the construction of earthworks. Arthur C. Parker's (1916; 1922:155-158) version of this theory had one group migrating along the north shore of Lake Erie to become the Huron and Neutral, while a second group migrated south of Lake Erie to become the western tribes of the historic Five Nations Confederacy. Part of the first group supposedly spread into the St. Lawrence Valley where they were observed by Cartier in 1535, prior to settling in central New York State. One version had the Huron migrating first, because their dialect seemed the "oldest" (Boyle 1906). Another had the Neutral migrating first since they were believed to be "the old and parent body of all the Huron-Iroquois" (Parker 1922:158). The latter hypothesis received support from folklore and legends, which claimed that the "Mother of Nations", Jigonsaseh, who was a direct descendant of "the first woman on earth", resided among the Neutral (ibid.). Other Iroquoian tribes, such as the Cherokee, Tuscarora, and Susquehannock, were seen as groups that had migrated later or had split off from the original migrating groups (Boyle 1906). All of these versions, plus additional

ones, are treated in detail elsewhere (Pendergast and Trigger 1972; Trigger 1976) and will not be dealt with further in this study. What is significant, however, is that all these theories located the original homeland of the Iroquoians in some place other than their historically documented location.

The third major trend of this period was the striving of the first professional archaeologists in New York and Ontario to discover as much as possible about the Iroquoian occupation within their respective regions. In New York, William Beauchamp set out to compile a county by county inventory of all known sites (1900). In making this survey, he identified sites as Algonkian or Iroquois. His Iroquoian sites were further classified as being prehistoric or historic, depending on whether or not historic items had been found. He also identified some Iroquoian sites by tribal affiliation, if they occurred in an area known to have been occupied by a particular historic tribe. Information about each site in Beauchamp's survey is limited; often he gives only a general location and perhaps a short remark on a notable feature, such as whether the site was fortified or earthworked. A typical site description is as follows: "It is simply a prehistoric Iroquois fort with the usual relics, but it includes some Ohio shells" (ibid., 132). Beauchamp's work in New York State was subsequently followed up, in a more systematic way, by Parker (1907; 1922) and Alanson B. Skinner (1921).

David Boyle became Ontario's first professional archaeologist in 1884 (Killan 1980:3; 1983:82) and set out to discover and document as many sites as possible. His enthusiasum is reflected by his repeated appeals to the provincial government for funds to conduct archaeological research. He believed, for instance in 1885, that he and a group of amateurs could

document all sites in Ontario within a four to five year period at a cost of $5,000 to $6,000 annually (Killan 1983:95-97). Central to this belief were two assumptions: (1) that local amateurs and collectors (whom Boyle trained) would inform him about most of the sites; and (2) that even the largest sites had a limited productivity and could each be satisfactorily investigated within a few days (ibid., 91-97). For example, he spent no more than three of four days at the Lawson site (Boyle 1896:37) and thought from this brief examination that it had been sufficiently investigated (Killan 1984).

Despite Boyle's naïveté, his research was productive. His annual field trips to various parts of the province and his analyses of the material he collected filled the pages of the Annual Archaeological Reports for Ontario with much valuable information. Indeed, some of his reports contain the only available published data on sites since destroyed by looting, construction, or cultivation (i.e., Boyle 1896:34-35). He carried out limited excavations at a number of important sites and conducted a fairly extensive survey of Nottawasaga Township in the area occupied by the historic Petun (1889:4-15). He also encouraged several proteges (Killan 1983:134), including A.F. Hunter, George Laidlaw, Dr. T.W. Beeman, and W.J. Wintemberg. In particular, Boyle's survey of Nottawasaga Township served as a model for Hunter's surveys of various townships in Simcoe County, published in the Annual Archaeological Report for Ontario between 1889 and 1907 (i.e., Hunter 1900). Boyle also prepared a synthesis on the Iroquoians, published in 1906, which summarized the state of Iroquoian archaeology to date: "Although much has been written regarding the origin of Iroquoians as a people, we know absolutely nothing" (1906:146).

Arthur C. Parker followed Beauchamp's earlier work in New York State and can be credited with a number of innovations, including the careful excavation and publication of the Iroquoian Ripley cemetery site near Erie, in Chautauqua County, New York (1907, 1922). His work at Ripley established an important precedent for the way an archaeological site should be excavated, which served as a model for a generation of archaeologists. He was perhaps the first researcher in the region to recognize and record the post moulds of longhouses (1907).

Parker prepared the first archaeological synthesis for any area in northeastern North America, The Archaeological History of New York (1922). In that work, he postulated temporal changes within the Algonkian and Iroquoian occupations of New York, interpreting these as the results of migration and diffusion. He defined the following sequence of occupations for that state. First there was an Eskimo-like culture, or at least an Early Algonkian one that was influenced, possibly through inter-marriage, by Eskimo populations living along the northeast coast. This was followed by two more Algonkian stages, the latest of which was characterized by numerous Iroquoian cultural elements that had arrived in the area as a result of diffusion, migration, and later conquest. The "Mound-Builders" were neither Algonkian nor Iroquoian, but contemporaneous with the Algonkians. This curious race was dispersed by intruding Iroquois who migrated into New York State from Ohio. Most Iroquoian sites, according to Parker, dated no earlier than the mid 1600s, but a few Erie villages produced artifacts which fixed their presence in New York as early as A.D. 1300. These early Erie villages sometimes had earthworks, ditches, palisades, and hilltop locations, whereas the more recent ones did not. Parker was therefore the first to recognize any time depth and possibility

of in situ change among the Iroquoians, although he postulated that they had occupied New York State for no more than 400 years prior to the 1600s. According to him, there were also distinct tribal differences among the most recent Iroquoian sites, which could be identified as Seneca, Erie, Onondaga, etc. (ibid., 40-128).

The influence of both Beauchamp and Parker on Ontario's W.J. Wintemberg can readily be seen in the latter's first site report, which dealt with his excavations at Roebuck (published in 1936, but excavated in 1912 and 1915). Wintemberg cites Beauchamp and Parker at least thirty times each. He also recognized post moulds at Roebuck and analyzed his burial data in a manner similar to that of Parker. Wintemberg was strongly influenced by Boyle who can be credited with encouraging him to become a professional archaeologist. Before discussing Wintemberg, however, two other important developments in Iroquoian archaeology must be considered.

GROUPS OF TRIBES AND TRIBAL COMMUNITIES: FREDERICK HOUGHTON

A significant regional distinction was recognized by archaeologists in New York State, in particular by Skinner (1921) and Parker (1922). They differentiated between two groups of Iroquoians: aligning the Neutral, Erie, Seneca, Cayuga, and Conestoga (or Andaste) to form a "Western Group", and the Tionontati (or Tobacco), Huron, Mohawk, and Onondaga to form an "Eastern Group" (Skinner 1921; Wintemberg 1931:66). It is clear, however, that this distinction was based more on their belief in the Southern Hypothesis (the idea of two waves of migration) and on interpretations of folklore than on archaeological evidence.

The second development concerned the work of another New York State archaeologist, Frederick Houghton. He worked in New York State and Ontario under the auspices of the Buffalo Historical Society, the Buffalo Society of Natural Sciences, and the Heye Foundation, Museum of the American Indian. An unpublished manuscript, entitled "The Neutral Nation", dated circa 1920 (the latest reference cited is dated 1920) is a synthesis of his knowledge on the Neutral, obtained as a result of several years of research.

The latter portion of this paper contains a standard description of Neutral culture, including trait lists of artifacts, burial customs, ossuaries, and refuse pits. Some of these traits were discussed in a paper he published in the American Anthropologist (1916). In the first part of his unpublished manuscript, however, he defined eleven spatially distinct geographical clusters or groups of Neutral sites. He believed that each group represented a community, a group of communities, or a band, and inferred some temporal relationships within and between these groups. In doing so, he seems to have been far ahead of his time, for it is only recently that spatial clusters and communities have been discussed for the Neutral (i.e., Noble 1978; White 1972). Houghton was probably the first archaeologist to discuss village clusters as evidence of prehistoric behaviour. Although he did not present data to support most of his speculations, his work appears to have been based on accurate observations. For that reason, some of his ideas will be discussed in detail. His eleven groups of Neutral sites (some of which would now be assigned to the Middle Ontario Iroquoian Stage) were named as follows: St. Thomas, Aylmer, Grand River Reservation, Cainsville, Waterloo, Waterdown, Western Niagara, Eastern Niagara, (North) Lake Erie Shore, East

Hamburg, and Toronto. Each of these groups will be examined below, with more recent data added in the appropriate places to clarify or verify Houghton's remarks:

1. St. Thomas Group. 'Two fortified pre-European sites, identified as the Chester Henderson farm at Southwold, and the Shaw-Wood site.'
The former site is the Southwold Earthworks (Boyle 1891), excavated by Wintemberg and Dr. W.W. Jury in 1935 (Wintemberg 1935) and by the Museum of Indian Archaeology for Parks Canada in 1976 (Smith 1977). The latter site, Shaw-Wood, is now known as Lawson. It was excavated by Wintemberg from 1921 to 1923 (Wintemberg 1939) and by the Museum of Indian Archaeology from 1976 to present (Pearce 1980). Both sites are now identified as prehistoric Neutral.

2. Aylmer Group. 'Seven pre-European sites, one of which was on the Town Line Road, and one is at Bayham.'
Houghton provides no further details about this group. He probably included the Downpour (Wright 1966:57) and Pound (Lee 1951; Wright 1966:60; Kapches 1977) sites, both of which were known during his time. They are now classified as Middleport sites. Recent work in the Aylmer area has resulted in the discovery of as many as 19 Middleport sites and six prehistoric Neutral ones (McWilliams 1977, 1978; Poulton 1980:10).

3. Grand River Reservation Group. 'Three or four pre-European sites.'
Houghton says no more about this group and it is impossible to determine the exact area to which he referred. One pre-European site near the Reservation is the Middleport type site, excavated by Wintemberg (1948) in 1930, but known locally before that time.

4. Cainsville Group. 'Two large sites and several small sites, all post-European. The large sites are Seeley (sic.)(Garbutt) and Walker.'

On the basis of Sanson's 1656 map, Houghton inferred that one of these was Tsohahissen's (Souharissen's) village of Notre Dame des Anges. The Sealey and Walker sites are well-known historic Neutral villages that were both partially looted in the earlier part of this century (Ridley 1961). Walker has since been excavated by McMaster University (M. Wright 1981). Other historic Neutral sites (Westbrook, Van Sickle, Butter) are also known in this area (Ridley 1961; Noble 1978). Walker is now identified as Souharissen's capital, Ounontisaston (Noble 1978:162).

5. Waterloo Group. 'Four or six pre-European sites, one of which was fortified.'

Houghton notes that the ceramic pipes from one site were more characteristically Petun than Neutral. The fortified site is perhaps an earthwork described by Boyle (1896:34-35). The well-known Moyer site is in this area. It is a prehistoric Neutral village dating to circa A.D. 1400 (Wagner et al. 1973). Other sites documented by Wintemberg (1901) and MacDonald (1961) appear to be related to Moyer. Moyer is described as "one of a string of five villages each lying some two miles from its neighbour". The authors of that quote add: "preliminary examination of the Waterloo site (AiHd-1) and the Elliott site (AiHc-1) suggests significant temporal differences in these villages.... It is now clear that numerous village sites are to be found in the area" (Wagner et al. 1973:1). One of the other sites is Perry, near Ayr (Woolfrey et al. 1976:4).

6. Waterdown Group. 'Seven sites, all post-European.'

No site names were given by Houghton, but he infers that since this group was the one nearest to the Huron it must include the historic villages of Kandoucho, Teotongniaton, and Aondironnon, all visited by the Jesuits. Today, this group includes the Waterdown, Lake Medad, McMicking, Hood, and

Hamilton sites (Noble 1978:154). The latter two sites form part of the "Northern Tier", believed to be the segment or tribe of the historic Neutral that was at war with the Fire Nation (Lennox 1984). Hood is identified as Kandoucho (All Saints) on the basis of Jesuit artifacts recovered by McMaster University excavations (Noble 1978:162). Hamilton has been partially excavated (Lennox 1981), as have two satellite villages or hamlets near Hood and Hamilton known as Bogle I and Bogle II (Lennox 1984).

7. Western Niagara Group. 'Three sites, two post-European (St. Davids and Grand Island) and one pre-European (Thorold)'.

Houghton excavated the Grand Island site (1909, 1920). He describes artifacts from the St. Davids site in his unpublished report as being "quite unique", and identified it as Onontisaston. Historic Neutral sites on the Western Niagara Peninsula identified by Noble (1978:154) are St. Davids, Thorold (historic, not prehistoric as claimed by Houghton), Van Son (Grand Island), and Stanley. All of these sites, and others, have been discussed by Marian White (1972).

8. Eastern Niagara Group. 'One or two large villages and three or more large ossuaries, all post-European.'

One of these, Houghton says, is the village of Onguiaahra, which was identified by Father Lalemant (JR 21:209) as an Erie town. Other sites noted by Houghton are Kienuka (with an ossuary), Indian Hill, an ossuary near Orangeport, New York, and another ossuary on the Gould farm in Cambria, New York. Most of these sites have been confirmed by White (1972) and Noble (1978). Kienuka is a multicomponent site with Middleport (Wright 1966:61) and historic Neutral (White 1972) occupations. Houghton (1909:322) investigated this site and discussed the possibility that it had been surrounded by an earthwork during its earliest occupation (White

1961:56).

9. (North) Lake Erie Shore Group. 'Several post-European sites, one pre-European site, and one inland pre-European site.'

These include sites stretching along the north shore of Lake Erie from Fort Erie to Port Dover. One site at Fort Erie was a quarry with Neutral and Algonkian artifacts intermixed. There was an ossuary at Sherkston; other sites were at Rose Hill, Ridgeway, and Sugar Loaf Point (Port Colborne). White (1972) and Noble (1978) note some, but not all, of these sites. The ossuary at Fort Erie could refer to the Orchid site although White (1972:64) believes Orchid is not Iroquoian.

10. East Hamburg Group. 'Two isolated post-European sites in Erie County, New York. One had two large cemeteries associated with it.'

Sites in this area, now believed to be Erie rather than Neutral, include Ripley (Parker 1907, 1922). Houghton called these sites Neutral because they produced some of the distinctive artifacts to be mentioned below.

11. Toronto Group. 'Two isolated sites, Baby Point on the Humber River, and a large village at Lemonville, Whitechurch Township.'

Houghton disagreed with Orr's (1918) identification of the latter site as Algonkian, and believed it to be Neutral.

Houghton made several remarkable statements concerning the above information, some of which will be considered below.

First, he appears to have been the first researcher to observe that all Neutral sites west of the Grand River were prehistoric while most sites to the east of it were historic. He was thus one of the first Iroquoian archaeologists to recognize culture change among the Neutral. He further noted that most of the pre-European sites were fortified (i.e.,

had earthworks).

Second, he inferred that the western groups moved eastward, across the Grand River, in the late pre-European or early European contact period. He also suggested that these groups travelled as clusters of communities. These clusters embraced:

> several bands, possibly four or five, each of which was large enough to form several villages. For instance, the Waterdown group does not show the succession in time which might be expected were these only one community which moved several times. On the contrary, the evidence of their remains seems to show that they were inhabited simultaneously by two or more communities. Similarily the Cainsville group of two on the Walker farm and the Garbutt farm seem to have been two communities which lived on these neighbouring sites at the same time (n.d.:21-22).

While confirmation of these ideas and propositions must await detailed site survey and excavation, it is nevertheless remarkable that Houghton conceived them over sixty years ago.

Finally, he compiled a Neutral trait list (see also Houghton 1916) consisting of what can be called fossil indexes or stage diagnostic artifacts. He believed these artifacts to be distinctive of the Neutral alone and therefore that they could be used to classify sites as Neutral and to ascertain interaction between the Neutral and other tribes. This list included the following types of artifacts: large bone tubes, often decorated; perforated antlers (so-called 'arrow-straighteners'); bevelled and grooved antlers; one style of stone effigy pipe with a round cap or head-dress; certain pottery forms (notched collar and rim); conch shells and their derivatives (beads); discoidal shell beads; and serrated end scrapers. On the basis of these artifacts, Houghton identified two sites at East Hamburg, Erie County, New York as Neutral rather than Erie. He also claimed that two sites located in Seneca

territory (Cleary and Shattuck) must have contained Neutral captives because these artifacts were found there.

WILLIAM J. WINTEMBERG

William John Wintemberg began his archaeological training under David Boyle at the Provincial Museum in the early 1900s (Killan 1983:198). After 1912, he moved to a position at the Victoria Museum in Ottawa and carried out numerous site excavations and surveys throughout Canada. His most important work in Ontario involved detailed excavations at six major Iroquoian villages: Roebuck in 1912 and 1915 (Wintemberg 1936); Uren in 1920 (Wintemberg 1928; M. Wright 1979); Lawson from 1921 to 1923 (Wintemberg 1939; Pearce 1980); Sidey-Mackay in 1926 (Wintemberg 1946; Garrad 1978); Middleport in 1930 (Wintemberg 1948); and Southwold in 1935 (Wintemberg 1935; Jury 1946; Smith 1977).

Wintemberg's life has been the subject of three biographical studies. The first two, by Jenness (1941) and Swayze (1960) deal mainly with his life and times; the third, by Trigger (1978a) demonstrates that Wintemberg was one of a small number of archaeologists in North America who, influenced by Harlan Smith, continued to be primarily interested in understanding the function and manufacture of artifacts into the 1930s and 1940s. He was more concerned with attempts to reconstruct past lifeways than with the chronology and culture-historical integration that were in the forefront of archaeology at that time (Willey and Sabloff's [1974] Classificatory-Historical Period, 1914-1960). Nevertheless, I wish to concentrate on his chronological work, since he was the first archaeologist anywhere in northeastern North America to demonstrate

convincingly a significant cultural time depth for any Iroquoian group. (The work of Parker on the Erie, cited earlier, was less conclusive and seems to have been ignored.) He defined four chronological periods for the Neutral which remain valid today (Wright 1966).

By good fortune, Wintemberg excavated three "Neutral" sites of differing ages in southwestern Ontario, which contributed to his elaboration of a chronological sequence. After excavating Uren in 1920 and Lawson from 1921 to 1923, he excavated the Middleport site in 1930. Examining the Middleport material led him to conclude that it belonged to a transitional period between Uren and Lawson and that all three sites represented a continuum of a basic "Neutral" culture. He therefore defined four periods of Neutral chronology: archaic (as represented at Uren), transitional (as represented at Middleport), pre-European (as represented at Lawson), and post-European (as documented in the Jesuit Relations for historic Neutral sites).

Wintemberg developed this chronology after his excavations at the Middleport site in 1930. Although the Middleport site report was not published until 1948 (posthumously), he presented his chronological sequence in 1931 in an important paper titled "Distinguishing Characteristics of Algonkian and Iroquoian Cultures" (Wintemberg 1931). In this paper, he noted the "Eastern Group/Western Group" distinction made by Skinner (1921), and then went on to say that "the culture of the Neutral" (part of the Western group) "is the only one that shows what seem to the writer to be successive stages or periods of development, viz: archaic, transitional, and late pre-European" (1931:66). He then went on to ask a very significant question: "whether or not the Huron, Tionontati, Mohawk, and Onondaga" (all members of the Eastern Group),

"with their highly developed culture, were originally part of the Neutral nation, whose culture alone shows what seem to be earlier stages of development" (ibid., 67). He was noting the sort of evidence which, in later years, would become the basis for the in situ theory of Iroquoian origins. The inception of this theory relied heavily on Wintemberg's work (MacNeish 1952).

Wintemberg relied predominantly on data from ceramic vessels and pipes to illustrate his four-stage chronology (1931, 1942, 1948). He stated that "pottery is one of the most important criteria in identifying cultures" (1931:81). He also used pottery to delineate regional differences, or rather, differences between the major Iroquoian tribes (1942). He was thus the first archaeologist in Ontario to utilize archaeological data to define not only a chronological sequence (for the Neutral), but also cultural differences among the historically known tribes (1931, 1942). Parker's influence on Wintemberg's site reports was noted above. No doubt this aspect of Wintemberg's work was also influenced by Parker, who did similar studies in New York.

This latter aspect of his work was expounded more systematically in his 1942 paper "The Geographical Distribution of Aboriginal Pottery in Canada" (Wintemberg 1942). In this paper, he noted major differences that could be associated with various native groups throughout Canada. More importantly, as a result of the influence of James B. Griffin, he adopted the popular Midwestern Taxonomic Method of classification (McKern 1939) and defined four regional foci in Ontario. Researchers in adjoining New York and Michigan were already using this system, thus stimulating numerous comparisons between these areas (i.e., Griffin 1943; Ritchie 1944).

MIDWESTERN TAXONOMIC METHOD

In the Midwestern Taxonomic Method, the Iroquoian cultures were designated as an Aspect within the Mississippian Pattern, and were distinguished from Aspects of the Woodland Pattern by gross differences in "fundamental cultural trends" and "cultural determinants" (McKern 1939:306-307). The Woodland and Mississippian Patterns differed in such diagnostic features as burial practices, pottery styles, projectile point types, and subsistence-settlement patterns (ibid., 309). Aspects and Foci within each Pattern were distinguished on the basis of finer distinctions in basic cultural traits, especially pottery styles (ibid., 308; see, for example, Griffin 1943; Ritchie 1944).

Wintemberg's four Ontario foci were based on differences in pottery styles, regional location, and affiliation with known historic tribal units. He established them as follows: the Hochelaga Focus (consisting of the Mohawk, Oneida, Onondaga, and what would now be called the St. Lawrence Iroquoians); the Lake Simcoe Focus (consisting of the Huron); the Nottawasaga Focus (consisting of the Tionontati or Tobacco [Petun]); and the Neutral Focus (consisting of the Neutral). The latter embraced all the Iroquoian sites in the counties of Middlesex, Oxford, Brant, Waterloo, Wentworth, and Lincoln (Wintemberg 1942). He included the first, Hochelaga Focus, in Ontario because he believed that the Roebuck site was an Onondaga component (Wintemberg 1936:122-124). Both Wintemberg's 1931 and 1942 papers on pottery discuss differences among these foci, but only in a general fashion. He never systematically defined or described each of them, as Ritchie (1944) would soon do for foci in New York State. Trigger (1978a:13) has observed that Wintemberg's foci, "like many others inspired by the Midwestern Taxonomic Method, were

established on the basis of ethnological data, rather than, as they should have been, using archaeological evidence only".

J. NORMAN EMERSON

J. Norman Emerson did use archaeological data to support his "Ontario Iroquois Aspect" and "Middleport Focus". This aspect had the following "generalized characteristics": "a well-developed bone complex; an elaborate and well-developed smoking complex; a highly-developed ceramic complex; a relatively undeveloped chipped and polished stone industry; and a typical site location" (1954:236).

He recognized both temporal and spatial differences and applied the concepts of tradition and horizon. For example, he believed as Wintemberg did that Lawson was "an end product of a series of changes stemming from Middleport and proceeding through sites like Clearville and Pound", so he said Lawson was "a late stage in the Middleport tradition" (ibid., 239). He also believed that certain distinct traits that had initially been recognized at the Roebuck site, especially ceramic and bone traits, were spread over a wide geographical area that included the McKenzie prehistoric Huron site in Woodbridge. Thus McKenzie could be considered part of a "Roebuck focus". Yet he also said that "there can be no doubt that the Roebuck cultural "horizon" extended as far as Woodbridge and that it had some considerable influence upon the latter's development" (ibid., 239-240).

Emerson defined the "Middleport focus" as it was "evident that a series of sites in the southwestern peninsular area tend to cohere and represent a distinct cultural entity" (ibid., 240). This focus consisted

of most of the sites previously investigated by Wintemberg, including Uren, Middleport, Pound, Clearville, and Lawson. All of these sites, which were the same as the ones he used to define a (local) tradition, possessed an array of distinctive traits as was necessary for foci in the Midwestern Taxonomic Method. These included bone whistles, carved bone pins, pebble pendants, beads made from the distal end of a deer phalange, and certain projectile point and ceramic vessel types (ibid., 240-241).

Emerson believed that, as the Middleport focus developed as a (local) tradition, it "expanded" at least twice through "the medium of migration or cultural diffusion" to influence sites in the Humber River area near Toronto. The initial "expansion" took place during Middleport times, while the second occurred during Lawson times (ibid., 243-244). The influences of Middleport and Lawson were apparently limited to sites on the Humber, so they were not considered to be horizons like the Roebuck one. He went on to describe further expansions of the Middleport tradition, but these concern prehistoric and historic Huron sites and hence are beyond the scope of this thesis. It is important to note, however, that Emerson viewed the Middleport and Lawson sites "as major centers of Iroquois cultural diffusion" (ibid., 249). In later articles (1961, 1968), he continued to believe that sites in southwestern Ontario, such as Middleport and Lawson, had exerted a strong influence on the development of the prehistoric Huron sequence on the Humber River, especially at sites such as Parsons, Black Creek, and McKenzie.

THE IN SITU THEORY

The next major development in Iroquoian archaeology took place between 1939 and 1952, and involved the initial suggestion and subsequent verification of what has become known as the in situ theory of Iroquoian origins.

As noted above, Wintemberg suggested that the Huron and various New York State Iroquois tribes might have developed out of the earlier stage of Neutral culture. Yet he died still believing that the original Neutral (archaic stage) had entered Ontario from the south (Trigger 1978a). It was left to a group of archaeologists affiliated with the University of Michigan to propose and demonstrate an alternative origin for the Iroquoians; one that had them evolving within their own historically known homelands.

The first researcher to discuss in writing the in situ theory was apparently Dr. Phileo Nash, an archaeologist from the University of Toronto who had received his training in Michigan. In 1939, Nash excavated at the Pound site near Aylmer, Ontario, in the same general area as Wintemberg's 'archaic stage' Uren site. He published only one short description of the Pound site (1939) and prepared another brief manuscript, both of which languished in obscurity until Mima Kapches of the University of Toronto discovered them in the mid-1970s, while working with the Pound site material. In the published paper, Nash reviewed the current theory of a southern origin for the Iroquoians, then stated:

> Pound village site does not disprove this theory, but it casts doubt on it. Pound is a very simple type of Iroquoian culture which has strong admixtures of Woodland traits. It is just as different really from the late Iroquoian cultures of 1650-1750 as it is from the earlier Woodland cultures. It raises the strong possibility that the Iroquoian cultures

> developed right in the St. Lawrence and Lower Lakes region, acquired some southern importations to be sure, but that generally speaking the cultural transition of which we have been speaking was a natural outgrowth of the Woodland cultures which preceded the Iroquoian (Nash 1939, quoted in Kapches 1977:9).

Nash appears here to have been suggesting that a culture of the Mississippian Pattern could evolve from one assigned to the Woodland Pattern. Although he may have been inspired by Griffin (see below), he alone can be credited as being the first to cast serious doubt upon this aspect of the Midwestern Taxonomic Method. His interpretation also implied that what was believed to have been an Algonkian-speaking people had developed into an Iroquoian-speaking one, a topic to be discussed in more detail later in this chapter.

In 1944, James Griffin published an article titled "The Iroquois in American Prehistory" in which he too reviewed the Southern Hypothesis and formally proposed the alternative in situ hypothesis of Iroquoian origins. He noted that no proto-Iroquoian culture had been found in the Ohio-Mississippi area, from whence the Iroquoians were supposedly derived (1944:367). He then suggested that archaeologists should look "in the southern Ontario area for the developmental phases of the Iroquois" (ibid., 368). In suggesting this, he was obviously aware of the work accomplished by Wintemberg and Nash.

A paper by Bertram Kraus, published in 1944, noted that Griffin's ideas were first made known in a paper presented to the New York State Archaeological Society in 1941 (Kraus 1944:311). Kraus followed the leads of Nash and Griffin by stating:

> The Iroquois were an early Woodland people in the Northeast who were subjected to certain widespread cultural waves such as Hopewell and Mississippian and were also exposed to contacts with culturally different groups. In response to

> these several stimuli they gradually came to change and modify their culture until it attained the stage of development designated by the term "Iroquoian aspect". This explanation, which is suggested by the archaeological material from Ontario... (ibid., 311).

We thus have three separate but related proposals for the in situ theory, each pinpointing southern Ontario as the place to verify it. Two of these papers further suggested that the Iroquois received certain forms of cultural stimuli, presumably through diffusion, from the Ohio-Mississippi area. Trigger (1970; 1980b:294-296) has reviewed how important the concept of diffusion was in the replacement of the migration-based Southern Hypothesis by the in situ theory. It also contributed to the demise of the Midwestern Taxonomic Method, as both Nash and Kraus had suggested that the Iroquoians in southwestern Ontario had evolved locally from a "Woodland" base with the assistance of "southern importations" and "stimuli".

In the late 1940s, Thomas Lee of the National Museum of Canada (who was also trained at the University of Michigan) began a systematic archaeological survey of southwestern Ontario (Lee 1950, 1951, 1952). He was the first archaeologist to document the presence of an Owasco-type culture (see below) in this area, which he realized had preceded Wintemberg's archaic stage Uren material. This Ontario Owasco culture is still known by the name Lee (1951:48; 1958a) gave it, Glen Meyer (Wright 1966; Noble 1975a). Its recognition by Lee in Ontario came just in time to be used by MacNeish to verify the in situ theory.

In addition, Lee can be credited with formulating the first overall chronological sequence for Ontario. This sequence was as follows: Pre-Ceramic (Archaic); Point Peninsula; Point Pelee; Glen Meyer; Uren; Middleport; and Neutral (Lee 1951, 1952). Archaic was used in this

sequence in the modern sense and is not to be confused with Wintemberg's archaic Neutral stage cited above. Point Pelee was claimed to be transitional between Point Peninsula and Owasco, but Lee did not support this claim with any evidence. He did, however, recognize a "definite trend in cultural development" (1951:48) from Glen Meyer to Uren to Neutral. He added "the implications are that considerable time depth is involved in the development within Ontario of the Iroquoian culture attributed to the Neutral people of the area; this is of great significance in considerations concerning the pre-history of the entire northeastern part of the continent" (ibid.; see also 1952:73).

RICHARD S. MacNEISH

Richard S. MacNeish continues to have an illustrious archaeological career and has been a major innovator in every area where he has worked (i.e., Ritchie and MacNeish 1949; MacNeish 1978). His early work in Ontario and New York State (MacNeish 1952) was no exception and has shaped the destiny of Iroquoian archaeology for three decades.

Between 1946 and 1948, MacNeish studied at the University of Michigan with Griffin. He was challenged by Griffin to re-study Iroquoian archaeology using the Direct Historical Approach (MacNeish 1952:vii). He accepted the challenge and proceeded to analyze numerous collections of Iroquoian rim sherds from Ontario, Quebec, and New York State. The result was Iroquois Pottery Types (1952), in which he set forth the proof of an in situ origin for the Iroquoians.

Benefiting from an examination of pre-Iroquoian pottery in New York State (Ritchie and MacNeish 1949) and from Lee's work on the Ontario

Owasco, MacNeish was able to demonstrate a continuity from Point Peninsula through Owasco to the historic Iroquoians. This continuity, expressed in terms of rim sherds, effectively disproved the earlier Southern Hypothesis, which saw the Iroquoians migrating into the lower Great Lakes region in relatively recent times (Parker 1922).

MacNeish saw a "general cultural homogeneity in upper New York and lower Ontario" during the Middle Woodland Point Peninsula period, which subsequently evolved into at least four areal subdivisions during Owasco times (1952:81). One of these subdivisions was the Ontario Owasco (or Glen Meyer) defined by Lee, as manifested at the Krieger and Goessens sites (MacNeish 1952:15,53; Lee 1950, 1951, 1952, 1958a). MacNeish demonstrated that several Neutral pottery types could be derived from the earlier Owasco period (i.e., Lawson Incised, Pound Necked, Ontario Oblique, Uren Noded, Iroquois Linear, Uren Corded, and Uren Dentate), and sometimes from the still earlier Point Peninsula period (i.e., Middleport Criss-Cross). He also noted (1952:82) that in 1940 William Ritchie had pointed out that Owasco and Iroquois populations in New York State shared the same physical type, as deduced from osteological studies. MacNeish also claimed that Iroquois projectile points, pipes, and thirty-one other non-ceramic traits in their cultural assemblage were derived from Owasco. Additional evidence cited by MacNeish for an Owasco to Iroquois continuum was the stratigraphy at Clearville, Middleport, Long Point, Chance, and other sites, where Iroquois artifacts were invariably found deposited on top of Owasco material. The migrationary theories of Iroquoian origins had postulated the contemporaneity of late Owasco and early Iroquoian sites. This was also a particularly significant observation, since the "early" material at these sites had originally been attributed to

so-called "Algonkians" (Wintemberg 1948:15).

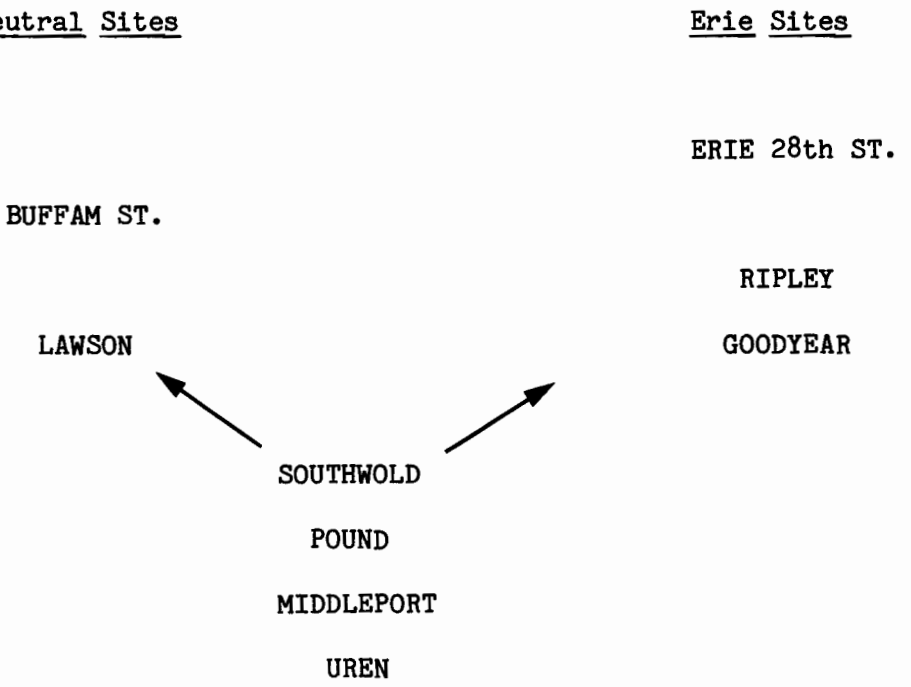
From his own work, and drawing on Wintemberg's data, MacNeish defined three horizons for the Ontario Iroquoians. In reality these horizons were identical to Wintemberg's archaic, transitional, and late pre-European stages discussed above, but MacNeish was the first to segregate them as horizons by means of systematic evidence (i.e., rim sherd seriation). Yet he did not define his use of the term horizon.

This three horizon designation led MacNeish to the developmental sequence presented in Figure 1, which included not only the Neutral, but also the Huron and Erie (his data on the Five Nations Iroquois and the Huron has been selectively omitted here).

A concept that MacNeish retained from earlier migrationary theories was that the Neutral, Huron/Petun, and Erie all stemmed from the Middleport horizon, and had differentiated by a splintering process that involved the migration of both the Huron/Petun and Erie out of the area that was to be occupied by the historic Neutral.

This classificatory and developmental sequence, which stressed the general <u>in situ</u> origin of the Iroquoians in the lower Great Lakes region, effectively replaced all of the earlier migration theories. As noted by Trigger (1980b:291), "no theory of Iroquoian culture up to this time had the power to generate so much new data capable of testing it on its own ground. The result was a renaissance of Iroquoian archaeology ".

FIGURE 2: MacNEISH'S CHRONOLOGICAL AND DEVELOPMENTAL SCHEME FOR SOUTHWESTERN ONTARIO



Based on MacNeish (1952:87)

At this point it is important to stress again the significant dichotomy that had ruled Iroquoian research to this date. This dichotomy concerned the distinction between Algonkian and Iroquoian (Woodland and Mississippian). As early as 1900, Beauchamp (1900) had differentiated between Algonkians, native to New York State, and the intrusive Iroquoians who had migrated and conquered their way into that area. This belief led to the many versions of the "Southern Hypothesis" and became incorporated into the Midwestern Taxonomic Method. Woodland was equated with Algonkian and Mississippian with Iroquoian. These distinctions seemed hard and fast to many researchers, who could no more believe that Woodland was capable of evolving into Mississippian than they could believe that Algonkian-speakers could change into Iroquoian ones. For that reason, MacNeish's demonstration of the in situ development of the Iroquoians out of a population (Owasco and Point Peninsula) formerly believed to be Algonkian was a major reorientation. William Ritchie, in New York State, was an archaeologist who found it hard to accept MacNeish's theory (see Ritchie 1952:25) and it was not until several years later, after more supporting data had been collected, that he was finally convinced of it.

During the late 1950s and early 1960s, various aspects of MacNeish's sequence were refined, as additional archaeological data were recovered both in Ontario and New York State. In Ontario, J. Norman Emerson (1954, 1959, 1961) modified the Huron sequence in the Toronto area and entered into a heated debate with Frank Ridley (1952, 1958a, 1963), who proposed a very different version of Iroquoian prehistory. This debate has been reviewed elsewhere (Wright 1966:78-79) and is not germane to the present paper. It must be noted, however, that Ridley (1952, 1963) proposed that all Iroquoian culture had developed in situ in Huronia from a Middleport

base and that the Neutral had migrated south, while MacNeish and Emerson proposed that Iroquoian culture had developed in southwestern Ontario with the Huron migrating north.

AMERICAN INFLUENCES

With the acquisition of new data (sparked by the 'renaissance' caused by MacNeish's work), the time was right for a major synthesis of Ontario Iroquoian archaeology. This came in 1966 with the publication of James V. Wright's Ontario Iroquois Tradition. Just prior to Wright's treatise on the Ontario Iroquoians, however, several important developments took place in the United States which reflected broad methodological and theoretical trends in North American archaeology at that time. These developments were important enough for Willey and Sabloff (1974) to use them to define a transition in the history of American archaeology from the Classificatory-Historical (1940-1960) to the Explanatory Period (1960-present).

This transition saw the re-emergence of cultural evolution as a major theme, as exemplified in the work of Willey and Phillips (1958) and Willey (1966). It was also a period that saw the increasing use of concepts that allowed for integrative statements of culture process: concepts such as horizon, stage, and tradition (Willey and Sabloff 1974:174). Because Wright used these concepts in his Ontario Iroquois Tradition, a brief discussion of them will help to place his work in historical perspective. These concepts were also used by William Ritchie in his major synthesis of New York State archaeology in 1965 (Ritchie 1969) and soon after by James Fitting in a synthesis of Michigan archaeology (Fitting 1970).

Willey and Phillips' (1958) publication Method and Theory in American Archaeology defined a hierarchical set of spatial divisions (site, locality, region, and area); a hierarchical set of basic archaeological units (component, sub-phase, and phase); temporal series (local and regional sequences); integrative concepts (horizon, horizon style, and tradition); and maximum units (culture, climax, and civilization). In their words:

> the phase remains the manageable unit; horizon and tradition remain the integrative units for expressing relationships between phases; culture and civilization, the maximum units reflecting the major segmentations of culture history (ibid., 48).

They attempted to equate their archaeological units with corresponding social ones, but found that only the lowest unit, the component, could sometimes be equated with a corresponding social reality, the community (ibid., 49). They argued that in theory, phase might be equivalent to society, but that in practice this does not work because the archaeologist "cannot be sure that the individual members of these communities would recognize themselves as belonging to the same people" (ibid., 50). They made a similar argument against equating cultures and civilizations with social equivalents on this basis (ibid., 51-56), although they did believe that a civilization often equalled a single group of people in their Classic and Postclassic stages.

Willey and Phillips defined five chronological and developmental stages for the entire New World: Lithic, Archaic, Formative, Classic, and Postclassic (1958). Most germane to the theme of this thesis, their Formative Stage was defined by "the presence of agriculture, or any other subsistence economy of comparable effectiveness and by the successful integration of such an economy into well-established, sedentary village

life"; was often associated with "pottery-making, weaving, stone-carving and a specialized ceremonial architecture"; and was specifically stated to include the historically-known tribes of the Northeast (ibid., 146-147).

Willey soon abandoned this five-stage unilinear sequence which emphasized horizontal comparisons over large geographic zones in favour of establishing areal cultural traditions that stressed vertical comparisons within "culture areas" (1966:4-7). He thought that stages should be defined, not as culture types as had been done in the Willey and Phillips scheme (1958), but by "tracing their discrete histories" (Willey 1966:4). He admitted that various traditions may share certain general traits, such as an agricultural economy with sedentary villages, but preferred to use "other traits and trait patternings" to "distinguish among" these traditions (ibid., 4). Thus he chose to stress regional differences rather than hemispheric similarities. His resulting chronological scheme for eastern North America, involving Burial Mound and Temple Mound cultures and phases, was in fact a reworking of one that he and James Ford had devised twenty-five years earlier (Ford and Willey 1941). (Their earlier version had been modelled after the Pecos Classification that in turn had been derived from Kidder's [1924] research in the American Southwest [Willey and Sabloff 1980:116]).

Another noteworthy development concerns the redefinition of "Owasco" in New York State and Ontario. In New York State, this culture was first recognized as an Algonkian manifestation at the Owasco site (Parker 1922:49). Through succeeding years, largely as a result of the work of Ritchie, Owasco came to be viewed not as an Algonkian manifestation but as a transitional or proto-Iroquoian culture (Ritchie 1928, 1936, 1951;

Ritchie, Lenig, and Miller 1953). New York Owasco was interpreted as consisting of three successive foci (Hunter's Home, Carpenter Brook, Canandaigua), which developed out of the preceding terminal Point Peninsula period (Kipp Island phase) (Ritchie 1969:272-273). As indicated above, Thomas Lee defined an Ontario variant of Owasco, now called Glen Meyer, which was likewise viewed as being a transitional, proto-Iroquoian manifestation. Prior to these developments, Owasco finds were often identified as Algonkian, and in several instances Ontario archaeologists referred to sites as being Algonkian, or as having Algonkian pottery, when in reality they meant Owasco (Glen Meyer or Princess Point). For example, Wintemberg identified peculiar ceramics from various Iroquoian sites as Algonkian, when in fact he was describing what we now recognize to be either Glen Meyer or Princess Point ceramics (1928:50; 1939:60; 1948:15).

With the rejection of the Southern Hypothesis and its replacement by the in situ theory, researchers generally derived most Iroquoian traits from the preceding Owasco (Glen Meyer and Princess Point) cultures. For example, Ritchie (1944:41-46) listed thirty-four lithic, bone, antler, burial, and settlement pattern traits found in both Owasco and Iroquois cultures in New York State; and MacNeish claimed (1952:82) that thirty-one of thirty-six non-ceramic traits found on Iroquoian sites also occurred on Owasco ones (see also Guthe 1960:204).

In an important but often overlooked paper (it is not cited in Ritchie 1969 or Wright 1966), Alfred Guthe "demonstrated that all Iroquois traits cannot be derived from the Owasco culture" (Guthe 1960:203). He proposed that several key elements of Owasco and later Iroquoian culture had been introduced by diffusion from neighbouring areas. These included

larger village size, village locations, earthworks, ossuaries, and longhouse floor plans (ibid., 205).

Despite his failure to differentiate general features that could easily have evolved internally from specific ones likely to have been borrowed from other cultures, Guthe re-introduced the concept of diffusion amidst the hectic research to validate and elaborate the in situ theory and to define regional traditions. He pointed out that Iroquoian culture was not derived in toto from the preceding Owasco but had received some traits and some stimuli for development from adjacent regions. This, of course, had been argued earlier by Parker (1922) and Wintemberg (see Trigger 1978a:16), as well as by Nash (1939) and Krauss (1944), as explained above. Trigger's (1970, 1980b) critique of MacNeish's in situ theory was based on the observation that it relied too heavily upon local innovation to explain cultural differentiation and at the same time downplayed the role of diffusion. Trigger noted that "diffusion is essential to explain northern Iroquoian cultural development" (1980b:295-296). He also criticized MacNeish for continuing to hypothesize micro-migrations when these were not necessary. Emerson's (1954, 1968) view of the role of the Middleport and Lawson sites in stimulating developments in the Humber River Valley, mainly by diffusion, was reviewed above.

THE ONTARIO IROQUOIS TRADITION

J.V. Wright's Ontario Iroquois Tradition drew together new data to build upon the framework laid down by MacNeish. In particular, his synthesis was a "further substantiation of the in situ theory" (1966:v), with revisions and added time depth. Wright reorganized the nomenclature

to place all of the Ontario sites located west of Kingston that had been discussed by MacNeish, and more recently studied ones, into a tradition composed of three stages complete with substages, branches, and a horizon. One of Wright's important aims was to reconcile Emerson's and Ridley's divergent views of Ontario prehistory.

Wright believed that the Iroquoians fell into three major traditions. The Ontario tradition gave rise to the Neutral, Erie, Huron, and Petun tribes. Another tradition gave rise to the Mohawk, Oneida, and Onondaga, and a third one resulted in the Seneca, Cayuga, and Susquehannock. Skinner (1921) and others had placed the Seneca and Cayuga in a Western Group, and the Mohawk, Oneida, and Onondaga in an Eastern one. However, in this earlier system, the Huron were included in the Eastern Group and the Neutral in the Western one.

Wright rejected the Midwestern Taxonomic Method (McKern 1939) in favour of the concepts of tradition, horizon, and branch. The first two of these concepts had been popularized by Willey and Phillips (1958) and had been previously used in Ontario by Emerson (1954) as shown above. Horizon had also been used, but not defined, by archaeologists in New York State (Ritchie 1952; Lenig 1965). Yet the use of these concepts by Wright is important enough to warrant separate discussion below.

In the course of his career, Wright has published three major synthetic works, each of which has defined a separate "tradition". In order of writing these were The Ontario Iroquois Tradition (written in 1964, published in 1966); The Laurel Tradition and the Middle Woodland Period (also written in 1964, published in 1967); and The Shield Archaic (written in 1970, published in 1972). In all three publications,

reference is made to the fact that tradition was used as an organizing concept in substitution for or replacement of earlier Midwestern Taxonomic foci and aspects (Wright 1966:14; 1967a:2-3; 1972a:74).

In his earliest usage of tradition, for the Ontario Iroquoians, Wright defined the concept as applying "to all the archaeological complexes which can be demonstrated to be directly involved in the formation of closely related historic tribes" (1966:14). He also referred to "the evolutionary or unbroken cultural development seen within the Ontario Iroquois complexes" (ibid., 15). In his organization of Laurel components, he used tradition to refer to "the perpetuation of a common archaeological material culture through time which lacks major discontinuities in either sequential change or regional variation" (1967a:2). He went on to add that "such a scheme allows the expression of the temporal and spatial variations of the Laurel Tradition as integrated parts of a whole, rather than as isolated, semi-autonomous, and vaguely related units such as foci" (ibid., 2). An identical definition was used for the Shield Archaic: "by tradition I mean continuity in time and space..."(1972a:1). He further emphasized this definition in a later article (Wright 1974b:206-207).

Wright acknowledged the writings of Goggin (1949) and Willey and Phillips (1958) as influencing his use of the concept of tradition. In particular, he quotes Goggin's definition of the term:

> "A cultural tradition is a distinctive way of life reflected in various aspects of the culture; perhaps extending through some period of time and exhibiting normal internal cultural changes, but nevertheless throughout this period showing a basic consistent unity" (Goggin 1949:17, quoted in Wright 1966:15).

As explained by Willey and Phillips (1958:34), the term "tradition" was first used in an archaeological context by Gordon R. Willey for describing pottery in Peruvian cultures:

> It appears certain that the Peruvian Andes and coast were a unified culture area in that the important culture developments were essentially local and basically inter-related for at least a thousand years. This fundamental cultural unity justifies seeing ceramic developments in terms of long-time traditions as well as coeval pheonomena. The concept of a pottery tradition, as used here, includes broad descriptive categories of ceramic decoration which undoubtedly have value in expressing historical relationships when the relationships are confined to the geographical boundaries of Peruvian-Andean cultures (Willey 1945:53).

In subsequent years, tradition came to refer to continuity not just in ceramics, but in a wider range of cultural aspects (e.g., Goggin's definition cited above). Willey and Phillips correctly observed that tradition thus became confused with "culture" and they opted for a more limiting definition:

> an archaeological tradition is a (primarily) temporal continuity represented by persistent configurations in single technologies or other systems of related forms (1958:37).

With this definition, they were attempting to return the concept of tradition to its original status (i.e., continuity in specific artifacts or subsystems, not of holistic "cultures"). They also attempted to distinguish tradition (meaning temporal continuity) from horizon (signifying spatial continuity) (ibid., 33, 37). Horizon was defined as:

> a primarily spatial continuity represented by cultural traits and assemblages whose nature and mode of occurrence permit the assumption of a broad and rapid spread (ibid., 33).

Tradition and horizon were viewed by Willey and Phillips as a "means for effecting culture-historical integration on a geographical scale larger than that of the region" (ibid., 30). Specifically, they adopted

Irving Rouse's view that traditions operated at the genetic level of interpretation by acknowledging Rouse and saying:

> the tradition gives depth, while the horizon gives breadth, to the genetic structure of culture-historical relationships on a broad geographic scale (ibid., 38).

The reference to genetic was meant to convey the idea that traditions and horizons were socially transmitted (and represent the process of diffusion) between culture-historical components and phases (ibid., 51); it did not mean that all peoples participating in a tradition or horizon were genetically related. Willey and Sabloff (1974:175-176) point out that Willey's original use of tradition in 1945 was as "an historico-genetic concept" related to cultural classification schemes such as the Gladwin's in the American Southwest (Gladwin and Gladwin 1934). Wright's use of tradition was therefore more similar to Willey's in 1945 and Goggin's holistic one than it was to Willey and Phillips' more limiting definition.

Wright also introduced the term "branch" to Ontario prehistory. He borrowed this term from studies in biological evolution and from the Gladwins' (1934). He intended it to replace the "synonymous terms focus and phase" (1966:15)(i.e., focus from the Midwestern Taxonomic Method and phase from Kidder's [1924] classification). According to Wright:

> this was done in order to emphasize the evolutionary or unbroken cultural development seen within Ontario Iroquois complexes. It was also felt that greater accuracy and simplicity of interpretation are attained by referring to the early, middle, and late chronological units of a branch than by discussing three foci or phases ordered in a unilinear fashion (1966:15).

In conclusion, the concept of tradition, and its corollary, horizon, were integrative units devised within a culture-historical framework to explain temporal continuity within a specified geographic region

(tradition) and spatial continuity over a broad geographic zone (horizon). They were useful concepts for organizing culture-historical relationships, but they are of no more value than the concept of diffusion itself for understanding the nature of the cultural and social processes that are involved in change, whether that change be temporal (evolution) or spatial (the result of migration, trade, or some other form of interaction).

In The Ontario Iroquois Tradition, Wright subdivided the continuum of Iroquoian development into three stages: early, middle, and late. The divisions of the continuum were meant to reflect three separate cultural processes: convergence (early stage with two branches), fusion (middle horizon and stage), and divergence (late stage with two [Neutral-Erie and Huron-Petun] branches). These processes constituted the basic framework of Ontario Iroquoian culture history into which detailed discussions of various aspects of Iroquoian cultural development were interjected.

The Ontario Iroquoians began, according to Wright, in the Early Stage as two converging but independent branches, also identified as "tribes": Pickering and Glen Meyer. Wright differs markedly from MacNeish in that he made no attempt to trace the origins of Pickering and Glen Meyer, whereas MacNeish derived Glen Meyer (Owasco) from the earlier Point Peninsula. This viewpoint has since been altered drastically as a result of the recognition of Princess Point as a transitional form between Point Peninsula (Saugeen) and Glen Meyer (Wright 1972c; Stothers 1977).

FIGURE 3: WRIGHT'S CHRONOLOGICAL ORDERING OF IROQUOIAN SITES IN SOUTHWESTERN ONTARIO

Approximate Date A.D.	Site	
1650	WALKER	
	SEALEY	
1600	DONOVAN	
1550	LAWSON	
1500	SOUTHWOLD	
1400	POUND	
1350	MIDDLEPORT	
	UREN	
1300	DOWNPOUR	(Pickering Influences)
1250	SMALE	
1200	STAFFORD	
	GOESSENS	
1150	WOODSMEN	

Based on Wright (1966:101)

The Middle Ontario Iroquois Stage, the period of expansion, was, according to Wright, initiated by a Pickering conquest of Glen Meyer. A brief period of transition, the Uren substage, led to an equally brief "horizon" known as the Middleport substage. The Middleport horizon was characterized by a single broad homogeneous culture spread across southern Ontario. This horizon included the continuation of both Glen Meyer and Pickering traits as a result of "the fusion of the two earlier tribes" (Wright 1966:16) as well as the rapid diffusion of an elaborate pipe complex that Wright (ibid., 63) claimed had been "adopted suddenly and completely" from New York State.

The Late Ontario Iroquois Stage, the period of divergence, saw the emergence of distinct "tribes" from the common Middleport base, resulting in the historically-known Neutral-Erie and Huron-Petun branches. Interpreted in social terms, two "tribes" (Pickering and Glen Meyer) converged to form some unified larger unit, which expanded and then diverged to create four "tribes" (Neutral, Erie, Huron, Petun). In the latter divergence, Wright agreed with MacNeish (1952) that the Neutral-Erie and Huron-Petun branches had split from a common base.

Wright (1960, 1966) formulated the Middleport horizon on the basis of two major hypotheses, which he presented data to validate. The first hypothesis was that Pickering conquered Glen Meyer to initiate the Middle Ontario Iroquois Stage. Evidence to support this was the appearance of certain Pickering traits in the former Glen Meyer territory. These traits included typical Pickering pottery, the ceramic gaming disc, the cup-and-pin game perforated deer phalange, and the polished bone bodkin (Wright 1966:59). Thus Uren, the first substage of the Middle Ontario Iroquois stage, was seen by Wright as being more closely related to

Pickering than to Glen Meyer, even though the Uren type site was located in former Glen Meyer territory and numerous Glen Meyer traits survived into the Uren period (ibid., 59). This relationship manifested itself through ceramic seriation, with coefficients of similarity being greater between the late Pickering Bennett site and the Uren site than between that site and several Glen Meyer ones (ibid., 154-155).

Wright's second hypothesis was that Uren and Middleport represented widespread homogeneous cultural horizons. Middleport evolved directly out of Uren, with the addition of an elaborate pipe complex "adopted from the archaeological complexes to the east which gave rise to the Onondaga, Oneida, and Mohawk" (ibid., 63). Middleport was a short-lived (fifty years) cultural manifestation, the influence of which extended into western New York State (Wright 1960:1-8; 1966:64; Lenig 1965) and down the St. Lawrence Valley (Pendergast 1975).

Wright stated that "internal change was largely responsible for the eventual differentiation of the Neutral, Erie, and Huron-Petun tribal units" (1960:5; 1966:65). If this were the case, Middleport should show signs of this regional differentiation and be heterogeneous rather than homogeneous. While evidence available to Wright prior to 1966 suggested that Middleport was homogeneous, recent research demonstrates that Middleport was indeed heterogeneous, displaying significant regional differences (Sutherland 1980; Pearce and Smith 1980b; Kapches 1981; Smith 1983).

Wright stated that "the Ontario Iroquois Tradition is regarded as the culture history of the Huron, Petun, Neutral, and Erie, and not simply as the fluctuations of rim sherd seriations lacking any social meaning"

(1966:16). He therefore called Pickering and Glen Meyer "tribes", and Middleport a broad homogeneous "culture". This is, in fact, one of only a few references to social groups, and his synthesis is, in reality, one of artifactual data (predominantly rim sherds). As such it differs little from MacNeish. Both fall into the school of traditional culture history, with an emphasis on chronology, not on culture process. This is not, however, a criticism of Wright's work; his treatise stands on its own as a major contribution to Ontario Iroquoian prehistory for the period when it was written. It is also useful, as argued elsewhere in this thesis, to conceive of the culture history of all of southern Ontario in terms of the three stages he delineated.

REGIONAL STUDIES AND THE CONCEPT OF COMMUNITY

Wright's thesis was a much-needed synthesis of Ontario prehistory and it stimulated a new era of research. With a comprehensive organization of the data at hand, it became the task of Iroquoian archaeologists to fill in the gaps and round out the corners. One of the first steps in this direction was taken by Noble (1968, 1969), who attempted to graft social organization onto this cultural outline.

The shift to the study of site clusters within geographically-confined areas was noted in the introductory chapter (Tuck 1971; Ramsden 1978). This shift represented a significant step forward for the examination of sociocultural patterns within delimited areas and was a necessary prerequisite for the analysis of local sequences.

Tracing the movements of a single group of people through time requires detailed surveys of entire localities and areas. Such surveys

are possible and have sometimes been assisted or brought about by large-scale developments or construction projects (i.e., the survey for the New Toronto International Airport [Finlayson and Poulton 1979]). More often, however, detailed knowledge of the archaeological resources in an area has been accumulated through decades of research by numerous individuals pursuing varying strategies and goals. For example, the late Iroquoian prehistory of the area in and around the City of London has been studied for almost a century by Boyle (1896); Orr (1917); Wintemberg (1939); Lee (1951, 1952); W.W. Jury (unpublished); Pearce (1980a, 1982a, 1983a); Pearce et al. (1980); Timmins (1983); and others. Across southwestern Ontario several recent intensive surveys of physiographic regions (Fox 1976; Williamson 1981, 1982a, 1983b); river drainage areas (Smith 1978; Poulton 1980); or other areas of limited spatial size (Wagner et al. 1973) have served to document local sequences and it is now possible for the first time to present syntheses of small areas. One consequence of such studies is the appreciation that at least some local sequences developed within cirumscribed geographical units and that a sequence in one area may have evolved differently from neighbouring ones. Among the many benefits of this type of research is the recognition of considerable heterogeneity between adjacent areas, in particular during the Middleport period (Sutherland 1980; Pearce and Smith 1980b; Kapches 1981; Smith 1983).

Along with community studies at the regional level have come detailed looks at the lowest levels of settlement pattern: the individual settlement (village, hamlet, and camp), the structure (longhouse), and living arrangements within structures (Trigger 1967). In-depth analyses of villages and hamlets that have been completely or almost totally

excavated are providing new insights into how people lived, organized themselves, disposed of their garbage, and other details heretofore not accessible through archaeological study. This work was initiated by the complete or almost complete study of entire sites, such as that done by Dr. W.W. Jury for a variety of prehistoric and historic villages in Huronia, including St. Ignace II (Jury and Fox 1947), St. Louis (Jury and Jury 1955), Sainte-Marie Among the Hurons (Jury and Jury 1954), and Forget (unpublished), and by Walter Kenyon at the Miller site (1968). Archaeologists in New York State also attempted to recover total site plans, or plans of major segments of various sites, beginning with the Caughnawaga historic Mohawk village (Grassmann 1952) and continued by Ritchie and Robert Funk (1973). Wright's detailed excavation and analysis of the entire Nodwell site and collection (1974a) provided a model for future archaeologists. More recently, the almost total excavation of the Draper site has furnished data on how a typical prehistoric Huron village grew and expanded into a large and complex town (Finlayson 1984). This site, excavated by the Museum of Indian Archaeology, also yielded thousands of artifacts together with detailed intra-site locational data. Besides creating extremely large sample sizes of each functional class, these data have permitted some informative research on topics such as how pipes were used, disposed, and recycled (von Gernet 1982).

Examples of some "special purpose" sites that have been excavated include the White (Tripp 1978) and Robin Hood (Williamson 1983) prehistoric Huron sites located near Draper; a St. Lawrence Iroquoian fishing station known as Steward (Wright 1972b: 6-8; Jamieson 1982); the Middleport period Slack-Caswell quarry/lithic workshop with an associated longhouse (Jamieson 1979); a variety of multicomponent fishing

camps throughout the province (Wright 1972d; Fox 1976; Pearce 1977, 1978a); and numerous hamlets associated with Iroquoian villages (Fox 1976; Williamson 1981, 1982a, 1983b; Pearce 1983a, 1983b; Arnold and Pearce n.d.).

The net result of these studies is that communities, as opposed to "cultures", can now be recognized and we are slowly beginning to appreciate the human element involved: to understand not only who but also how and why people made artifacts the way they did and lived in the sites that we excavate. We are beginning to have the information necessary to move beyond culture history, to ask questions, test theories, and attempt explanations about the processes and nature of culture change.

ADDITIONAL CLASSIFICATORY SCHEMES

A number of developments have taken place since 1966, affecting Ontario Iroquoian cultures and cultural classification. New schemes have been proposed, old ones revised, and there has been a widely-supported suggestion to drop "Uren" as a taxonomic unit (Noble 1975a:52). There has also been a tendency to lump some taxonomic units together, a trend started by MacNeish when he mentioned "a Pound and Middleport type of culture" (1952:11) and referred to the "Pound and Middleport horizon" (ibid., 84). This trend continues today, especially with regard to Uren and Pound.

One of the reasons for this appears to be the failure to discover more sites similar to Uren, casting doubt on the existence of a Uren substage. The Uren site has been reinvestigated and now appears to be less similar to Pickering components than was claimed by J.V. Wright (M.

Wright, personal communication), an observation that further calls into question the Pickering conquest theory (see Fox 1976:191). Uren is now viewed as one site in a regional sequence demonstrating an *in situ* development from the Early to Middle Ontario Iroquoian Stages on the Norfolk sand plain (ibid., 190-191; see also M. Wright 1978:30).

This doubt about the Uren site and substage is manifested in several other publications. The Historic Sites Branch (1975) (then part of the Ministry of Natural Resources but since shifted to the Ministry of Citizenship and Culture) introduced "A Topical Organization of Ontario History" with a thematic approach to Ontario prehistory. One of the versions of this approach had as themes "Indigenous Hunters and Agriculturalists, 500 A.D.- 1500 A.D." and "Indigenous Agriculturalists, Hunters, and Traders, 1550-1650 A.D.". The various Iroquoian cultures were lumped together as "Glen Meyer/Pickering" and "Uren-Middleport-Lawson". Although the author of this thematic approach subsumed Uren, Middleport, and Lawson into one taxon, he wrote of two periods within it: a "Uren-Middleport stage" and a "Lawson period" or "Lawson horizon" (Carruthers 1976:48-53).

In a subsequent study, on the Rideau-Quinte-Trent-Severn Waterway (CORTS Study), this Ministry avoided use of the term Middleport entirely. Instead, they defined two major periods of Iroquoian development as "Woodland Horticulturalists A.D. 500-1300" and "Woodland Agriculturalists, A.D. 1200-1550" (Ministry of Culture and Recreation 1981).

A further example of a "lumping" type of classification was provided by Fitzgerald (1982) in relation to various stages of prehistoric,

protohistoric, and historic Neutral development. Although he was primarily interested in subdividing the protohistoric and historic periods on the basis of quantity and type of European trade material, he lumped as an inclusive "Late Prehistoric" period all cultural manifestations between A.D. 1350 and 1500-1534, thus avoiding use of the terms Middleport and prehistoric Neutral.

The interchangable use of cultures and time periods is well established in the literature dealing with Ontario Iroquoian prehistory. Such uses have prompted some writers to explain or qualify their use of these terms (i.e., Stothers 1975a:110). There are also examples of people employing terms without defining them or qualifying their use, such as Keron's (1983:11) use of "Middleport phase".

Phases were recently re-introduced to Ontario Iroquoian archaeology in a curious use of the abandoned Midwestern Taxonomic Method, when Kapches defined the Middleport Pattern that was "present in southern Ontario during the Middleport period" (1981:19). She used pattern rather than "horizon" to indicate similarity in material culture that was restricted to a limited time span but spread over a large geographical area since "pattern... is neutral of any connotations of cultural processes" (ibid., 20). In other words, she recognized similarity in material culture over a large area but was unwilling to attempt any explanation for such similarity in social terms. Her "pattern" consisted of a series of regional "foci", each of which "consists of a series of sites which may be chronologically related to one of three possible phases, early, middle, or late, within the regional focus expression of the Middleport period" (ibid., 19). This concern for chronology was not originally part of the Midwestern Taxonomic Method (McKern 1939) and in

part led to its demise. Phase as defined by Willey and Phillips (1958:18) was a "basic archaeological unit", not a temporal one, so Kapches' (1982:17) use of this term in the Willey and Phillips sense was inappropriate. She also equated foci with a presumed social equivalent by saying "it is assumed that these site clusters have tribal affiliation" (ibid., 22).

A common phenomenon in relation to the existing multi-stage classification scheme concerned attempts to reconcile whether Princess Point was Iroquoian or not, and whether or not it should be called late Middle Woodland or early Late Woodland (i.e., Wright 1972; Noble 1975a; Stothers 1975a). This problem has hopefully been resolved as additional research has demonstrated that Princess Point was Iroquoian and ancestral to Glen Meyer. It is now widely regarded as being the initial stage of the Late Woodland period (Stothers 1975; Fox 1980; Trigger 1981), although Fox (1984:8) suggests that "this Grand River Valley population should be considered a terminal Middle Woodland group from a cultural standpoint" since "these people were still mobile hunters, gatherers and fishermen as their ancestors had been for millennia".

A related development concerned the placement of the various stages of cultural development manifested at sites in extreme southwestern Ontario, especially the sequence represented at Point Pelee (Keenlyside 1978). These "cultures" have been variously placed in the late Middle Woodland and early Late Woodland periods (Noble 1975a, 1975c). This problem is now being resolved as additional research supports the conclusion that these sites may have been associated with an Algonkian rather than Iroquoian speaking group whose culture was related to various traditions in Michigan (Stothers, Graves, and Conway 1982). Some of these

components suggest a continuity of occupation in that area (i.e., Point Pelee) from Middle Woodland times as well as continual contact or interaction with the Iroquoians living further east. The detailed excavation and analysis of sites such as Dymock (Fox 1982d) and Bruner-Colasanti (Lennox 1982) are assisting in the resolution of this problem.

A third development concerned attempts to assign specific sites to their proper chronological period and stage of development. The best known example of this was Porteous, interpreted as both a Princess Point and a Glen Meyer village (Noble and Kenyon 1972; Noble 1975a; Stothers 1977). It is now generally accepted that this site falls into the Glen Meyer period (Noble 1975a:51; 1975c:113; Fox 1984:2).

A final problem concerning classification involved attempts to order specific sites temporally relative to each other. This was particularly evident for sites of the Glen Meyer period, but also involved attempts to date Glen Meyer period sites relative to Pickering ones (i.e., Noble 1975a:51; 1975c:113). There were also attempts to order Neutral and Huron sequence sites relative to each other (Emerson 1968:56).

While the first three phenomena noted above have been or are being resolved through current research, the final one cannot be resolved as long as Ontario Iroquoianists continue to use the multi-stage classification of cultures. This problem is a theoretical one and stems from the fact that individual local sequences probably evolved at various rates and for different reasons and their development was influenced by heterogeneous factors. Therefore, no attempt should be made to equate two sites from different regions until we know the complete sequences of

prehistoric development for those areas. Such comparisons would rest on a much firmer foundation if we had numerous absolute dates for the sites participating in each local sequence.

This thesis is concerned with outlining one such local sequence, but before proceeding to a discussion of that sequence in Chapters 4, 5, and 6, I will examine in Chapter 3 views concerning the concept of culture and the nature of cultural change. In particular, I will seek to reveal the limitations of the culture concept and of previous efforts to explain cultural change in terms of exogenous factors. This chapter will also introduce the major theoretical issues to be addressed later in the thesis.

CHAPTER 3

THE CONCEPT OF CULTURE AND ANALYSIS OF CULTURE CHANGE

INTRODUCTION

In this chapter I will review the concept of culture from a historical perspective and present a general discussion of the analysis of culture change. I will seek not only to show how culture and culture change have been viewed in the past but also to reveal the shortcomings of these views. This leads ultimately to a description of "societal archaeology" and a discussion of why that approach has been adopted in this thesis.

This chapter also discusses the major theoretical and methodological orientations of this thesis. Other than using a "societal" as opposed to "cultural" perspective, it does not subscribe dogmatically to a single theoretical viewpoint. Instead, the ideas and concepts were derived from diverse sources. These include not only the entire gamut of past strategies applied to Iroquoian archaeology, but also past and present developments in European (particularly English) archaeology. The latter influences range from V. Gordon Childe to the diverse "Cambridge School", as represented by the work of David Clarke, Colin Renfrew, and Ian Hodder.

THE CONCEPT OF CULTURE

The classic ethnographic definition of culture was formulated by E.B. Tylor: "Culture, or Civilization, taken in its wide ethnographic sense, is that complex whole which includes knowledge, belief, art, morals, law,

custom, and other capabilities and habits acquired by man as a member of society" (1871:1). Trigger (1978b:76) observed that this was a holistic or processual view of culture, but "it was an easy step to a partitive one of individual cultures as ways of life transmitted by specific peoples from generation to generation". A fundamental aspect of culture, no matter how defined, is that it is acquired and transmitted from one person and one generation to another.

No one has yet claimed that in principle a living prehistoric culture was different from an ethnographic one and archaeological cultures frequently are thought of as if they were ethnographic ones (i.e., Binford 1962). Yet there have been serious disagreements about how archaeological cultures should be conceptualized. Some archaeologists, especially those who where active in the late 1800s and early 1900s, emphasized the fact that archaeological cultures consisted only of material culture (i.e., "phases" in the Midwestern Taxonomic Method [McKern 1939]). For these archaeologists, artifacts had little or no "social" life and they treated them as fragmentary vestiges of the past rather than as reflections of once living systems. This view has extended into more recent times with Clarke's (1968:20-24) suggestion that the goal of archaeology should be to become a nomothetic (or generalizing) study of material culture. In contrast to that view, other archaeologists have seen archaeological cultures as "reflecting facets of every aspect of an ethnographic culture" (Trigger 1978b:76) and believe that artifacts can potentially furnish information not only about technology and the economy but also about social and political structures and ideology (Binford 1962; Hodder 1984).

Although views of culture may change over time, the archaeological culture was and of necessity continues to be defined by archaeologists on

the basis of material remains (i.e., artifacts). Regardless of how these artifacts are tapped for the information they hold, it is their formal properties and their distribution over space and through time that constitute the basis for defining all archaeological cultures. It is imperative to understand this before dealing with how, after being defined, archaeological cultures are themselves interpreted and how archaeologists view culture change.

HISTORICAL PERSPECTIVE ON THE CONCEPT OF CULTURE

In the early and mid 1800s, European archaeologists generally adhered to a uniformitarian view of evolution, inspired by geological and biological evidence and by the widely-accepted Three Age system devised by Christian Thomsen to order the antiquities of Denmark (Ellesmere 1848:63-68, reprinted in Daniel 1967:92-96). Both archaeology and anthropology were growing disciplines that had been influenced by various events associated with the Enlightenment, the Napoleonic Conquests, the French Revolution, Spencerism, Darwinism, and the Industrial Revolution (Harris 1968:8-52; Trigger 1980a:20-24).

In the late 1800s, archaeological research in Europe was demonstrating considerable regional diversity and changes in the archaeological record were explained in terms of migration, conquest, and diffusion. Rising concerns about national unity prompted historians and prehistorians to try to associate such variation with historically recorded national groups. Gustaf Kossinna of Germany was one archaeologist who took this view to the extreme as he "sought to prove that German culture was the most innovative in the world and that, even in prehistoric times, it had borne witness to the superiority of the German

people" (Trigger 1980a:25).

Kossinna was one of the first archaeologists to use the concept of "culture" to organize archaeological data. This term was derived from the French word that was used by French and German philosophers "to designate human progress or enlightenment", and "Kulturgeschichte" (culture history) meant the study of the customs of individual societies (Trigger 1978b:75; 1980a:24-26; see also Kroeber and Kluckhohn 1952 and Harris 1968). Kossinna organized archaeological materials on the basis of recurring assemblages which he called "Kulturen" or "Kulturgruppe" and grouped obviously related cultures into larger cultural provinces (Trigger 1978b:81-82). To serve his own nationalistic ends, he was also one of the first archaeologists to apply what would become known as the "Direct Historical Approach" (Steward 1942) to archaeological data.

V. Gordon Childe can be credited with applying the concept of the archaeological culture systematically to interpret the archaeological data for Europe and the Near East and with bringing it to popular useage among his contemporaries in England and Western Europe (and perhaps also in North America). While he had been influenced to do this by Kossinna, he did not admit this until much later, even though he paraphrased Kossinna's definition of culture in his early writings (Childe 1929:v-vi; see also Trigger 1980a:43-44).

In the early 1900s in both Europe and North America archaeological cultures were viewed as being the same as ethnographic ones. Tylor's definition was widely cited. Culture became entrenched as a concept in the archaeological writings of this period, through Childe, as recurring sets of traits, although they were often defined in terms of a limited set

of diagnostic artifacts. It was assumed, however, that a society or people was behind those artifacts (or traits) and cultures defined by similar sets of artifacts were attributed to peoples who were related and had shared a common way of life. Some archaeological cultures assumed massive proportions when it was discovered that the artifacts and traits used to define them were spread over large geographic areas. An early and primitive example of this view in North America concerned the Mound-Builders. In the 1800s, it was commonly held that the trait of mound-building was shared by a single "superior race" collectively known as the Mound-Builders and all mounds in eastern North America were attributed to this mysterious group (Silverberg 1968). A later example of this form of classification included the "Patterns" defined under the Midwestern Taxonomic Method (McKern 1939).

Unlike Europe, in the late 1800s there was little concern with chronology in North America. This was due in part to the belief that the American Indian culture had little time depth and that Native Americans were incapable of progress (Trigger 1980c). This belief was further supported by the observation that at the time of European contact all of North America was still in the "Stone Age" according to Thomsen's classificatory scheme. As a result, the early years of North American archaeology were concerned with the description of sites and artifacts and speculations about how the latter had been made and what they had been used for (Willey and Sabloff 1974:21, 42). Little or no attempt was made to define cultures and still less attempt was made to delineate culture change.

The first classification schemes utilized in North American archaeology were based on the concept of culture area (Kroeber 1939),

borrowed from anthropology, rather than on chronological principles. Archaeological materials were often equated with known tribes who in historic times had occupied the area where those materials had been found (i.e., the "Direct Historical Approach"). Examples of this sort of approach include the work of William Beauchamp (1900) and Arthur C. Parker (1916) in New York State and David Boyle (1906) in Ontario.

In the early 1900s, as more data became available as a result of the diligent work of the first professional archaeologists, differences in material culture over time were recognized and cultural classification schemes were invented to deal with this variation at the local and regional levels. One of the earliest examples of this was A.V. Kidder's (1924) Introduction to the Study of Southwestern Archaeology in which material from a series of adjacent river drainages was classified as passing through four successive cultural periods: Basket Maker, Post-Basket Maker, Pre-Pueblo, and Pueblo. These stages were common to a large region in the American Southwest, and local variants were given names such as "Lower Gila Culture". Kidder also recognized and defined an unnamed cultural phase preceeding Basket Maker which was characterized by nomadic, non-agricultural, and non-pottery making peoples (ibid.,118). All of this made his work a significant contribution to the recognition and study of indigenous culture change.

Kidder was one of the first North American archaeologists to apply what would later become known as the Direct Historical Approach, and he extended modern Pueblo history back to an unspecified time in prehistory. He believed that this approach would allow the observation of "the development of the arts and industries of the community from beginning to end" (ibid., 31) as well as the study of the mechanics of pueblo growth

(ibid., 32). The result of his study was a "historical reconstruction" that among other things recognized and explained certain developments in terms of external stimuli, specialization, population movement, response to stress, and warfare (ibid., 130).

Kidder's classification was not above criticism. Other Southwestern archaeologists suggested that his cultural periods or phases should be called stages, since his scheme was more an indication of unilinear cultural development than of actual cultural time periods (Willey and Sabloff 1974:110-111). This claim was due in part to the recognition of a time lag within the Southwest, where some cultures had reached a certain phase or stage before others (a problem that would also plague later schemes). The discovery of radically different cultures in the southern regions of the Southwest led Winifred and Harold Gladwin (1934) to devise a new scheme for the area. Their scheme proposed four basic "Roots" from which all peoples in the Southwest were derived: Yuman, Hohokam, Caddoan (Mogollon), and Basketmaker (Anasazi). These Roots were divided into "Stems" based on geographical regions (e.g., the Little Colorado Stem of the Caddoan Root). The Stems were divided into "Branches" which corresponded to culture areas (e.g., the Mimbres, Chaco, and Cibola Branches of the Little Colorado Stem). Each Branch was subdivided into Phases grouped into uniform Periods lasting 200 to 300 years. In this scheme, particular sites were assigned to an archaeological phase, and that phase was placed within a period and a developmental sequence for a particular group of people. For example, a site could be assigned to the Civano Phase which was limited in time (A.D. 1200-1300) and space (a river drainage) and in turn was part of the Classic Period (A.D. 1200-1500) of the sequence of the Hohokam root which led eventually to the historically

known Pima.

This scheme was "genetic-chronologic" (Willey and Sabloff 1974:112) in that it incorporated both chronological and genetic relationships. It differed from the strictly chronological nature of the Pecos Classification which had evolved from Kidder's classification. The Gladwins' scheme was implicity evolutionary, for once a stem differentiated into branches each branch developed independently. There was no room to consider migration or diffusion as contributing to the development of a branch.

It was important to consider the classifactory systems of Kidder and the Gladwins to set the stage for the discussion of a third scheme: the Midwestern Taxonomic Method (McKern 1939). This was the first formal system of cultural designation applied to the Iroquoians in New York State and Ontario. It was established in part to deal with the plethora of archaeological collections throughout the Midwest and Northeast, most of which lacked evidence for chronological placement. The Midwestern Taxonomic Method was not a functional approach to classification and it was non-evolutionary. It also "deliberately eschewed the dimensions of space and time" (Willey and Sabloff 1974:112) and has been called "genetic-taxonomic" (ibid.) because of its concern with cultural taxonomy and a corresponding lack of concern with chronology. For example, its two initial "Patterns" (Woodland and Mississippian) were visualized as co-existing. Its principal goal was to recognize formal similarity (ibid., 113) rather than to explain particular events in prehistory. It also contributed to a normative view of culture rather than a processual one. The use of this method to describe and classify Iroquoian culture was examined in Chapter 2. It can be noted here, however, that in this

scheme geographically-related manifestations were grouped together in the same manner as in Kidder's and the Gladwins' classifications.

While not specifically designed to deal with chronology and temporal change, the Midwestern Taxonomic Method was nevertheless (mis)used to explain cultural development. This need arose in part through the application of the Direct Historical Approach and persisted even as archaeological research demonstrated an increasing time depth for groups such as the Iroquoians. In New York State, more than elsewhere, this Method led to elaborate, often dendritic schemes (Ritchie 1944) that implied cultural development. Three patterns (Archaic, Woodland, and Mississippian) were arranged in a chronological order and "Early" and "Late" foci were distinguished within certain aspects (ibid.). As noted by Trigger (1978b:92), the "dendritic schemes implied that cultures, like biological species, developed along an irreversible course of differentiation, thereby ignoring the convergent effects of diffusion which are specific to cultural behaviour".

The three classificatory schemes outlined above encouraged the development of a view of an archaeological culture not unlike that adopted in Europe as a result of the work of Childe (1956). In all cases, archaeological cultures were defined on the basis of sets of artifacts recurring within limited geographical areas and temporally continuous time frames. In the Midwestern Taxonomic Method, widespread shared cultural traits were assigned to a single pattern while cultural traits specific to particular areas or localities were used to define aspects and foci. Archaeologists using these schemes, and the culture unit concept generally, "were at first far more interested in tracing historical relationships between cultures than in studying the internal organization

of them" (Trigger 1978b:101). These "historical relationships" were often explained in terms of migration, conquest, and diffusion "without any serious effort being made to explore functional relationships between these various traits" (ibid.).

Archaeological cultures were loosely equated with ethnographic ones, but there was little or no concern with the actual people who made and used the material traits used to define cultural units. It is interesting to note that in attempting to derive a social reality for some of these classificatory units, it was often the largest units (i.e., those that had the widest areal extent) within these schemes that were equated with the term "culture". For example, "cultures" were equated with the pattern under the Midwestern Taxonomic Method and the root in the Gladwins' scheme, rather than with phases, aspects, foci, stems, or branches. These smaller (spatially limited) units were sometimes thought of in social terms, but never in a consistent manner. For example, Wintemberg's (1942) "Neutral Focus" was equated with a named historic confederacy, but focus did not necessarily have the same social meaning when used by Griffin (1943) in his definition of the Fort Ancient Aspect. The equation of pattern with culture reinforced the archaeological use of the ethnographic concept of culture as defined by Tylor, since it tended to create homogeneous divisions ("cultures") spread over large geographical regions. This also emphasized the concept of culture area.

This formalistic view of culture persisted in North America, but was soon called into question by W.W. Taylor's (1948) A Study of Archeology. He was one of the first North American archaeologists to question the normative view of culture and to introduce a processual one, whereby individual archaeological cultures were viewed as internally structured

rather than solely as collections of shared traits (Taylor 1948:98). This radically different view of culture reflected in part the functional and structural approaches that were flourishing in socio-cultural anthropology and perhaps the influence of Childe, who had always sought to understand the social aspects of material culture. In this way, archaeologists began to regard prehistoric cultures as systems of interrelated parts and attention was paid to the actual peoples (and their social systems) as well as to their artifacts. This transition has been labelled a conjunctive approach (ibid.) or a contextual-functional one (Willey and Sabloff 1974:131).

Taylor severely criticized the Midwestern Taxonomic Method in general and its use by William A. Ritchie in The Pre-Iroquoian Occupations of New York State (1944) in particular, by saying that the method was unduly preoccupied with typology and pigeon-hole classifications. The use of this system therefore "excluded any feeling for his (i.e., Ritchie's) material as the product of human behavior" (Taylor 1948:78-80). Taylor also criticized James Griffin for saying that one of the aims of archaeology was to reconstruct the life of the past but for not doing this in works such as The Fort Ancient Aspect (Griffin 1943)(Taylor 1948:80). He contrasted Ritchie's and Griffin's outlook with that of others such as Wedel (1941) and Bennett (1943) who made their facts tell a broader, deeper story and fulfilled the dual obligations of Americanist archaeology, namely "the writing of American Indian history" and "making a study of human culture" (Taylor 1948:88). He argued that American archaeologists viewed historical reconstruction as mere historical chronicle, and that they had "categorized events and items, tagged them, but not investigated them in their contexts or in their dynamic aspects"

(ibid., 92).

In Taylor's view, culture was a mental phenomenon consisting of the contents of minds, not material objects or observable behaviour (ibid., 98). It was learned, constituted a "cultural heritage", and was a mental construct composed of attitudes, meanings, sentiments, feelings, values, goals, purposes, interests, knowledge, beliefs, relationships, and associations. To Taylor, these ideas were not observable but were objectified and made observable by behaviour which resulted in both material objects (e.g., axes) and non-material manifestations (e.g., dance patterns and art styles)(ibid., 99). Although they were cultural, these objectified and observable traits were not "culture". Culture was composed of the ideas behind these traits (ibid., 100), could only be inferred, and was subjective and implicit. In Taylor's own words "culture, and thus a cultural context, does not consist of artifacts or other material manifestations" (ibid., 77). This ideational view of culture, although derived from Boasian anthropology, was in direct opposition to the earlier common-sense views of culture that had prevailed in American archaeology and which had equated cultures with artifacts.

Taylor's identification of culture as a set of human ideas and individual cultures as systems of functionally interrelated behavioural patterns encouraged attempts to reconstruct past social structure and ideology. A similar development was taking place in Europe at about the same time. Childe adopted a functional approach in such works as Social Evolution (1951) and The Prehistory of European Society (1958) and was the first European archaeologist to utilize a "social structural approach", thereby contributing to the foundations of "societal" archaeology (Trigger 1978b: 107-108; 1980a).

After the realization that culture was a construct consisting of ideas, it became even more necessary to attach some social reality to the people who conceived these ideas and made artifacts as a result of them. Previously society was treated as "an attribute of culture", which meant archaeologists had analyzed society as "social culture" rather than as "a system of social relations" (Trigger 1978b:115). For example, Willey and Phillips (1958:3) stated that society and culture were aspects of the same basic reality. Yet in Tylor's view culture was acquired by men, women, and children as members of a society; society as an ongoing set of social relationships was not the same as a set of conceptual patterns transmitted from one generation to another. Archaeological opinions began to change in England as a result of the work of Childe and in North America as a result of Taylor. Taylor's views were adopted by Eoin MacWhite (1956), who distinguished between the historical (cultural) and sociological (societal) aspects of archaeological interpretation. The former dealt with artifacts and types, the latter with people and "group patterns". Culture also increasingly came to be seen as the means by which a society adapted to its environment and the repeated occurrence of diagnostic traits (used to define cultures) was regarded as "the concrete expressions of the common social traditions that bind together a people" (Childe 1950:2).

Willey and Phillips (1958, but originally published in the American Anthropologist 1953 and 1955 and quoted by MacWhite) defined one of the tasks of archaeology as being the interpretation of its data in terms of both cultural and social "aspects", but they believed "that archaeology is obliged to view its material almost entirely in the cultural aspect" (1958:4). They defined a series of units to deal with the cultural

aspect, but urged that archaeologists also try to understand these units in terms of their social significance. They found, however, that only one cultural unit they had defined (the component) could in specific cases be equated with any degree of certainty with a social equivalent (the community) (ibid., 49). They attempted to equate "phases" with "societies" but discovered this could not be done. The reason for this failure was that the archaeologist could not ascertain with any degree of confidence whether all the components assumed to represent a phase had been utilized by the same community and, if they represented different communities, whether or not the members of these communities recognized themselves as the same "people", speaking the same language (ibid., 50). They had defined a society as "a group of people acknowledging a single political authority, obedient to a single system of law, and in some degree organized to resist attack from other such societies" (ibid., 49, quoted from M. A. Smith 1955:4).

Willey and Phillips' view of society remained essentially one of social culture, not of society as a system of social relations. Yet it was Gordon R. Willey who pioneered one of the first attempts to study social relations in his Prehistoric Settlement Patterns in the Viru Valley, Peru (1953). In that monograph, he used the archaeological study of settlement pattern data as the:

> stategic starting point for the functional interpretation of archaeological cultures... [since these reflect] ... the natural environment, the level of technology on which the builders operated, and various institutions of social interaction and control which the culture maintained (1953:1).

Some of the developments leading up to Willey's research in the Viru Valley, including Steward's influence on his work, are documented in Parsons (1972); the development of settlement pattern studies in general

is reviewed by Trigger (1978b:108-109, 167-193). Two contradictory approachs dominated settlement pattern studies in the 1950s and 1960s. The first was ecological determinism. It stressed that total cultural patterns (i.e., economy, socio-political aspects, and ideology) were strongly influenced by the interaction between environment and technology. Settlement patterns were studied to see how they reflected the adaptation of each society and its technology to its environment. The second approach, which was that adopted by Willey for his Viru Valley study, simply assumed that settlement pattern studies should be used to make inferences about the socio-political organization and ideology of prehistoric cultures.

The importance of studying settlement pattern data was recognized by many archaeologists and several studies and seminars with a settlement pattern theme had a major impact on archaeology in the 1950s and 1960s. These included Willey's subsequent work in Belize (Willey et al. 1965); a seminar on "Prehistoric Settlement Patterns in the New World" edited by Willey (1956); and a seminar entitled "Functional and Evolutionary Implications of Community Patterning" (Meggers 1956). These were followed by a series of reports which used archaeological data, especially concerning settlement patterns, to explain the development of segments of culture such as irrigation systems (Adams 1965) or social and political organization and ideology (Chang 1958; Sears 1961; Trigger 1965) in various parts of the world. These in turn led to several statements concerning the methodological and theoretical aspects of settlement pattern studies, including Chang's (1968) Settlement Archaeology and Trigger's (1967) article "Settlement archaeology - its goals and promise".

These works exhibited a concern for the types of settlement at various levels (i.e., house, site, locality, and region) and for the socio-cultural implications of these various levels of archaeologically-determined settlement types. Some argued that archaeologists should begin with the analysis of the lowest levels of settlement, the individual structure or individual site, before considering patterns at a regional scale. This position was advocated by Chang (1958:324), who said that the first duty of archaeologists was to define social groups, such as households and communities, before attempting to study regional patterns, "since cultural traits are meaningless unless described in their social context".

Trigger (1968:53-78) defined three levels of settlement pattern: the individual structure, the arrangement of structures within communities, and the distribution of communities over the landscape. These could be studied both individually and collectively, since "the combined study of all three is likely to shed more light on archaeological cultures than the study of a single level" (Trigger 1978b:169). He believed that these three levels were functionally interrelated and that investigating them could provide information about a variety of social and cultural aspects ranging from family organization to a community's adaptation to its physical and cultural environment, to trade, warfare, and political organization (ibid., 193).

The same generation of archaeologists who incorporated a settlement pattern analysis into their research were also affected by two major cultural anthropologists of that era, Julian Steward and Leslie White. Steward's (1953, 1955) ideas about cultural ecology and multilinear evolution made their way into American archaeology, while White's (1949,

1959) advocacy of technological determinism and unilinear evolution was also influential. In particular, Steward's idea that cultures were made up of "core" features and White's belief that one aspect of culture could determine all others sparked never-ending debates, which continued through the late 1960s as a result of the writings of Marvin Harris (1968).

Steward and White exerted a profound influence on Lewis R. Binford, who became to many archaeologists the spokesman for the "New Archaeology" of the 1960s. His view of culture as man's extra-somatic means of adaptation was specifically adopted from White (1959:8) and included adaptation to both the physical and social environment (Binford 1962). Binford (1968:166), like Rouse (196 :465), clearly differentiated the process of evolution from its products. In his view, the normative school tended to treat culture as a product of evolution but made little or no attempt to understand how these products evolved. His processual approach, in contrast, sought to understand the processes of cultural evolution and to connect "the dynamic relationships (causes and effects) operative among sociocultural systems, to those processes responsible for changes observed in the organization and/or content of the systems (Binford 1968:165). He believed that most previous (and predominantly normative) attempts to understand cultural process had resulted in a "transformational sequence ... summarized in a stage classification" (ibid.). He proposed that archaeologists should attempt to explain, deduce, hypothesize, and test ideas about processes, by "elucidating the structural relationships between major cultural subsystems such as the social and ideological subsystems" (1962:219). For example, "observable differences and changes in the socio-technic components of archaeological assemblages must be explained with reference to structural changes in the

social system and in terms of processes of social change and evolution" (ibid., 220). He proposed that within a single sociocultural system the "formal structure of artifact assemblages, together with the between element contextual relationships, should and do present a systematic and understandable picture of the total extinct cultural system" (ibid.) and that studying changes in these assemblages and relationships could lead to an understanding of sociocultural change.

Sociocultural systems were linked together by Binford and others to form larger units such as interaction spheres, adaptive areas, and technocomplexes. These concepts allowed archaeologists to pursue the analysis of processes of interaction and change above and beyond those of the normative stage classifications (1965, 1968; Caldwell 1966; Clarke 1968). Traditions and horizons remained useful organizing concepts, but social interaction and social relations could better be discussed, even within existing cultural schemes, by employing concepts such as the interaction sphere.

One of the consequences of these developments was the production of numerous predominantly theoretical books and articles expounding the virtues of various aspects of the "New Archaeology" and contrasting it with the old. These included Systematics in Prehistory (Dunnell 1971), Explanation in Archeology: An Explicitly Scientific Approach (Watson, LeBlanc and Redman 1971), and Introduction to Prehistory: A Systematic Approach (Rouse 1972).

The "New Archaeology", although arising in North America, had an influence on the Old World as well, but in Europe and particularly in England a separate archaeological transformation involving method and

theory occurred. This came about mainly through the writings of David Clarke (1968), and the "Cambridge School". These include the more recent works of Colin Renfrew (1972, 1973, 1977) and Ian Hodder (1977, 1978, 1981, 1982, 1984).

Thus in North America and in Europe there developed the view that culture was systemic: it could be viewed as a series of interrelated subsystems. A systems theory approach (General Systems Theory) to culture change became popular (Flannery 1968). It was also increasingly realized that artifacts not only could provide information about economy, technology, and environmental adaptation, but also could be used to infer significant aspects of social structure and ideology. A major factor contributing to this realization was the growing use of settlement pattern data and especially the recognition of communities (a social concept) in the archaeological record. In this way, archaeological cultures could be interpreted in both cultural and social terms.

SOCIETY VERSUS CULTURE

The above review has shown that archaeological cultures were initially defined on the basis of recurring sets of material traits. Culture was conceptualized in a holistic sense and change was seen as occurring to entire cultures. Alterations in particular sectors of material culture, such as pottery styles, were interpreted as evidence of change in the whole culture. Explanations of cultural change relied to a large extent on processes of migration, conquest, and diffusion but these did not adequately account for how and why these changes occurred. Only rarely were internal innovations used to account for cultural change.

In both the Old and New Worlds between the 1940s and 1960s, archaeologists began to understand that cultures were best viewed as internally structured, that they were participated in and not shared, and most importantly that archaeologists required an understanding of the human behaviour and social relations behind the artifacts they studied. This increased the awareness that what archaeologists defined as cultures could not automatically be equated with a specific social grouping such as a tribe or nation. It also resulted in a growing disillusionment with the concept of culture. Significant aspects of prehistoric lifeways, including social organization, could be studied by means of a societal approach that analyzed community and settlement patterns and this in turn could become the basis of a new cultural perspective.

This thesis proposes an alternative view of Ontario Iroquoian prehistory based on such a societal approach. This approach, outlined below, emphasizes tracing the movements and evolution of specific communities through time rather than applying the Direct Historical Approach to explain why particular sites had acquired a specific configuration of material culture at a certain point in time. Because it emphasizes ongoing social relations, it places far more emphasis on internal change than on explaining change in terms of external factors such as migration, conquest, and diffusion.

It is necessary for archaeologists and prehistorians to recognize the fundamental distinction between society and culture. This distinction has long been made in anthropology, resulting in the inclusion of standard definitions distinguishing the two in general anthropological texts. For example, Pi-Sunyer and Salzmann's (1978) Humanity and Culture: An Introduction to Anthropology contains these definitions: culture -

"patterns of behaviour that are learned and shared by a group, as well as the results of such behaviour" (ibid.,482); society - "a human aggregate, greatly varying in size, that is characterized by common patterns of relationships and shared cultural institutions" (ibid.,486). Societies are people, and culture has no significance unless viewed as something participated in, shared, and transformed by groups of people.

The societal approach draws on this important distinction between society and culture by making it clear that each refers to a different level of interpretation. Culture, as noted by Childe (1956) and Taylor (1948), is the symbolic expression of ideas rather than an assemblage of artifacts. These ideas embrace technology, economics, ideology, and any other concepts that guide human behaviour (Childe 1956). One function of culture is to adapt societies to their physical and social environment. A closely related function is to serve as a means of communication (Hodder 1978), one purpose of which is to identify and distinguish groups as "us" versus "them" (MacWhite 1956; Hodder 1978, 1982, 1984). By virtue of culture a person belongs to a group, acts and behaves as other members of that group, and recognizes other groups as being "different". The archaeological record contains evidence of culture through the material remains of technology and settlement as well as of various symbols that help to define the identity of specific groups. Archaeologists can observe the distribution of unique sets of symbols that identify groups in this fashion (Hodder 1978, 1982, 1984). Such symbols have a very real social function, as will be seen below. Cultural patterns should be delineated at the local level as sequences within localities before they can be extended to larger areas.

Society, on the other hand, is the system of social relations that governs the transfer of energy, matter, and information through the patterned interaction of individuals as members of a group (Hodder 1982). A society has observable behaviour that can be inferred in part from the patterns of material culture. Archaeologists using the societal approach begin by defining and studying societies, not cultures. As outlined earlier, they can do this by employing the concept of community, which manifests itself in the archaeological record at the level of the site or component. Societal archaeologists attempt to understand the past in terms of systems of social relations and human interaction. They seek to determine how patterned material culture reflects the way of life of prehistoric communities, their history and ancestry, their relationship to the environment, and their interactions with neighbouring communities. In adopting this approach, artifacts become more than utilitarian objects for archaeologists to study from a culture-historical perspective; they serve the important role, along with settlement patterns, of informing the archaeologist how a society was organized and how it functioned.

By contrast, the cultural approach assumes that artifacts represent a culture and that the spatial and temporal parameters of that culture are defined by the distribution of these artifacts. This may result in the erroneous assumption that a "culture", further assumed to represent a single "group of people", "race", or "nation", was spread over a large geographical region. Such may not be the case, as has been demonstrated by Shennan (1978) for the Beaker "culture" of western Europe.

The societal approach treats culture as the symbolic expression of the ideas of a society. Each society made and used material culture to interact with its environment, to identify itself, and to symbolize its

social relations. The conceptual basis of culture cannot be studied directly by archaeologists; only the material expression of these ideas can be. The societal approach does not assume that artifacts represent a particular culture; instead it provides a means of empirically defining societies and identifying the artifacts they made and used to express their interaction with the physical and social environment.

In the established culture-historical approach to Ontario Iroquoian prehistory, archaeological cultures were first assumed to represent prehistoric clusters of peoples living in areas later occupied by historically documented tribes. Forerunners of these groups were defined in terms of particular constellations of material culture. In particular, specific associations of pottery types were identified with named cultures such as Glen Meyer or Middleport. These cultures and their representative sites were then placed in a chronological framework to connect them with later, historically-documented tribes. Major problems arise when cultures, defined originally as constellations of artifacts, begin to be treated as "living organisms" and acquire a "behaviour" of their own (Shennan 1978:114). In this manner they become equated with socio-political entities such as tribes, which they may not be.

I do not deny that chronological stages are useful for studying Ontario Iroquoian prehistory. These were initially recognized by Wintemberg (1942, 1948) and were further delineated by MacNeish (1952), Wright (1960, 1966), and others. These stages, here called the Early, Middle, and Late Ontario Iroquoian (rather than Iroquois) Stages, apply generally to all Iroquoian local sequences in Ontario. However, I will argue that it is inappropriate to treat the terms "Glen Meyer" and "Pickering" as if they referred indiscriminantly to cultures, branches,

complexes, tribes, or even periods within the Early Ontario Iroquoian Stage (Wright 1966:22).

Past views of culture were essentially static. Cultures were treated as if they were isolated bits of prehistory studied in and of themselves. The most striking cultural transformations in the Ontario Iroquoian sequence were accounted for by invoking exogenous factors such as migration, conquest, and diffusion (MacNeish 1952; Emerson 1954; Wright 1966). If, however, one adopts the view that societies are dynamic, which is encouraged by the societal approach, there is no need for an explanation based solely on exogenous factors. A dynamic view embodies the "continuous operation of factors" (Flannery 1967:119), both within societies and between them.

SOME RECENT PERSPECTIVES ON SOCIETY AND CULTURE

A clear statement of the aims and methods of "social archaeology" is contained in Colin Renfrew's inaugural lecture at the University of Southampton. Social archaeology refers:

> to the reconstruction of the social organisation of past societies, and of the way they themselves looked upon the world. We are coming to realise, moreover, that no comprehension of the growth of society is possible without investigating these social factors as intensively as others, such as subsistence and technology (197 :7).

Among the approaches available for a social archaeological investigation, Renfrew listed settlement/demography, where communities are recognized and attempts made to estimate the numbers of people involved; analyses to determine social stratification and hierarchy; the study of the exchange and transfer of goods, aided by techniques such as trace

element analysis; and the analysis of the social environment. He also suggested that it was necessary for archaeologists to conduct detailed ethnoarchaeological studies to understand how modern societies operated before one could attempt to understand prehistoric ones. Studies like this have since been carried out by one of his colleagues, Ian Hodder (1978, 1982, 1982 [ed.], 1984).

Renfrew later stated that "the evolution of human society can profitably be considered in terms of spatial patterning", but only if the concept of culture was abandoned (1977:89). Influenced by David Clarke (1968) and spatial analysis techniques borrowed from British geography (Hodder and Orton 1976; Hodder 1978; Bradley and Hodder 1979), Renfrew suggested that larger-scale social organization and social groups can be recognized archaeologically by the spatial patterning of sites on the landscape. His "basic social group" (Renfrew 1977:102) was defined in the same manner as Murdock's concept of community: "the maximum group of persons who normally reside together in a face-to-face association". Once again, the archaeological site (or component on a site) is equivalant to a sociological community. Renfrew characterized the "basic social groups" as cellular and modular (limited to certain "cells" of territory and modular in the sense of having "central places"). He argued that basic social groups do not exist in isolation but have a tendency to affiliate to form larger groupings. He noted that when human society was hierarchial and stratified, "cells" and "modules" form larger affiliations equivalent to the highest level of society, as defined by M.A. Smith (op. cit.): "a group of people acknowledging a single political authority, obedient to a single system of law, and in some degree organized to resist attack from other such societies". Renfrew called

this highest level a "polity", and said interactions between polities created further regularities in artifact distribution (1978:102-106). He also recognized that these uniformities could be caused by purely political factors and that they did not necessarily reflect the distribution of a single group of people in an ethnic sense. A single polity can embrace more than one ethnic group or may embody only a portion of such a group.

Once again we encounter no problem in defining a "community" or "basic social group" as this is the lowest level of social analysis possible between sites. Problems are created when archaeologists try to analyze broader associations of people such as a society or polity. The reasons for this lie in the nature of artifact distributions. All views of culture assume that archaeological cultures can be defined by observing the distribution of specific artifact types within a limited geographical area, even if doubts remain about the ethnic composition of the people who made those artifacts.

As early as the 1880s, archaeologists noted that all of the artifacts equated with an archaeological culture did not have the same distribution. Some artifacts were distributed over much larger or smaller regions. Moreover, not all of them had a distribution unequivocally related to that of the people who were assumed to have made them. Such observations were made by Childe (1951) and were empirically demonstrated in Clarke's (1968) Analytical Archaeology (see his Venn diagrams and discussion of "Vennland" on pages 474-476). While the failure of some distributions of artifacts to equate with a particular culture could be explained by factors such as trade, redistribution, or differential access resulting from social or political factors, doubt was cast upon "the empirical existence of

distinct cultures" (Renfrew 1977:94). This led Renfrew and others to suggest that the concept of culture should be abandoned in favour of a societal approach. It also led to Clarke's (1968) insistence that material remains at all levels (i.e., individual attributes through to technocomplexes) should be viewed as polythetic sets, which did not necessarily overlap on a one-to-one basis as had previously been assumed by a strictly cultural approach.

One outgrowth of this line of reasoning was Hodder and Orton's (1976) theoretical concept of "random association group". Starting from Clarke's overlapping Venn diagrams, they demonstrated that one could construct an arbitrary archaeological culture from a series of random circles, with each circle representing the spatial distribution of a continuous trait. Sites placed randomly within a region believed to have been occupied by a single "culture" would have an inventory of artifacts made up of all the overlapping circles at specific localities. Sites near each other would have similar assemblages, while at the same time they would have assemblages that were increasingly distinct from sites a greater distance away. Thus sites in one area of that region would have nearly identical assemblages and constitute a "random association group" that closely resembled an "archaeological culture". The theoretical ideas they proposed were applied by one of their students (Shennan 1978) to the so-called Beaker culture in western Europe. The result was a validation of the usefulness of the concept of "random association group" and a rejection of previous ideas concerning the nature and geographical extent of the Beaker culture (see also Hodder 1982:6).

Hodder and Orton (1976) also demonstated the possibility of "non-random association groups". Using spatial analysis of artifact

distributions they were able to show that it was sometimes possible to construct distinct groups in terms of the non-random distribution of artifacts through space and over time. These differed from random association groups in that non-random association groups could be defined by traits which did not overlap and which had marked boundaries. The existence of such groups was validated in practice by Hodder's (1977) spatial analysis of late Iron Age artifact distributions in southern England.

Thus, it was possible to construct two types of archaeological cultures. One was based on random associations and constituted a true polythetic set as defined by Clarke (1968:42). The other was based on non-random (i.e., patterned) associations wherein items of material culture had limited spatial distributions with definite boundaries. If several of the latter distributions occurred in a given area and shared mutual boundaries, did this enhance the possibility that they related to the boundaries of a real ethnic group? Hodder's analysis of Iron Age materials (1977) seemed to suggest the answer was yes, but his later ethnoarchaeological studies of modern societies in Africa (1982) cast doubt on this.

Behavioural inferences can be based on the observation of artifact distributions through space and over time, whether those distributions are random or non-random. These reflect degrees of interaction which in turn are influenced by factors such as transportation costs, resource availablity, social and political organization, warfare, and ideology. In this way, various kinds of information relating to social relations can be inferred or hypothesized by interpreting similarities and differences in material culture within and between communities in terms of the degree and

nature of their interaction. This is similar to the aforementioned concepts of interaction sphere and adaptive areas of Binford and his colleagues. It is significantly different from viewing the widespread distribution of associated traits as representing the spatial distribution of a single people.

THE SOCIETAL APPROACH

Archaeological cultures were primarily defined in terms of the distribution of artifacts and attempts were made to equate such cultures with some social equivalent. Such attempts have not always been successful, as noted by Childe (1951), Willey and Phillips (1958), Renfrew (1977), and others. Additional problems arise when attempts are made to infer aspects of socio-political organization, ideology, and other facets of the lives of the "people" loosely equated with an archaeological culture, especially when there is little proof that the people who shared a common material culture actually constituted a social, political, or linguistic group. These problems are compounded by the fact that inferences and explanations are inherently tied to the methodological and theoretical orientations of the archaeologist or prehistorian.

While not devoid of similar problems, the societal approach offers a viable alternative to the study of cultures. It is, however, regarded as superior to the culture concept in terms of its ability to equate archaeological material with a social reality. This is because the societal approach, as employed here, begins with a small social aggregate, the individual community (Renfrew's "basic social group"). In this approach, the archaeological village site is interpreted as the equivalent

of the sociological community (Willey and Phillips 1958:49). The societal approach requires the archaeologist to trace this community empirically through space and over time. It does not imply that two or more communities were necessarily socially, politically, or linguistically related even if they shared a common material culture. It remains for the prehistorian to demonstrate, using all appropriate data, that two or more communities may have been related in some fashion. In particular, this approach emphasizes the analysis of the spatial distribution of communities (settlement pattern analysis). In such a way, relationships between communities may be hypothesized and tested without the prior assumption that because they possessed a "common material culture" they constituted a single, well-defined social grouping, a fallacy resulting to a large extent from the Direct Historical Approach.

This thesis starts with the archaeologically-defined stages and time periods for southwestern Ontario of Glen Meyer (Early Ontario Iroquoian Stage), Middleport (Middle Ontario Iroquoian Stage), and prehistoric Neutral (Late Ontario Iroquoian Stage). It also defines communities using available culture historical data and the spatial distribution of components on the landscape.

It can be demonstrated that two distinct communities occupied different parts of the Caradoc sand plain west of London. One cluster of sequential villages and associated hamlets and camps was located around what is now Mount Brydges. A second cluster of villages, hamlets, and camps was situated near the present town of Byron. It is proposed that these two communities merged to form a single one on Oxbow Creek, off of the sand plain, circa A.D. 1245-1315. They were perhaps joined by a third community that had previously lived near what is now Arkona west of the

study area. The Oxbow Creek community is then traced through its sequential occupation of successive villages and hamlets until it reached the Lawson site circa A.D. 1500.

In adopting the societal approach, I will refer to this community as part of a local sequence composed initially of two (or three) groups of people who merged, inter-married, and became, between A.D. 1300 and 1500, a single group of people. This approach embodies certain of the archaeological units defined by Willey and Phillips (1958). Specifically, I adopt their units of local sequence ("a chronological series of components" [ibid.,25]) and locality ("the space that might be occupied by a single community" [ibid.,18]). I do not, however, subscribe at this time to their larger spatial divisions, temporal series, and basic archaeological units, especially phase. Nor do I claim that a chronological sequence of sites in a locality can be equated with a single community without providing additional evidence as to the nature of that community.

In rejecting a strictly cultural approach, I will also refer to the people under study as the communities who lived on the Caradoc sand plain (and in the Arkona area) during the Glen Meyer time period or Early Ontario Iroquoian Stage, rather than calling them "Glen Meyer people". This is because the Mount Brydges, Byron, and Arkona communities each evolved separately (although they probably interacted) and because their development may have been quite different from that of communities located elsewhere in southwestern Ontario during that period or stage. In other words, no claim is made that people living on the Caradoc sand plain (or in the Arkona area) during the Glen Meyer period were socially or politically related to people living farther to the east in southwestern

Ontario during that period, even though it is probably safe to assume that they were all Iroquoian-speakers. It is possible that at the time of their initial occupations of those areas the Mount Brydges, Byron, and Arkona communities interacted relatively little with each other. Furthermore, no claim is made that at the end of the local sequence proposed here the people who lived at the Lawson site were prehistoric Neutrals, in the sense that they were the lineal ancestors of those people documented as being Historic Neutral who lived east of the Grand River in the seventeenth century. This relationship remains to be proved. Rather, it is suggested that a group of Iroquoian people of indeterminate social and political affiliation and allegiance lived at the Lawson site in the Late Ontario Iroquoian Stage, which unfortunately in southwestern Ontario is also referred to as the prehistoric Neutral period. This choice of prehistoric Neutral as a taxon is unfortunate; it would be better to call this period or stage by another name or simply label it the Late Iroquoian Stage in southwestern Ontario. That, however, is not possible because of historical precedent extending back to Boyle and Wintemberg. Yet, every reference to Glen Meyer, Middleport, and prehistoric Neutral is intended here to indicate a period or stage and not a culture in southwestern Ontario, in the same manner that Early, Middle, and Late Iroquoian Stages apply to southern Ontario as a whole.

Another aspect of this approach is that no claims are made that the people who lived at Lawson were necessarily socially or politically related to other groups of people living on nearby contemporaneous sites, such as Southwold. Lawson and Southwold are both labelled as being prehistoric Neutral sites and assigned to a single period called prehistoric Neutral. Yet they were not part of the same line of

development since each site belonged to a distinct community and was part of a different local sequence. The sequence leading up to Southwold may have been substanially different from the one documented here for Lawson. There may have been little communication and interaction between the two groups of people involved. While this author doubts that such was the case, such a scenerio demonstrates the possibility for parallel development among two or more groups of largely non-interacting peoples.

Later in this thesis a broad outline of additional Ontario Iroquoian local sequences will be presented. These are set up as columns of parallel development and therefore offer the possibility of recognizing local sequences of cultural development in contiguous areas. These are established to show that each community may have evolved quite differently from others and to illustrate the usefulness of independent community studies to Iroquoian prehistory. But sociocultural evolution is not unilinear since the columns or sequences in each scheme are linked not only up and down as developmental continua but also sideways and diagonally by factors such as trade, exchange, warfare, social interaction, and the spread of ideas. It is in this way the author conceives of Ontario Iroquoian prehistory. Further discussion of these ideas must await the presentation of data and the interpretation of what those data mean. Such a discussion will be delayed until the concluding chapter.

ANALYSIS OF CULTURE CHANGE

Culture change among the Ontario Iroquoians has been assumed since 1952 to have been uniformitarian: gradual, continuous, and progressive.

Any discontinuities in the established sequence have been dismissed as anomalies by resorting to one or more of three basic explanations that are not mutually exclusive: migration (Stothers 1977), conquest, and diffusion (Wright 1966). These explanations were used to account for apparently discontinuous changes in one or more adjacent Iroquoian cultural traditions. They have also been used, in part, to explain socio-political changes (Noble 1975b). Yet it can be argued, using the definitions set out above, that one cannot use "cultural" theories to explain "social" phenomena. It is now possible to transcend the previous holistic and "genetic-chronologic" views of Ontario cultures and to see Ontario prehistory in terms of groups of interacting, evolving communities within which systemic change occurred as an internal process even when the challenges for change were of external origin.

Some archaeologists, notably Colin Renfrew (1978), are applying Rene Thom's (1975) Catastrophe Theory to archaeological situations to explain internal change. The name of this theory is misleading, since it does not imply "catastrophes" in the common sense of that term. Rather it maintains that a particular series of small internal changes can trigger a major transformation in a system. This approach is best summarized by the statement that "quantitative accumulation results in qualitative leaps" (Klejn 1973:704). Some of these transformations or "qualitative leaps" may have previously been attributed erroneously to migration, conquest, or diffusion. Other researchers have explained major transformations as occurring as a result of stress caused by a variety of internal factors including population-resource imbalances (Cohen 1975, 1977; Cordell and Plog 1979). Cybernetics, or a systems theory approach, is often used to analyze such cultural change in terms of positive and negative feedback

(e.g. Watson, LeBlanc and Redman 1971).

These and related theories seek to explain how change can occur in the absence of outside cultural influences resulting from migration, conquest, and diffusion. Such theories are not new, but can be traced back to Spaulding (cited in Willey and Phillips 1958), who pointed out that massive changes could occur from internal causes after long periods of relative stability, or still earlier to Childe (1951) and Redfield (1953), who maintained that minor changes could pre-adapt societies for subsequent major rapid changes. The most frequent cause recently cited in discussing such changes has been the supposed impact of population increase on the domestication of crops and hence on cultural evolution (e.g., Cohen 1977), but numerous other situations are also applicable. An example of this type of internal change among the Iroquoians is Tuck's (1971) demonstration of a series of village fusions leading to the development of the historic Onondaga tribe in the absence of any noticable stimulus from external forces. This was a series of events that might previously have been explained by resorting to migration, conquest, or diffusion. This is not to say, however, that there was no external contact or influence.

One of the first attempts to explain endogenous change among the Ontario Iroquoians was Stothers' (1977:135-137) claim that the transformation from the Princess Point to Glen Meyer stage occurred as the result of an increasing reliance on maize horticulture, which necessitated sedentary villages located on sandy soils in contrast to the riverine-oriented nomadic camps characteristic of the Princess Point period. This shift led to, among other things, matrilocality and endemic warfare. Although Stothers (ibid.) believed that Princess Point was a

cultural intrusion which brought corn agriculture into southwestern Ontario from elsewhere, his explanation of the ultimate transition from Princess Point to Glen Meyer did not rely on any form of external stimulus. The shift to inland locations occurred because peoples during the Princess Point stage were experimenting with maize horticulture, not as a result of the diffusion of corn.

Wright (1966) claimed that the differentiation of the Huron-Petun and Neutral-Erie branches came about as a result of internal differentiation that took place during the latter part of the Middle Ontario Iroquoian Stage, a claim also made by MacNeish (1952), but neither author offered an explanation of why this might have taken place. In addition, MacNeish (ibid.) relied heavily on a series of micro-migrations to account for Late Ontario Iroquoian prehistory. Emerson (1954) also relied on micro-migrations and diffusionary contacts to explain similarities between sites such as Lawson and Black Creek. All of these writers appealed to exogenous factors to account for Iroquoian development, or, if talking about endogenous change, did not offer any theories concerning how that change had come about.

There are several other examples of diffusion being invoked by various authors as an explanation for the perceived transfer of a trait from one culture to another or from one area to another and its contributing to Iroquoian evolution. A specific example of relevance to this thesis is Guthe's (1960:205) assertion that Iroquoian development (predominantly in New York State) was assisted by the diffusion of particular traits from outside the Iroquoian culture area, most notably village size, village location, earthworks, ossuary burial, and longhouse floor plans. He made no attempt to account for how or why these examples

of diffusion took place.

In retrospect, it can be remarked that some of these explanations reflected the profound impact of the antiquated "Southern Hypothesis" of Iroquoian origins (discussed in Chapter 2) and the reluctance of some archaeologists to credit the native populations of Ontario and New York State with the ability to develop on their own (Trigger 1980c). But it must also be remembered that most of these explanations seemed plausible because Iroquoian archaeology did not have as extensive a data base as is now available and those archaeologists should not be criticized on that basis.

The "Southern Hypothesis" of Iroquoian origins has hopefully been laid to rest forever and an explanation for Iroquoian culture change based on conquest has not been forwarded since 1966 (Wright 1966). That leaves the major issue of diffusion to be discussed since it continues to be used as an explanation of change in Iroquoian society.

The process of diffusion takes various forms and has been used in a variety of ways, but it involves one and only one truism: a trait or idea originated outside and somehow arrived inside a sociocultural system; it is an exogenous factor. A definition reinforcing this concept was provided by Davis (1983:55): "Diffusion refers to the processes whereby (1) an idea or innovation (2) is communicated through specific channels (3) within a specific social context (4) over time".

A number of developments are serving to qualify the use of diffusion and limit its use as a holistic explanatory concept. One of these concerns the growing awareness that one must attempt to understand why a trait or idea was adopted and how it affected the sociocultural system

adopting it (Trigger 1978b:102). Colin Renfrew, who significantly altered British and European prehistory by proving (by means of radiocarbon dating) that many traits appearing in northern and western Europe were not the result of diffusion from the Aegean region as had previously been thought, has likewise stated that it is not sufficient to demonstrate contact. Instead the prehistorian must seek to understand how and why new ideas were accepted (Renfrew 1972:121-123). In his words, "a mere statement of contact is not enough" (ibid., 121). Childe argued that "gratuitously to invoke migrations or 'influences' from outside may be a mere cloak for laziness and has the effect of relegating to the wings all the action of prehistoric times" (Childe 1956:154). The importance of studying changes within the recipient culture brought about by diffusion and innovation has also been recognized by Klejn (1973:702-703). Davis agrees with these views by simply pointing out that many instances in which diffusion has been used are statements of results without embodying any processual explanations or hypotheses about how or why these occurred (1983:57).

A second related development involves a world-wide trend in archaeology to explain cultural change in terms of endogenous factors rather than relying on exogenous explanations such as migration, conquest, and diffusion. A growing data base allows the recognition of <u>in situ</u> developments and in many instances there is no longer a need to invoke diffusion (or migration and conquest) as an explanation. This trend is directly applicable to this thesis and concerns the <u>in situ</u> development of Iroquoian sociocultural systems. As more data become available, it is increasing apparent that numerous local sequences similar to the one described here characterized Iroquoian prehistory (see also Tuck 1971;

Witthoft 1959). These sequences trace the (pre)history of one community, or two or three neighbouring ones, through a series of sequential village re-locations, each a little different from the last and each experiencing a set of additional changes prior to the next. Viewed in this vein, all change is endogenous. In particular, it can be argued that all social behaviour and changes to it are endogenous.

Yet this is a one-sided view and I am not suggesting that each community developed in total isolation. Intersocietal interaction was a major factor in Iroquoian development. Therefore, a compromise is proposed which allows for social interaction to play a role in the spread of ideas between contemporaneous communities, but not to the extent that all change, or even most important changes, can be described as the result of diffusion, or that diffusion by itself can serve as an explanation of change.

This compromise allows for a fair degree of "stimulus" diffusion (Kroeber 1940:1). This does not involve the spread of artifacts such as pipes but rather the spread of the idea of making such artifacts. As noted by Renfrew (1972:123), this type of spread of ideas is hard to recognize since the conceptualization of the idea by the recipient may be significantly different from its prototype (see also Kroeber 1940:1).

Diffusion has been used in Iroquoian studies to explain certain elements of culture change but there has been no attempt to explain the type of diffusion, why a trait or idea was borrowed, or the impact it may have had on the people "borrowing" it. If the type of diffusion is qualified, a start has been made. Yet discussions of diffusion and stimulus diffusion must include a consideration of several other criteria.

To demonstrate that stimulus diffusion took place, the prehistorian must prove that those borrowing an idea had the capacity and mechanisms for contacting the people from whom it was borrowed (or an intermediary group), and that the people from whom it was borrowed had it prior to the people who supposedly borrowed it. Presumably the people borrowing it must also have a reason for doing so. This reason relates to its use, which may be reflected in the archaeological context in which the adopted trait is found. It is therefore as important to attempt to understand the function of borrowed traits as it is the media by which they may have been transmitted (Davis 1983:54).

Widespread similarities between sociocultural systems do not necessarily imply social interaction, but may result from parallel development and instances of independent invention. These may occur in the absence of intersocietal contact and can be explained both in terms of multilinear evolution and the theory of limited possibilities. A considerable body of literature exists on these subjects and will not be explored here. They may be summarized by stating that sociocultural systems in similar social and physical environments may have many features in common because only a limited number of options are available with respect to how those systems can adapt to such environments (Steward 1955). The functional requirements of certain traits may also limit their variability (Dunnell 1978). For example, there are only a certain number of ways anyone can make a pot or projectile point, or build and space houses. These limitations are beyond the control of the sociocultural system or its human members.

Sociocultural similarity may also be apparent in terms of style and stylistic variation. These involve non-functional, formal similarities

resulting from "patterned interaction or communication among individuals or groups" (Davis 1983:55; see also Dunnell 1978). Innovation is one process by which new traits are introduced, but these traits must become socially acceptable or they are soon forgotten and do not become part of the sociocultural system. Their acceptability relates first to intrasocietal communication, and perhaps later may be extended to the intersocietal level. Once accepted within a society, these traits become eligible for further intersocietal transfer.

Current research on diffusion has stressed several factors. First, the prehistorian must define the units of diffusion since some traits are more likely to diffuse than others and diffusion occurs for different reasons. Second, it is necessary to define the level at which diffusion is being studied, since potential donors and recipients may range from individuals within single societies to whole societies. Third, one must ascertain the medium or media of diffusion, which may range from interpersonal contact to "mass media" communication. Fourth, the social context of diffusion must be understood. This relates to a long list of variable social relationships, and takes account of concepts such as social rank, status, wealth, previous experience, ethnic identity, social mobility, and the "homophily" (alikeness) between potential donors and recipients, as well as the mechanisms by which inter- and intrasocietal contact may be made. In other words, diffusion may take place only between certain donors and recipients, there must be established mechanisms for contact between donors and recipients, and those mechanisms are controlled to some extent by the social standing of the donors and recipients. There must be both "opportunities for communication" and socially-controlled similarities between donors and recipients (Davis

1983:61-66).

Two important works may be cited as studies of the role of social interaction in producing stylistic similarity. The first is Wobst's (1977) information theory which deals with the kinds of interaction and social relationships that promote and inhibit the spread of stylistic traits. The second is Hodder's (1978, 1982, 1982 [ed.], 1984) ethnoarchaeological research in Africa which demonstrates the symbolic role of material culture patterning in identifying sub-groups within and between societies.

Archaeological and ethnographic data demonstrate that a large number of similarities were shared by various Iroquoian groups, but only a lesser number between neighbouring Iroquoians and Algonkians. These similarities are evidently not the result of a large number of cases of independent invention or functional similarities, but reflect prolonged social interaction.

The spread of ideas throughout the Iroquoian culture area was naturally assisted by the fact that this area was occupied by a single linguistic family whose various representatives shared many common institutions and lifeways. Archaeologically it can be demonstrated that such sharings extend far back into prehistoric times. Examples include specific material culture traits, settlement pattern configurations, aspects of social and political organization, and religious beliefs. The parallels between contemporaneous groups throughout this area for all time periods, such as between the Early Iroquoian Stage in Ontario and the Owasco stage in New York State, and between the Middle Ontario Iroquoian Stage and the Oak Hill horizon in New york State, are striking. These

indicate, at least to this author, that constant interaction resulted in the continual spread of ideas.

There are no specific examples of diffusion per se bringing about a major and sudden transformation in any Iroquoian society. Nevertheless there appears to have been constant, continual, and no doubt reciprocal contact (or "stimulus" diffusion) among neighbouring societies that tended to make cultural evolution pan-Iroquoian. But this evolution was neither uniform nor holistic. Instead, every society evolved differently for different reasons while sharing a large number of similarities with other Iroquoian ones. Further discussion of this problem is reserved for the "Spread of Ideas" section in Chapter 6 and the conclusions in Chapter 7.

At this point I will summarize the discussion of the concept of horizon since it is closely linked to diffusion. Various Iroquoianists have used the horizon concept, several in an identical manner, to refer to the widespread geographical distribution of certain traits (i.e., stylistic similarity). Most of these discussions deal with a specific period, circa A.D. 1350-1400, which is associated with the development of the "Middleport" horizon (MacNeish 1952; Emerson 1954; Wright 1960, 1966) and the closely related "Oak Hill" horizon (Lenig 1965). But the widespread geographical distribution and apparent "cultural homogeneity" of specific traits is not confined to this period or to these "cultural" groups. Emerson (1954) spoke of a "Roebuck" horizon circa A.D. 1500, and other examples are known. I believe that these examples of horizons are legitimate and reflect the constant and continual interaction of Iroquoian societies. But I would add that they represent only specific examples that have been studied to date. They are not isolated examples at specific points in time but reflect interaction that occurred continuously

throughout Iroquoian prehistory. It remains for us to measure this type of interaction over time and through space. This thesis presents examples with specific reference to one community in Chapter 6.

Closely related to the concept of horizon is that of style, and in some instances the two have been combined as horizon style. The concept of style, as noted above, can be used to refer to stylistic similarity, resulting in, for example, different Iroquoian sociocultural systems sharing a common ceramic motif. For instance, the Lawson Incised pottery type and the closely related if not identical Richmond Incised type have been observed on prehistoric sites designated as Middleport, Neutral, Erie, Huron, Petun, Cayuga, Seneca, Onondaga, Oneida, Mohawk, and Susquehannock (MacNeish 1952).

These ideas relate to Kroeber's (1939) concept of a culture area, in which large numbers of traits are shared by adjacent groups. But a "culture area" may better be conceptualized as an interaction sphere, which connotes the interacting of social groups (communities) rather than of holistic "cultures" which may have been poorly defined on the basis of an incomplete archaeological data base. They also relate to the concept of an "area co-tradition". In fact, Wright (1966:2) defined the Ontario Iroquois Tradition as one of three Iroquoian co-traditions, the other two being the Mohawk-Onondaga-Oneida and the Seneca-Cayuga-Susquehannock. Viewed from the perspective of a societal approach, these "co-traditions" reflect varying degrees of social interaction rather than units of cultural similarity resulting from shared traditions.

Yet the concepts of interaction sphere, horizon style, and diffusion differ from that of co-tradition in that the former stress interaction

through space within a limited time frame, while the latter stresses continuity over time more than across space. This point was well made by Caldwell (1966:338):

> The most hopeful approach to understanding is in terms of patterns and processes of interaction and communication. In eastern North America, where there were no great physical barriers to communication, the several periods or stages of prehistory characteristically show greater likenesses among the cultures within each stage than between the cultures of earlier and later stages.

My conceptualization of an Iroquoian interaction sphere is similar to that of the Hopewellian Interaction Sphere (Struever and Houart 1972), with all or most contemporaneous communities participating in the exchange and spread of ideas. As in the Hopewellian Interaction Sphere, shared traits "served integrational or social maintainence tasks" (ibid., 49-50). In Chapter 6 I will propose that the spread of certain ceramic pipe styles and motifs throughout Iroquoia can be cited as specific evidence of the operation of this interaction sphere, which arose and developed primarily for social reasons and through social processes.

METHOD AND THEORY

The methodological and theoretical approachs used here are based first on the study of individual communities identified by the spatial analysis of components distributed on the landscape and in terms of accepted cultural-historical criteria. But the intent is to study sociocultural systems, not cultures. A sociocultural system is defined as a behavioural system with component parts and relationships between those parts. The components may include elements previously designated as "subsystems" within the framework of general systems theory, but they are

not treated here as such. Nor is a general systems theory analysis with its associated jargon of feedback, homeostasis, or deviation-amplifying processes adopted. A systemic view of a sociocultural system existed before, and can exist without, the terminology of general systems theory (Salmon 1978:178). The usefulness of a societal approach is that it allows the recognition of people and processes, not just of material culture as in the cultural approach and of subsystems without people as in general systems theory.

A clear distinction is made between society and culture, resulting in a further distinction between the stages or periods of culture history and the peoples who lived during those stages. It is argued that the Early, Middle, and Late Ontario Iroquoian Stages are useful analytical devices for charting temporal variation and sociocultural development on a broad scale throughout most of southern Ontario, but that the Glen Meyer, Middleport, and prehistoric Neutral "cultures" are less useful because of the false or misleading cultural connotations they may carry. This is because the concept of a uniform culture occupying a wide geographical area is replaced by the study of individual communities participating in perhaps culturally distinct local sequences. It is also argued that local groups should not be referred to as Glen Meyer people, Middleport people, or prehistoric Neutral people. Rather, the communities that lived in the London area were Iroquoians comparable to other people in similar contemporaneous sociocultural units throughout the Iroquoian interaction sphere. While local and regional differences no doubt existed, there were also widespread cultural similarities. It is far from certain that existing cultural and cultural-historical schemes adequately represent these variations. Such differences and similarities continued throughout

the course of Iroquoian prehistory, eventually resulting in the numerous historic Iroquoian tribes. Past research has tended to emphasize certain "cultural" differences, but this thesis advocates an opposing emphasis on sociocultural similarities.

The main intent of this thesis is, however, to show that Iroquoian research can profitably be channelled towards the isolation and study of the individual communities that formed local sequences and tracing the prehistory of these communities. It presents an analysis of one such community; others have been (Witthoft 1959; Tuck 1971; Engelbrecht 1978) or are being (Smith n.d.) studied.

The Direct Historical Approach is used here only to identify the community under study as Iroquoian and the existing culture historical framework is used only to identify the stages through which this community evolved. Archaeological research is urgently needed to learn if the community under study or any other community in southwestern Ontario west of the Grand River was ancestral to the historic Neutral who lived in the Hamilton-Brantford area in the late sixteenth and early seventeenth centuries. It was never my intention to demonstrate this or any other connection between Lawson and later sites. Rather, it was and remains my intention to track the sequence of events leading to the occupation of the Lawson site. To do this, the Direct Historical Approach and the concept of culture are replaced by tracing the evolution of an Iroquoian community from its inception as two or three small communities in the Early Ontario Iroquoian Stage to their fusion and subsequent movements leading to the occupation of the Lawson site. What went on before these communities arrived at the Early Ontario Iroquoian sites discussed here and after this community left the Lawson site are topics for future research.

Having analyzed one community and recognizing that other communities co-existed with it, it remains to complete a new framework for Ontario Iroquoian prehistory. This framework will consist of a series of synchronous local sequences. Archaeologists must recognize and analyze these local sequences and the communities participating in them and see how they were interrelated before a detailed story of Iroquoian prehistory can emerge. Prior to that time, it is inappropriate to compare Iroquoian sites from adjacent or spatially-removed areas as parts of the same "culture". It is appropriate, however, to study social interaction between communities to see how and why such interaction took place, and to examine the impact of such interaction on the entire sequence of Iroquoian development. The concept of an Iroquoian interaction sphere is adopted as a framework for examining intersocietal contact.

An extensive body of literature exists on the analysis of cultures as systems composed of functionally and structurally interrelated subsystems (Binford 1962; Clarke 1968; Flannery 1968; Watson, LeBlanc and Redman 1971). However, the usefulness of this approach has recently been questioned (Trigger 1982:38) as has the legitimacy of the adoption of general systems theory to analyze human behaviour (Salmon 1978).

While it remains common to conceptualize a "cultural system", its subsystems have been defined by researchers in an arbitrary manner. Initially Binford (1962), following Leslie White (1949), described cultures as systems consisting of economy (technology), social organization, and ideology. David Clarke's Analytical Archaeology (1968) served as a major contribution to the archaeological application of

systems theory. He conceived of cultural systems as being composed of social, religious, economic, and material culture subsystems interacting with other cultural systems and environmental systems composed of floral, faunal, geological, and climatic subsystems. Renfrew and Cooke (1979:329) believed advanced cultural systems could be studied in terms of subsistence, metallurgy, craft technology, social, external trade and communication, and symbolic and projective subsystems. Flannery (1968:69-85) divided the food procurement subsystem into sub-subsystems, each of which was useful for attempting to ascertain the differing strategies that a people adopted for obtaining and using different foods. These subdivisions necessitated varying methodological and theoretical orientations for the archaeologist attempting to study them. Sanders (1968:106) believed that each culture itself was a subsystem interacting with other cultural subsystems making up the "Ecological System". These examples illustrate the tendency for archaeologists to devise idiosyncratic analytical devices to study the problem in hand. There is no real agreement on what the subsystems are except that most formulations embody economic, socio-political, and ideological categories in some format. There is even less agreement on how the subsystems are interrelated either structurally or functionally. As Trigger (1982:38-40) stressed, they may be tightly integrated, loosely integrated, or represent some other point along the continuum between those two poles.

Aside from the arbitrary nature of subsystems, there has been a growing concern that, no matter how defined, they cannot be studied even provisionally in isolation from each other because they inevitably form part of a system that is equal to more than the sum of its component parts. They must be studied in relation to that system. This has led to

a concern about the mechanics involved in such an analysis and the nature of causality (Trigger 1982). Understanding the precise nature and causes of change poses severe methodological and theoretical problems. Change can be explored by adopting an evolutionary perspective and analyzing how certain categories of data appeared at specific points in time. This will permit the identification of change that requires explanation. Having done this the prehistorian can search for causality.

To analyze sociocultural change in this thesis, I have opted to present information under the following headings: selected items of material culture (ceramic vessels, ceramic pipes, and projectile points); selected categories of socio-political organization (settlement pattern, population size estimates, subsistence, social and political organization, warfare, intergroup exchange or trade, the spread of ideas, and burial practices); and selected categories of ideology (religion, art, and games and feasts). These categories are just as arbitrary as some of the previously noted subsystems. This list of categories is neither comprehensive nor do they form a complete inventory of all possible ones that could be used; they were simply selected because they provided a convenient way of organizing data and attempting an analysis of change over time in one local sequence. Yet they have a demonstrated validity for the analysis of sociocultural systems, including Iroquoian ones, since, subject to the limitations of archaeological data, they provide the prehistorian with a a means of viewing several aspects of a prehistoric society.

CHAPTER 4

THE DATA BASE

INTRODUCTION

I will describe the study area and then briefly outline some of the archaeological sites in that area that are relevant for understanding the local sequence that culminated in the Lawson site.

THE STUDY AREA

In this section I will briefly describe the study area (Map 2) in terms of location, climate, physiography, soils, drainage systems, topography, flora, and fauna. These data were obtained largely from Chapman and Putnam's (1973) The Physiography of Southern Ontario; the Soil Survey of Middlesex County (Ontario Soil Survey Report No. 6 [1931]); topographic maps; Environment Canada climatic figures; and three Environmental Assessment documents completed in the late 1970s and early 1980s for areas within the City of London. This study area excludes the Arkona district since little is known about the sites there, except that they date to the Glen Meyer period.

Location

The study area encompasses the central and western portions of Middlesex County, including all or parts of the Townships of London, Lobo, Caradoc, Delaware, and Westminster. It extends from the present day City of London westward to the western boundary of Caradoc Township.

Climate

The study area lies entirely within the Carolinian Biotic Province (Cleland 1966:6). It has a mean daily temperature of 7.5 degrees Celsius, fluctuating between a mean daily minimum of 2.6 and a mean daily maximum of 12.5. It has an average of 152 frost free days per year, fluctuating between minimums and maximums of 140 and 180. The earliest frost has occurred in September and the latest in June, but generally the frost free period lasts from mid to late April to mid to late October. The average annual total precipitation of 92.5 cm is divided between snowfall (mean of 201.2 cm) and rainfall (mean of 73.7 cm). This precipitation is evenly distributed throughout the year, with the number of days per month with measurable precipitation ranging from a low of 10 in June, July, August, and September to a high of 20 in December. These figures are based on Environment Canada data compiled at London Airport between 1941 and 1970.

Climatic change over the past several thousand years in central and eastern North America has been charted as a series of episodes (Baerreis and Bryson 1965), based on those derived from the analyses of Scandinavian bog deposits. For the period after A.D. 800, the generalized climatic episodes for eastern North America are generally given as follows: from A.D. 800 to 1300, a favourable warm period; from A.D. 1300 to 1450, a cooler, drier period; a return to a favourable, warm period between A.D. 1450 and 1550; and the "Little Ice Age" from A.D. 1550 to 1850, a substantially cooler, moister period (ibid.; see also Fitting 1978:44; Styles 1981:54).

Wendland and Bryson (1974:14) define a major climatic shift in Michigan and Wisconsin circa A.D. 1100, but it may have been both

spatially and temporally limited. While a shift from warm to cooler, drier conditions has been noted circa A.D. 1300, it is uncertain how this affected developing sociocultural systems. This is because documented climatic shifts can and have occurred without noticable effects on local floral and fauna (Baerreis, Bryson and Kutzbach 1976:40). Even when documented shifts occur in one locality, they may not have occurred elsewhere in the same state or province (ibid.), especially when one considers the ameliorating effect of the Great Lakes (ibid.).

Baerreis, Bryson, and Kutzbach (1976) have updated the information on climatic shifts in the Michigan and Wisconsin area and found general agreement with the episodes earlier noted by Baerreis and Bryson (1965). However, they detected several minor quirks in this scheme, some of which had shifts in one area occurring earlier than in other areas (based on radiocarbon dates) or shifts in one area not agreeing with documented shifts elsewhere even within the relatively small area (Michigan-Wisconsin) they studied. Their consensus was that episodes are valid for charting major world-wide trends, but that each area should be studied independently to take account of local variation.

They concluded there was a long warm period from A.D. 700 to 1200, with variations through time and across space in the degree of moisture (i.e., ranging from dry to moist). There was a transition circa A.D. 1100 in some areas to cool or moist conditions, followed by a return to warm or dry conditions until circa A.D. 1250-1400. There was then a major shift to cool, moist conditions from circa A.D. 1400 to 1850, although in some areas this shift may have begun as early as A.D. 1350.

Some archaeologists believe climatic change was a major factor contributing to prehistoric sociocultural change in eastern North America (Fitting 1978:76), while others question this (Brose 1978:577). The precise dating for the supposed transition from one episode to another in central and eastern North America, and the reasons for these transitions, remain uncertain (Wendland and Bryson 1974:14; Styles 1981:54).

The prehistoric climate of southern Ontario has not been studied in such great detail as that for states to the west, so it is not known if the shifts documented in the latter area also occurred in the former. Therefore, at the present time sociocultural transformations in southern Ontario, especially those that occurred circa A.D. 1300, cannot be correlated with climatic factors. It can be noted, however, that Iroquoian development after circa A.D. 1400 took place during a supposedly unfavourable climatic episode, the "Little Ice Age" (Baerreis, Bryson, and Kutzbach 1976:43). This indicates either that climate did not greatly affect Iroquoian sociocultural development or that the ameliorating effects of the Great Lakes were substantial enough to preclude a major climatic influence.

The northern limit of the Carolinian Biotic Province runs roughly from Grand Bend on the shore of Lake Huron southeast to just north of London and then in a broad arc northeastward through Kitchener to Toronto. North of this line lies an extensive transitional zone or ecotone dominated by beech, maple, pine, and hemlock. This latter zone has fewer frost-free days, more annual precipitation, and a cooler annual temperature. It was not settled by the Iroquoian-speaking peoples of southwestern Ontario dealt with in this thesis, although they may have made excursions into it for hunting, fishing, and gathering. The

transitional zone was, however, settled by the prehistoric Huron and Petun as well as by the Middleport period residents of the Nodwell site (Wright 1974a).

Physiography

The study area includes three major physiographic regions: the Caradoc sand plain, the Oxford till plain, and the Mount Elgin Ridges. These three regions are divided and distinguished from each other by three glacial spillways, today occupied by the Thames River, Dingman Creek, and Oxbow Creek. The latter two creeks drain into the former.

The Caradoc sand plain has sand and light-textured sandy loam soils deposited by an early glacial delta which today covers most of Caradoc Township, Middlesex County. The entire plain is extremely level except for a low-lying bog or marshy area west of Komoka. There are high terraces predominantly of gravel at the interface between the sand plain and the Thames River spillway.

While most of the Caradoc sand plain lies west and north of the Thames River, there is an extension of this region to the east and south of the Thames in Delaware Township as far east as the boundary between Delaware and Westminster Townships. The eastern limit of this extension encroaches onto the extreme southwest corner of the City of London (Byron area), giving way to the Mount Elgin Ridges at that point (Chapman and Putnam 1973). Yet in Byron there are several prominant sand knolls and ridges that are more typical of the Caradoc sand plain region and it is on these that all Glen Meyer period sites in that area have been found. Based on a more recent and accurate mapping of physiographic regions for

the Thames River Basin, it has been determined that the Glen Meyer period sites in Byron are in fact on the Caradoc sand plain (Goff and Brown 1981).

The Oxford till plain is an upland region with drumlins and kame moraines. The till is calcareous boulder loam overlying limestone and dolomite. The region is cut by numerous meandering stream valleys, mainly flowing southward into the Thames River. The entire region is characterized as gently sloping to undulating. It occupies most of Lobo and London Townships north of the City of London and north of the Thames River and is separated from the Caradoc sand plain to the southwest by the Oxbow Creek spillway.

According to Chapman and Putnam (1973), the Oxbow Creek Middleport period sites are located on the Oxford till plain. Based on the more recent physiographic data compiled by the Lower Thames River Conservation Authority (Goff and Brown 1981), these sites are now placed on a pocket of the Ekfrid Clay Plain. This pocket is one of several lying within the Caradoc sand plain that are composed of clay, clay loam, and silt loam soils. The main portion of the Ekfrid Clay Plain lies adjacent to and west of the Caradoc sand plain.

The Lawson site is located on the Oxford till plain, while the Dolway Place sites are situated on the extreme southern tip of the Lucan Moraine. This moraine cuts in a southwestern direction through the Oxford till plain and terminates at the Thames River (Goff and Brown 1981), immediately south of the Dolway Place sites.

The Mount Elgin Ridges region lies south of the City of London and south of the Thames River, forming a large dividing area between the

Caradoc sand plain on the west and the Norfolk sand plain to the east and south. The Mount Elgin Ridges consist of a series of ridges and moraines of calcareous clay and silty clay. The region is cut by one major spillway, Dingman Creek, which runs from its eastern border due west into the Thames River at the Town of Delaware. In addition to this dendritic creek, which has numerous feeder creeks and streams, there are a number of low-lying areas between the ridges, and several kettle lakes, ponds, and marshes. None of the sites that form the regional sequence discussed here lies in this region.

Soils

The soils of the study area correlate naturally with the physiographic regions. The Caradoc sand plain is dominated by fine sands and sandy loams, including large tracts of the following soil series: Plainfield Sand, Oshtemo Sand, Watrin Sand, Berrien Sandy Loam, Fox Fine Sandy Loam, and Fox Sandy Loam. Burford Gravelly Loam appears along the terraces of the Thames River. The former soils are well-drained and today support the cultivation of cash crops such as tobacco, hay, oats, and wheat.

The area north of the Thames River within the Oxford till plain is dominated by Guelph Loam and Burford Gravelly Loam soils. The former is well-drained and not stoney and today supports the cultivation of corn and hay, as well as pasture, while the latter is largely confined to the Thames River spillway.

South of London and south of the Thames River there is a small tract of Guelph Loam which gives way to a large expanse of Huron Clay. Both

soils today support large dairy farms and fields of corn.

The Guelph Loam, Burford Gravelly Loam, and Huron Clay soils within the Oxford till plain and Mount Elgin Ridges are uniformly classified as Class 1 Arable Land by Agriculture Canada and the Ontario Soil Survey (on the 1:250,000 and 1:50,000 series topographic maps showing "Soil Capability for Agriculture"). Class 1 soils have no significant limitations in use for crops and are deep, well-drained, and hold moisture well. In their natural state, these soils are well supplied with nutrients and have a moderately high to high productivity. All of the Middleport and prehistoric Neutral sites discussed herein are situated on Class 1 soils, with no subclass limitations.

The sand and sandy loam soil series on the Caradoc sand plain are more variable and range from Class 2 to Class 5. There are no Class 1 soils within this physiographic region. Class 2 soils have moderate limitations that restrict the range of crops or require moderate conservation practices. Class 3 soils have moderately severe limitations, and Class 4 soils have severe ones. Class 5 soils have very severe limitations that restrict their capability for producing and sustaining annual field crops. The Glen Meyer sites in the Mount Brydges cluster are situated either on Class 2 soils (Kelly, Yaworski, Berkmortel, Roeland, Little, and MiV18) or on Class 5 soils (Smale). All of the sites on Class 2 soils have a subclass S limitation, caused by one or more of the following: undesirable structure, low permeability, a restricted rooting zone because of soil characteristics, low natural fertility, low moisture-holding capacity, or salinity. The latter site, Smale, is located on an area of Class 5 soils with a subclass W limitation, excess water caused by poor drainage, a high water table, seepage, or runoff from

surrounding areas. All of the Glen Meyer period sites in the Byron area of southwest London are situated on Class 2 soils with a subclass S limitation.

The correlation of sites of one time period with a specific soil type will be discussed further elsewhere in this thesis. For the time being, it is significant to note that all Glen Meyer period sites dealt with are on the sandy soils of the Caradoc sand plain while all later sites are on non-sandy (loam and clay) soils.

Drainage Systems

The study area is dominated by two major drainage systems, the Thames and Sydenham Rivers. The Thames is divided into two branches east and north of London which join in the centre of the city to form a single river that flows west-southwestward into Lake St. Clair. The Thames is fed by several secondary watercourses in the study area, including Stoney, Medway, Oxbow, and Dingman Creeks (Map 2). Each of the latter is in turn fed by numerous creeks and streams in dendritic patterns, encompassing a large drainage area. All of the Middleport and prehistoric Neutral sites discussed herein, as well as the Glen Meyer sites in the Byron area, are within the Thames drainage.

The Sydenham River has its headwaters within the upland area of the Oxford till plain directly north of Komoka and northwest of London. It is fed by numerous secondary and tertiary watercourses that originate within the Caradoc sand plain between Mount Brydges and Strathroy and flow westward. Once joined by these systems, the Sydenham becomes a primary river that flows west-southwestward into Lake St. Clair, roughly parallel

to and north of the Thames. All of the Glen Meyer villages in the Mount Brydges cluster are on the Sydenham drainage, while a sub-cluster of hamlets within Longwoods Road Conservation Area (Kelly, Yaworski, and Berkmortel) are on a secondary stream flowing eastward into the Thames.

Although none of the sites dealt with herein lies within the Ausable River drainage, it is nevertheless significant that this river has its headwaters within the study area. The Ausable begins as a series of minor streams and creeks north and northeast of Strathroy, and flows generally westward reaching Lake Huron at Pinery Provincial Park near Grand Bend. The Iroquoian occupants of the study area therefore had potential access to the important aquatic resources of Lake Huron and to the outcrop of Kettle Point chert on the shores of this lake by travelling a few kilometers north to the Ausable and thence along that river to Lake Huron.

Topography

The topography of the study area has been described above. The dominant features of the area are the glacial spillways today occupied by the Thames River, Oxbow Creek, and Dingman Creek. Local topography is highly variable and significant topographical features of specific sites will be noted under the descriptions of those sites.

Flora and Fauna

The study area lies near the northern limit of the Carolinian Biotic Province, which is characterized by an oak-hickory climax forest. The dominant trees in this zone are deciduous hardwoods. This zone has also been referred to as part of the southern deciduous forest region (Rowe

1972) and as an Oak-Deer-Maple biome (Mason 1982:60).

The deciduous hardwoods defining this zone include red and white oak, sugar and red maple, beech, and white elm. White ash and basswood are sometimes intermixed, as are several species with a southern affinity: shagbark and bitternut hickory, black walnut, butternut, sweet-chestnut, and blue-beech (Hough, Stansbury, and Michalski 1982:14). There are few coniferous trees in this zone, but when present they include white pine, tamarack, red cedar, and hemlock (Hosie 1975:21)(Table 1).

Three major studies conducted in recent years on specific tracts of land in the London area serve to characterize the vegetation found in the study area. One of these was commissioned by the Ministry of Natural Resources (Aylmer District) for Byron Woods (also known as Warbler Woods) (Hough, Stansbury, and Michalski 1982). These woods are located in Byron and contain the Willcock site. A second study focused on the Sifton (Byron) Bog, located in London 2.5 km northeast of Warbler Woods. This is a swamp/wetland environmental niche containing several species not found in the upland or dry areas of a deciduous forest (Proctor and Redfern 1979:46-53; Judd 1982:38-40). The third study was conducted around the Westminster Ponds in southeast London. The vegetation here was virtually identical to both areas described above, since this zone had lowland as well as upland characteristics (Proctor and Redfern 1982:3.2.9-3.2.10). These studies identified all of the aforementioned deciduous species, thus confirming the study area as part of the southern deciduous forest region. They also identified a variety of other deciduous and coniferous trees and shrubs (Table 1).

TABLE 1: MODERN FLORA IN THE LONDON AREA

TREES AND SHRUBS

Common Name	Latin Name*	Common Name	Latin Name
Red Oak	Quercus rubra	White Oak	Quercus alba
Sugar Maple	Acer saccharum	Red Maple	Acer rubrum
Beech	Fagus grandifolia	White Elm	Ulmus americana
White Ash	Fraxinus americana	Basswood	Tilia americana
Shagbark Hickory	Carya ovata	Bitternut Hickory	Carya cordiformis
Black Walnut	Juglans nigra	Butternut	Juglans cinerea
Blue-Beech	Carpinus caroliniana	White Pine	Pinus strobus
Tamarack	Larix laricina	Red Cedar	Juniperus virginiana
Eastern Hemlock	Tsuga canadensis	Red Hickory	Carya ovalis
Ironwood	Ostrya virginiana	Hawthorn	Crataegus sp.
Serviceberry	Amelanchier sp.	Aspen	Populus grandidentata
White Birch	Betula papyrifera	Staghorn Sumac	Rhus typhina
White Spruce	Picea glauca	Black Spruce	Picea mariana
Red Pine	Pinus resinosa	Willow	Salix rigida
Alder	Alnus crispa	Canoe Birch	Betula papyrifera
Witch-Hazel	Hamamelis virginiana	Silver Maple	Acer saccarinum
Black Maple	Acer nigrum	Mountain Maple	Acer spicatum
Yellow Birch	Betula lutea	Flowering Dogwood	Cornus florida

EDIBLE PLANTS

Grape	Vitus riparia	Cherry	Prunus avium
Black Cherry	Prunus serotina	Canada Plum	Prunus nigra
Wild Plum	Prunus americana	Chokecherry	Prunus virginiana
Raspberry	Rubus idaeus	Blackberry	Rubus allegheniensis
Strawberry	Fragaria virginiana	Elderberry	Sambucus pubens
Gooseberry	Ribes cynosbati	Nannyberry	Viburnum lentago
Blueberry	Vaccinium atrococcum	Cranberry	Vaccinium macrocarpon
Skunk Cabbage	Symplocarpus foetidus	Solomon's Seal	Polygonatum pubescens
Wood Sorrel	Oxalis stricta	Wood Betony	Pedicularis canadensis
Milkweed	Asclepias exaltata	Leek	Allium porrum
Lamb's Quarters	Chenopodium album	Purslane	Portulaca oleraceae
Knotweed	Polygonum achoreum		

* Latin Names based on Hosie 1969 and Montgomery 1977

These three studies list a wide variety of naturally occurring edible plants, or plants producing edible fruits. It can be assumed that at least some of these may have been exploited by the aboriginal inhabitants of the study area, but the following list must be qualified by stating that I did not check any references to see if each species was European-introduced or present in prehistoric times. A check was made to see what plants were used by Native Americans as food in historic times (i.e., documented ethnohistorically as a food source in Waugh 1916). These include some of the nut-bearing trees noted on Table 1, and all of the "Edible Plants" listed on that Table. In addition, wild mustard and currents were found in the Sifton Bog (Proctor and Redfern 1979:46-52), and the London area also contains several types of mushrooms and other edible fungi.

There is no evidence that vegetation has changed substantially over the past several centuries. Detailed floral analysis of carbonized remains from the Glen Meyer period Kelly site confirms a climax hardwood deciduous forest cover at that time, involving most of the dominant species listed above. These included sugar maple, hickory, beech, ash, ironwood, white and red oak, and white elm identified from charcoal samples; and oak, butternut, and black walnut identified from charred seed remains and nut shell fragments (Williamson 1981:27-28).

The fauna inhabiting the study area is as diverse as the flora. Most major mammals found in southern Ontario occur here, including Virginia deer, raccoon, woodchuck, squirrel, rabbit, muskrat, beaver, red fox, coyote, and wolf (Table 2). A variety of birds, reptiles, clams, and snails have been documented, several of which could have been used as a source of food (Waugh 1916). Some of these are listed on Table 2.

TABLE 2: FAUNA IN THE LONDON AREA

MAMMALIA

Present Today

Common Name	Latin Name	Common Name	Latin Name
Virginia Deer	Odocoileus virginianus	Raccoon	Procyon lotor
Woodchuck	Marmota monax	Chipmunk	Tamais striatus
Gray Squirrel	Sciurus carolinensis	Muskrat	Ondatra zibethicus
Red Squirrel	Tamiasciurus hudsonicus	Striped Skunk	Mephitis mephitis
Eastern Cottontail	Sylvilagus floridanus	Beaver	Castor canadensis
Shortail Shrew	Blarina brevicauda	Red Fox	Vulpes fulva
Meadow Vole	Microtus pennsylvanicus	Coyote	Canis latrans
Wolf	Canis lupus	Dog	Canis familiaris

Rare or Extinct Today, but Identified in Prehistoric Faunal Assemblages

Snowshoe Hare	Lepus americanus	Black Bear	Ursus americanus
River Otter	Lontra canadensis	Fisher	Martes pennanti
Marten	Martes americana	Mink	Mustela vison
Lynx	Lynx lynx	Bobcat	Lynx rufus
Moose	Alces alces	Elk (Wapiti)	Cervus canadensis
Caribou	Rangifer tarandus	Porcupine	Erethizon dorsatum
Gray Fox	Urocyon cinereoargenteus		

AVES

Present Today

Wood Duck	Aix sponsa	Mallard	Anas platyrhynchos
Bufflehead Duck	Bucephala albeola	Canada Goose	Branta canadensis
Barred Owl	Strix varia	Great Horned Owl	Bubo virginianus
Common Loon	Gavia immer	Great Blue Heron	Ardea herodias
Red-tailed Hawk	Buteo jamaicensis	Woodpecker	Dendrocopos sp.
Ring-necked Pheasant	Phasianus colchicus		

TABLE 2: Continued

Rare or Extinct Today, but Identified in Prehistoric Faunal Assemblages

Passenger Pigeon	Ectopistes migratorius	Wild Turkey	Meleagris gallapavo
Ruffed Grouse	Bonasa umbellus	Spruce Goose	Canachites canadensis
Sandhill Crane	Grus canadensis	Golden Eagle	Aquila chrysaetos

PISCES

Identified in Prehistoric Faunal Assemblages

Common Name	Latin Name	Common Name	Latin Name
Freshwater Drum	Aplodinotus grunniens	Channel Catfish	Ictalurus punctatus
Small-mouth Bass	Micropeterus dolomieu	Buffalofish	Ictiobus bubalus
Sucker	Catostomus sp.	Salmon	Salmo sp.
Mullet	Moxostoma aureolum	Dogfish	Amia calva
Perch	Perca flavescens		
Yellow Pickerel	Stizostedion v. vitreum		

REPTILIA

Present Today

Blanding's Turtle	Emydoidea blandingi	Spotted Turtle	Clemmys guttata
Snapping Turtle	Chelydra serpentina	Painted Turtle	Chrysemys picta marginata
Wood Frog	Rana sylvatica	Gray Treefrog	Hyla versicolor
Chorus Frog	Pseudacris triseriata	American Toad	Bufo americanus
Green Frog	Rana clamitans melanota	Spring Peeper	Hyla crucifer
Garter Snake	Thamnophis s. sirtalis	Milk Snake	Lampropeltis t. triangulum

While the food value of some of the smaller-sized species is quite low (i.e., how many shrews are required to equal the number of calories in one rabbit?), it is known that in historic times the Iroquois ate a wide variety of species (or products therefrom, such as eggs). For example, Waugh (ibid.) notes that in addition to the more conventional mammals and birds, the following were consumed: skunk, mouse or vole, blackbird, woodpecker, crane, loon, owl, eggs of several wild bird species, frogs, snakes, turtles, turtle eggs, clams, snails, and insects.

The Thames and Sydenham Rivers hosted a large number of fish species, and continue to do so today. Since several species may have been introduced in recent times, the following list includes only those that have been identified prehistorically (i.e., faunal identifications from excavated sites). These include several species that may have been obtained through excursions to larger bodies of water such as Lakes Erie and Huron. The total list includes freshwater drum, channel catfish, several types of bass, sucker, salmon, dogfish, and yellow pickerel (Wintemberg 1939:9; Pearce 1980:25-28; Williamson 1981:59-69)(see Table 2).

It is known from the identification of faunal remains from excavated sites that a far greater range of mammals and birds were present in prehistoric times than exists in the area today. These include some species that are now extinct or locally obsolete, such as black bear, snowshoe hare, river otter, fisher, marten, mink, lynx, bobcat, grey fox, porcupine, moose, elk (wapiti), caribou, wild turkey, passenger pigeon, ruffed grouse, Spruce goose, sandhill crane, and Golden Eagle (Wintemberg 1939:8-9; Williamson 1981:29-31, 59-69)(see Table 2).

These plant and animal resouces indicate that a diverse and bountiful supply of food was available to the native population of the study area; further aspects of subsistence will be discussed in Chapter 6.

THE SITES

This section will describe some of the sites that form the data base for this thesis. It excludes the Glen Meyer period sites of the Mount Brydges cluster on the Caradoc sand plain as these are the subject of Ronald Williamson's doctoral dissertation. It includes, however, the Glen Meyer period sites in the Byron cluster, the Crawford site in the Arkona cluster, the Middleport period sites along Oxbow Creek, the Dolway Place sites, the Lawson site, and the hamlets associated with the Lawson site, all investigated by the Museum of Indian Archaeology or by the author while employed at that institution. Additional data for other sites discussed in Chapters 5 and 6 were extracted from Williamson (1981, 1982a, 1982b, 1983a, 1983b)(pertaining to sites in the Mount Brydges cluster), and Lee (1950, 1951) and Wright (1966)(pertaining to the Arkona cluster).

To respect the confidentiality of site locations in conformity with the policy of the Ontario Ministry of Citizenship and Culture, and since some of the sites discussed below remain undisturbed, no specific site locations will be given. Each site description contains its Borden number, which will allow qualified researchers to ascertain the site location if they contact the Ministry. The maps included herein have the sites placed only in a relative position to each other, not necessarily the precise location, for the same reason.

The following descriptions contain a discussion of each site's type, general location, topography, soil type, nearest source of water, distance to nearest known Iroquoian site, history of investigation, settlement pattern data (if available), ceramic vessel typology, ceramic pipe typology, projectile point typology, and date (relative or absolute) if available. In this analysis villages, hamlets, and camp sites were distinguished on the basis of size and settlement patterns. Villages are larger than 0.5 ha in size and contain several longhouses. Hamlets are less than 0.5 ha and contain fewer than four or five houses; the hamlets associated with Lawson are consistently 0.2 ha and contain only one house. Camps are also generally less than 0.5 ha and are distinguished from hamlets by the lack of permanent structures.

DUNN SITE AfHi-50

This is a village assigned to the Glen Meyer period. It is part of the Byron cluster of sites. It lies on a sandy knoll that has been partially removed by a sand pit operation, thus destroying an unknown portion of the site; the remainder of the site occupies a pasture and a small portion of a plowed field. A creek lies 200 m northeast of the site. It is believed that the remaining portion of the site covers about 0.4 ha.

The site was known to a number of local amateur archaeologists in the 1960s and was briefly investigated by the Museum of Indian Archaeology in 1982 (Timmins 1983). No settlement pattern data are available. There is an unconfirmed report that burials were found on the site, apparently several years ago when sand was being removed from the knoll.

The ceramics from Dunn have been described as "characteristic Glen Meyer ware" (ibid., 52). These included one collarless rim sherd with stamped obliques; a fragmentary rim sherd with linear stamped obliques over an incised horizontal; eight cord malleated and/or fabric impressed body sherds; and 38 fragmentary sherds.

A single Glen Meyer spurred projectile point was recovered.

No other diagnostic material was found during the Museum's investigation. There are, however, several extant collections in the hands of local amateurs that have not been located or analyzed.

SITE AfHi-78

This site is in the Byron cluster of Glen Meyer period components, and is designated as a village on the basis of its reported size.

The site became known to a group of amateurs, some of whom had formed the "Southwestern Ontario Archaeological Society". They conducted an organized excavation of a fairly large area of the site in the early 1960s. Since then, the Museum of Indian Archaeology has received two separate donations from participants in this excavation and a sketch map showing the area dug. The excavation involved a minimum of 75 five-foot squares. The map indicates the presence of a midden that was partially excavated, and one of the donors informed me of a second midden. Ronald Williamson visited the site in 1981, collected a small amount of material, and has since donated that material to the Museum. Archaeologists from the Museum visited the site in 1982 and 1983 and collected a small amount of lithic debitage from an eroded track.

One of the original excavators visited the site in the late 1960s, while some grading was taking place. The bulldozer exposed a circular pit containing a single human burial, an elderly woman who suffered from severe dental loss and arthritis (Michael Spence, personal communication). Included in the pit were a single ceramic vessel and one deer bone fragment (the proximal end of a left humerus). The ceramic vessel was typed as Stafford Dentate. The interior of this vessel bore the same motif as the exterior, two horizontal rows of dentate stamp obliques. The lip had a horizontal line formed by repeated impressions with the same dentate stamp tool and there were exterior bosses on a plain neck (Pearce et al. 1980:62).

Additional ceramics from this site, now in the possession of the Museum of Indian Archaeology, include the following types: Stafford Dentate, Glen Meyer Oblique, Ontario Oblique, and Stafford Stamped. The sketch map obtained from one of the excavators had notes and drawings of various ceramic vessels that can be interpreted as the following additional types: Goessens Oblique, Goessens Necked, Glen Meyer Necked, and Middleport Criss-Cross. This combination of types suggests an occupation in the early part of the Glen Meyer period.

No pipes or chipped lithics were included in the material donated to the Museum, but the sketch map indicates that these were found. It includes reference to at least one ceramic pipe, one stone pipe bowl, and ten projectile points.

The range and quantity of material found on this site as indicated on the sketch map, combined with the size of the site, verify that it was a village. The artifactual material included 82 "pottery rim fragments"

from one square; other squares with ten, eight, five, four, three, and several with one "pot rims"; a variety of lithic artifacts including scrapers, a graver, a burin, and flakes; hammerstones, abraders, and a stone pendant; a long list of faunal remains (deer, beaver, fish, birds, clams, and snails); bone artifacts (antler flaker, antler dagger, awls, and a "bone pottery marker"); carbonized corn kernels; and charcoal.

WILLCOCK SITE AfHi-52

This is a hamlet assigned to the Glen Meyer period, and is part of the Byron cluster. It occupied an area of less than 0.1 ha on top of a sandy knoll, at the base of which was a small marsh. It is thought that the marsh was once a pond fed by a minor stream. The site was situated in a large wooded area known as Warbler Woods, a mixed forest today but one that in 1810-1820 was dominated by an oak cover (Finlay 1978). The site was 1.3 km south of the Thames River.

The site was discovered in 1982 by the Museum of Indian Archaeology while conducting an archaeological resource assessment of Warbler Woods, prior to the development of a housing subdivision (Pihl 1982). A midden on the east side of the knoll was encountered while test pitting and a second midden was discovered while testing to determine the extent of the site. Salvage excavations were initiated by the Museum in the fall of 1982 (Poulton 1983b) and completed in the spring of 1983 (Poulton n.d.). These excavations revealed that the two middens were located outside either end of a longhouse. The house was 23 m long, about 7 m wide, and contained six centrally-aligned hearths and several large pits.

The artifactual and settlement pattern data from Willcock suggest a cold season occupation by a relatively large group of Glen Meyer men, women, and children. The longhouse had large heating hearths and overlapping/intersecting pits, suggestive of extended use in at least the early spring and/or late fall, and possibly during the winter. As such, this hamlet differs from others excavated to date in the Byron and Mount Brydges clusters, which seem to have been occupied in the warm season.

The 1982 excavations, which concentrated on removal of the two middens, resulted in the recovery of 211 rim sherds representing a minimum of 109 vessels (Poulton 1983b). The vast majority of these have poorly-developed collars with horizontal motifs executed with a push-pull technique and they are considered to be of the Iroquoian Linear type.

The ceramic pipes from Willcock were abundant and unique, including ones typical of both the Glen Meyer and Middleport periods. These will be discussed in greater detail in Chapter 5.

The ceramic vessels and pipes tentatively date this component circa A.D. 1250. Ceramic seriation presented in Chapter 5 suggests it falls between Roeland, dated circa A.D. 1200, and Edwards, dated circa A.D. 1245-1315.

McGRATH SITE AfHi-61

This site is assigned to the Byron cluster of Glen Meyer period sites. It occupied an area of less than 0.1 ha on a sandy knoll. It was 1.5 km east of the AfHi-78 village and 2.8 km southeast of Willcock. A stream originates at the bottom of the west side of the knoll and flows

southwestward into Dingman Creek.

The site was discovered in 1982 by the Museum of Indian Archaeology while conducting an archaeological resource assessment of a proposed subdivision (Mayer 1982) and it was salvage excavated by the Museum in 1983 (Poulton n.d.).

The site yielded no settlement pattern data; there were no structures or middens. There were only a few features (pits), one of which contained fired soil and charcoal interpreted as a hearth. Another feature contained a large quantity of fire-cracked rock.

A majority of the artifacts recovered from McGrath can be attributed to male activities, although some ceramics were found and allow assignment of this site within the Glen Meyer period. It is interpreted as a camp that was occupied for a short duration in the warm season by a small group of men (ibid.).

MARIEM I (AfHi-51) and MARIEM II (AfHi-74) SITES

This is a pair of small components assigned to the Glen Meyer period and forming part of the Byron cluster. They lie on adjacent sandy knolls separated from each other by a distance of 75 to 100 m and a steep gulley. They are 400 m north of the Dunn village.

Mariem I was reported to the Museum of Indian Archaeology by a local resident. Dr. William D. Finlayson of the Museum visited the site and confirmed its location. The site was subsequently investigated by the Museum as part of a summer research project (Timmins 1983). It was in

pasture, but artifacts were observed along eroding bike tracks. Artifacts were recovered from six of 46 test pits dug systematically over the knoll. The productive test pits were clustered in one small area, suggesting a possible midden. The site area of 0.2 ha would be consistent with an interpretation as a hamlet. Yet Timmins (1983:56) suggested that because there was no space for a living area on the crest of the pointed knoll, some nodules of red ochre were found, and human bones were apparently recovered by the original reporter, this may be a mortuary site.

The artifacts from Mariem I included 50 fragmentary sherds, nine neck/shoulder sherds (three plain, two scarified, three with incised horizontals, and one with an indeterminate incised motif), and two body sherds (one cord malleated, one incised). A probable DeWaele (Glen Meyer) projectile point was also found.

The Mariem II site was discovered while archaeologists from the Museum were investigating Mariem I. It was in a cultivated field but may extend into an undisturbed area to the south. The site was 150 m north of a tributary of the Thames River.

Artifacts from Mariem II were concentrated in an area of less than 0.1 ha. This site is interpreted as a possible hamlet or camp.

There were 25 fragmentary sherds, two plain neck/shoulder sherds, two plain body sherds, one fabric-impressed body sherd, and a Glen Meyer triangular projectile point.

A single plain neck sherd was surface-collected from the south edge of the field containing Mariem II, but 65 m from the main concentration of artifacts on this site.

WARBLER WOODS BURIAL AfHi-57

This was a single human burial of the Glen Meyer period, located in the same woodlot as the Willcock site. It was on a sandy knoll 1 km north of Willcock and 325 m east of Dunn.

The site was discovered by teenage boys "excavating" a play fort in the woods. The bones were given to the city police. The Ministry of Citizenship and Culture visited the site and collected a few additional bones and a single piece of Glen Meyer pottery; no other artifacts were found. The bones were given to Dr. Michael Spence, Department of Anthropology, University of Western Ontario, who analyzed them and prepared a report from which this information has been extracted (Spence 1982). The boys who discovered the site were questioned and said the burial was in a flexed position with the legs drawn up towards the chin.

Spence determined the burial to be complete (i.e., primary, not secondary), and that of a young (age 12 or 13) person, probably female.

After Spence's analysis, the burial was returned to the local Native community for re-interment.

ADDITIONAL GLEN MEYER PERIOD SITES IN THE BYRON AREA

Four isolated finds of diagnostic Glen Meyer material in the Byron area indicate that, in addition to the aforementioned sites, extensive utilization of this area took place during that period. These include:

AfHi-60: A single Glen Meyer triangular projectile point (Timmins

1983:22,29).

AfHi-62: Two projectile points, both Glen Meyer (one notched, one triangular) (ibid.,22,30).

AfHi-75: One (or possibly two) Glen Meyer ceramic vessels discovered while test pitting Warbler Woods. Additional testing failed to locate any more material (Pihl 1982). The vessel is collarless with a horizontal plat motif formed by repeated linear stamping and has a cord marked body.

AfHi-76: A single Glen Meyer Oblique ceramic vessel with a cord marked body, found while test pitting Warbler Woods. Subsequent testing in the vicinity failed to locate any additional Glen Meyer period material (but an almost complete ceramic vessel assigned to the Western Basin Middle Woodland period was found 20 m from the Glen Meyer one)(Pihl 1982). Afhi-75 and 76 were 150 m apart and both were 500 m north of the Willcock site.

CRAWFORD SITE

This village is the only site in the Arkona cluster for which there is detailed information It is located just over 3 km south of the Thedford Marsh on a sandy rise to the west of a small tributary of the Ausable River. It is 13 km north of Arkona, in which other Glen Meyer period components are situated (the Faulds and Holmes sites [Lee 1950]). It also lies 15 km east-southeast of the chert outcrop at Kettle Point and 30 km northwest of the present town of Strathroy.

The Crawford site, as well as all other known Glen Meyer period components in the Arkona cluster, are located on a large pocket of Fox Sandy Loam.

Crawford was discovered by Wilfrid and Amos Jury in 1932 while surveying along the Ausable River and was reinvestigated by the former while he was conducting an extensive survey in the Port Franks to Thedford area in 1947-1948. Between his two visits to this site, it had been cleared of large pine trees, resulting in the exposure of several areas of dark soil. This prompted Jury to carry out excavations there in 1948. He noted at that time that the soil was light and sandy and virtually stone-free (Jury 1948:1).

Jury delineated a series of "refuse dumps" extending for a distance of 38 m along the southern edge of the village adjacent to the river. He excavated another midden (9 m in diameter and 20 cm deep) and all or portions of 8 longhouses. The latter were described as being "approximately twenty feet wide and from fifty-eight to eighty-five feet long" with post moulds "four inches to six inches in diameter" extending "some twenty inches into the soil". They also had "fire pits" that were "usually four feet across" and spaced "nine feet apart in the centre of the houses". He added that these houses were oriented east to west in the southern part of the village and north to south at the north end and that there was no evidence for a palisade even though he excavated in anticipation of finding one. The village covered an area of 1.1 ha (ibid., 1-4).

The ceramic vessels from Crawford were described as "symmetrical in proportion" and consisted of several shapes, all with "rounded bottoms,

globular bodies with slightly constricted neck and a flaring mouth". Jury stated the "design was simple and markedly inferior to that of the pottery found on Neutral Indian sites throughout Western Ontario" (ibid., 6-7). He did not describe the vessels further in terms of decoration, but noted that they were very similar to ones excavated from the Uren site (Wintemberg 1928). Jury illustrated a few rim sherds in his published report, most of which can be seen to have push-pull horizontal collar motifs (Jury 1948:13-15).

Unfortunately, the artifact collection from Crawford, which Jury admitted was sparse, has since been dispersed. I know of only two artifacts extant today; both are rim sherds bearing a push-pull horizontal collar motif. One of these sherds is housed at the Museum of Indian Archaeology and the other was donated by Jury to Mr. Ted Baxter of Arkona and is kept at the Arkona Lions Club Museum.

Jury's report gives a brief list of other artifacts recovered. These included: two ceramic pipes, both stem fragments; a bone awl; a modified bear canine; a milling stone; several side-notched projectile points; knives; mullers; mortars; and a few pieces of bone identified as deer, bear, raccoon, rabbit, and muskrat.

EDWARDS SITE AfHi-23

This is a village near Oxbow Creek assigned to the Middleport period. It covers between 2.8 and 3.2 ha and lies partially in a cultivated field but predominantly in an undisturbed woodlot. It was located on flat land adjacent to a spring which produces a stream that flows south-southwest into Oxbow Creek. The topsoil is clay loam overlying almost pure sand, the latter extending to a depth of over 2 m. and being representative of the Caradoc sand plain physiographic region. The topsoil, however, is technically clay loam and is associated with the Ekfrid Clay Plain (Chapman and Putnam 1973) located further west (see Physiography section above).

The Edwards site was known to the original landowner who brought it to the attention of Dr. W.W. Jury. Both the landowner and Jury surface collected the plowed portion of the site, and Jury conducted test excavations and a field school in the woodlot for the University of Western Ontario through the Museum of Indian Archaeology.

The landowner eventually donated his material from the site to Jury and the Museum. This donation included over 600 items that I analyzed as part of the Jury collection documentation in 1978-1979 (Pearce et al. 1980). I was taken to the site in 1978 by Dr. Jury and subsequently carried out test excavations there in 1981 (Pearce 1982a).

Settlement pattern data from Edwards are confined to a portion of one longhouse and the known occurrence of nine middens. The house was only partially excavated; it was oriented west/northwest to east/southeast, was 7.8 m wide and at least 25 m long, and contained bench rows down either side. One centrally-located hearth and several interior house

features were uncovered and excavated (ibid., 5).

The nine middens were distributed randomly across the site and were of variable size; Midden 1 was 22 m long by 8.5 m wide with a maximum depth of 46 cm below the surface, while Midden 4 was 2.4 m long by 1.1 m wide with a maximum depth of 24 cm below the surface. Both of those middens, as well as five others, were in the undisturbed woodlot, while the other two were mapped by controlled surface collections in the plowed field. A possible tenth midden, located in the woodlot, may have been excavated by Jury but the only trace of it found during the 1981 investigations was a 12 m diameter depression surrounded by a ring of sterile topsoil.

The artifacts resulting from the 1981 test excavation included 53 ceramic vessels constructed from 62 rim sherds. These were typed as follows: Middleport Oblique 28.3%; Ontario Horizontal 26.4%; Pound Necked 24.5%; Lawson Incised, Lawson Opposed, Niagara Collared, and Pound Blank 1.9% each; and various "earlier" Glen Meyer types, 11.3%. There was also one vessel typed as "Mackinac Ware". It closely resembles collarless cord-impressed vessels with horizontal motifs from sites such as Mikado Earthwork in Michigan (Carruthers 1975:134).

The 1981 assemblage included 16 analyzable pipe bowls or sections: 4 Iroquois Ring or Elongated Ring; 3 Plain Conical; 5 Decorated Conical (with complex motifs); and 4 miscellaneous. One of the latter may be a portion of an effigy pipe but it is too fragmentary to confirm this designation or determine the type of effigy.

The Iroquoian projectile points from Edwards included both triangular (2) and side-notched (9) forms.

Two charcoal samples from two features on the site were submitted for radiocarbon dating and C13/C12 isotopic analysis. One sample yielded a date of 730 years B.P. +/- 100 years (I-12,278), or A.D. 1220 +/- 100 years. The other date was 700 years B.P. +/- 80 years (I-12,279), or A.D. 1250 +/- 80 years. The isotopic analysis had no effect on the second sample, but the first sample obtained a normalized age of 690 years B.P. +/- 100 years, or A.D 1260 +/- 100 years. Using the MASCA conversion to take into account variation in atmospheric C^{14} (Ralph, Michael and Han 1973), both dates were assigned to the inclusive period A.D. 1260 to 1290, with a slight increase in the deviation to +/- 110 years for the first sample and +/- 90 years for the second. Using this calibration, the range falls between A.D. 1150 and 1400, with both midpoints coinciding in the A.D. 1260 to 1290 bracket. However, these dates have since been recalibrated using a universally accepted conversion chart (Klein et al. 1982) to become A.D. 1280 +/- 35 years. The decrease in the deviation arises from the fact that the two raw radiocarbon dates cluster together (1220 and 1250), thereby increasing the probability that the adjusted dates actually fall in the range between A.D. 1245 and 1315 (Timmins 1984).

distrib
of surf

DRUMHOLM SITE AfHi-22

This is a village in the Oxbow Creek cluster assigned to the Middleport period. It covers approximately 3.0 to 3.2 ha in a cultivated field and lies on a slight knoll of clay loam soil overlying sandy subsoil. The western edge of the site extends up to a stream and swale that separate it from the Edwards site located only 100 m to the west-northwest. An irrigation pond was being excavated beside this stream at the time of one visit I made to the site. The soil here was heavy grey clay that extended to a depth of over 2 m below the surface. The clay loam topsoil on the site, like that on the adjacent Edwards site, is a pocket of the Ekfrid Clay Plain (Goff and Brown 1981; see Physiography section above).

The Drumholm site was known to the original landowner who brought it to the attention of Dr. W.W. Jury. Both the landowner and Jury surface collected middens on the site which in the 1920s and 1930s were in a woodlot covering the site. The landowner donated his collection to Jury and these and Jury's artifacts were analyzed by me in 1978-1979 as part of the Jury collection documentation project (Pearce et al. 1980). I was taken to the site in 1978 by Jury and subsequently carried out brief investigations there while test excavating the Edwards site (Pearce 1982a).

The Drumholm site contained at least 11 middens. These were highly visible on the surface of the recently plowed field owing to the fact that the woodlot had been cleared from the site less than twenty years ago. These middens were of variable size and were randomly distributed over the site, each separated from others by distances of 25 to 50 m.

The artifacts from Drumholm included 74 distinct ceramic vessels (56 from Jury's collection and 18 collected in 1981). These were typed as follows: Pound Necked 33.7%; Ontario Horizontal 18.9%; Middleport Oblique 17.5%, Lawson Incised 2.7%; Middleport Criss-Cross 2.7%; Pound Blank 1.4%; Ripley Plain 1.4%; and various "earlier" Glen Meyer types 21.7%.

There were seven analyzable pipe bowls. Four were Conical Plain; one was Ring Trumpet; one was a conical bowl with alternating motifs of punctates in a horizontal row and incised horizontals; and one was a miscellaneous fragment, possibly from an effigy pipe.

There was one projectile point in the Drumholm assemblage; it was side-notched.

ALWAY SITE AfHi-2

This is a village in the Oxbow Creek cluster of sites assigned to the Middleport period. It covers about 2.0 ha in a cultivated field and lies 1.3 km northwest of Edwards. It is located on a clay loam knoll which is part of the Ekfrid Clay Plain. A large gulley forms the northeast side of the site, through which Oxbow Creek passes.

The site was known to the original landowner at the turn of this century, and he brought it to the attention of Dr. W.W. Jury. Both the landowner and Jury surface collected the site and Jury excavated a hillside midden at the southwest end (Jury 1937). The area of the excavation was fan-shaped, 11.5 m wide at the bottom, 2.7 m wide at the top, and 9.7 m long, reaching a maximum depth of 1.0 m below the surface.

The landowner donated his material from the site to Jury. These, as well as the artifacts from Jury's excavation, were analyzed by me in 1978-1979 (Pearce et al. 1980). No further activities have taken place at this site since Jury's 1936 excavation, although I visited it in 1981 to ascertain its precise location (erroneously given in Jury's 1937 report). No settlement pattern data are available.

The artifacts from Alway included 30 ceramic vessels, typed as follows: Pound Necked 36.7%; Middleport Oblique 23.3%; Ontario Horizontal 10.0%; Lawson Incised 6.7%; Lawson Opposed 3.3%; Miscellaneous 20.0%. Vessels in the latter category include ones which did not conform to established types but are considered most similar to earlier Glen Meyer vessels because they include a collarless form with various stamped motifs. There is also one vessel with cord-wrapped stick horizontals and verticals.

There were seven analyzable pipe bowls. These included 2 Iroquois Ring; 2 Conical Plain; 2 Plain Trumpet; and 1 Decorated Trumpet. There were no Conical Decorated pipes with complex motifs as found at the Edwards and Drumholm sites.

Both Iroquoian projectile points from Alway were side-notched. Jury also recovered one Archaic point.

ORCHARD SITE

The Dolway Place sites include Orchard, Tennis Lawn, and McKenzie. These sites are known from notes and artifacts in the Jury collection (the McKenzie site) and artifacts and annotated catalogues in the A.F. Steele and Cameron Wilson collections (all three sites) housed at the Museum of Indian Archaeology (Pearce n.d.). Some of Steele's collection was donated by him to the Royal Ontario Museum (AARO 1924-1925:114). The latter material included ceramics, abraders, and lithic tools from these three sites.

None of the sites has been visited in recent years by an archaeologist to determine their precise location and current status, so no Borden numbers have been assigned. It is believed that all three sites are villages, with some portion of each remaining undisturbed.

Based on their location and the few diagnostic artifacts available at the Museum, these sites are placed chronologically between the Oxbow Creek Middleport period sites and the Lawson site. All three Dolway Place sites are located on terraces along the north bank of the Thames River, precisely half way between the Edwards, Drumholm, Alway cluster on Oxbow Creek and the Lawson site on Medway Creek. They sit on adjacent lots but are separated from each other by distances greater than 500 meters. Notes in the Jury, Steele, and Wilson catalogues indicate these were three distinct sites, found and investigated in the 1920s and 1930s. Inasmuch as the community under study was moving in an easterly direction (from Oxbow Creek eventually to Lawson), it is proposed the three Dolway Place sites were occupied in the sequential order of Orchard, Tennis Lawn, and McKenzie, since this is their spatial location from west to east.

The Orchard site was collected by Wilson and excavated by him with the assistance of Amos and Wilfrid Jury.

Wilson's catalogue notes the following about this site: it was a "manufacturing place", because large quantities of "flint chips" were found there; a number of "burnt stones" were also found; a large number of specimens came from one particular area measuring nearly five square metres (a possible midden?); the site was undisturbed until clearing took place in 1935; there was evidence for an "Indian habitation" (a longhouse?); a large number of pieces of pottery were found; and excavations uncovered "considerable material at a depth of 12 to 16 inches".

The portion of the Wilson collection donated to the Museum of Indian Archaeology contained several artifacts from this site. These included a minimum of ten ceramic vessels typed as follows: 6 Pound Necked; 2 Middleport Oblique; and 2 Ontario Horizontal.

There were also five analyzable pipe bowls. These were all "Ring" types decorated with between four and eleven incised horizontals but varying in shape and profile from bulbous to conical to cylindrical.

Additional material included 3 juvenile vessels, 6 side-notched and 2 triangular projectile points, 4 chert bifaces, 2 chert knives, a sandstone abrader, a piece of ground schist, a bone awl, a tubular bone bead, and 2 antler flakers.

Wilson's catalogue refers to a number of artifacts found at the Orchard site but not donated to the Museum of Indian Archaeology. These include more pottery, 8 different pipes, 6 bone beads, bone needles,

several other bone artifacts, a celt, numerous "flint chips", "burnt stones", netsinkers, a "stone hammer", modified and unmodified deer phalanges, and a quantity of bone fragments including "deer, bear, pigeon, and turkey".

TENNIS LAWN SITE

The Tennis Lawn site was located on the lot east of Orchard and is known from artifacts and notes in the Wilson collection. These notes state the following: Wilson found a midden, projectile points, adzes or axes, and "hundreds of small flint chips"; Mr. A.F. Steele's father had a large collection of artifacts from this site, "many of which went to the Ontario Museum" (i.e., what is now the Royal Ontario Museum); chert implements were made on the site since Wilson found "numerous pieces of flint in various stages of manufacture"; and he also found shell beads, bone needles, and worked clam shell.

Only ten artifacts in Wilson's collection at the Museum of Indian Archaeology could positively be assigned to the Tennis Lawn site. These were: a large knife (85 mm long, 31 mm wide, 9 mm thick) made from Kettle Point chert; an Iroquoian side-notched point made from Onondaga chert; 3 drills, one of which was fashioned from a broken Iroquoian side-notched point; a triangular point with a concave base; an end scraper; an antler drill or punch; and a deer phalange with a hole drilled transversely through the shaft near the distal end. The tenth and final artifact was an Early Archaic bifurcate base, serrated edge projectile point.

McKENZIE SITE

The McKenzie site was known to the original landowner, who brought it to Jury's attention. The landowner eventually donated some of his material from this and other sites to the Museum of Indian Archaeology. Several other local collectors knew of the site and some of them also donated material to the Museum. Notes in Jury's catalogue contain references such as "donated by Mr. -----, found on McKenzie's farm".

The McKenzie site was located on a wide terrace above the Thames River on clay soil. Jury visited the site several times and conducted a field school there in 1952 for the University of Western Ontario (Pearce et al. 1980). His field notes state that this was a largely undisturbed village. It is not known how so many people made collections from it.

Jury excavated a complete longhouse at McKenzie in 1928. This house was 33 m long, 5.5 m wide, had squared ends, and eleven centrally-aligned hearths.

This site also had a rather curious burial which became famous owing to the fact that it was a female in an upright position with a birdstone resting above the head. The birdstone, and consequently the burial, were described in Townsend's Birdstones of the North American Indian (1959:356), where he noted that the burial was inside a longhouse and the birdstone was resting on soil above the skull. The birdstone (Jury catalogue number 19095) is a "nubbin" type, in the general outline of a bird but lacking eyes.

No artifacts found by Jury at McKenzie currently reside at the Museum; their whereabouts remains a mystery. Some artifacts are

described in his catalogue and there were artifacts from this site in the Steele and Wilson collections. These included pottery and lithic tools.

THOMAS LEWIS SITE AfHi-47

The Thomas Lewis site is a hamlet that is located 2 km east of the McKenzie site. This suggests that it is associated with one of the Dolway Place villages. It must be noted, however, that some of the hamlets of the Lawson site (described below) are up to 4.2 km from that site and that Thomas Lewis is only 3.9 km west of Lawson. Therefore Thomas Lewis may be a hamlet of Lawson and not of one of the Dolway Place sites.

Thomas Lewis occupied a clay knoll in a plowed field, 100 m west of a small tributary of the Thames River.

This site was originally noted by Wintemberg (1939:2, footnote 1) and must have been known locally prior to 1921-1923. Wintemberg's files at the Archaeological Survey of Canada indicate that Mr. Lewis had a small collection from this site, including ceramics and carbonized corn. Wintemberg did not see this material because Mr. Lewis was away at the time of his visit in September 1923, but he was informed of the site by a neighbour who also had a collection of ceramics (ASC, W.J. Wintemberg Collection, Box 26, File 7).

This site was re-discovered in 1982 by the Museum of Indian Archaeology. A controlled surface collection indicated a site size of about 0.25 ha (Timmins 1983).

Only a few diagnostic artifacts were found, including some from a concentrated area which may reflect a subsurface midden. One rim sherd was located; it was collarless with stamped obliques over incised horizontals. Other ceramics included 19 fragmentary sherds; 8 plain body sherds; 2 decorated body sherds; and 1 lump of clay.

Two of the four pipe fragments found were analyzable bowls. One was a Plain Trumpet and the other was Iroquois Ring.

Both projectile points found in 1982 were pre-Iroquoian and were probably picked up by the site inhabitants from one of several non-Iroquoian sites that are known in the vicinity.

SITES AfHi-43, AfHi-45, and AfHi-46

There are another three sites on the Thomas Lewis property, discovered by the Museum while investigating the Thomas Lewis site (Timmins 1983). Although only one of these produced ceramic material, their spacing, location, and artifacts are identical to the hamlets associated with the Lawson site. This suggests that they might be other hamlets forming a cluster with Thomas Lewis, just as the Lawson site hamlets are in clusters (described below). If not hamlets, they at least indicate activity areas of the same people who used Thomas Lewis.

AfHi-43 was on a peninsula of land bordered on two sides by small tributaries of the Thames River, with the site being 80 m from the nearest of these. It was 800 m southwest of Thomas Lewis.

Artifacts recovered were 28 pieces of chipping detritus (Kettle Point and Onondaga chert) and fire-cracked rock covering an area of less than 0.1 ha.

AfHi-45 was on a clay ridge bordered by the same two creeks, the closest being 100 m from the site. It was 300 m south of Thomas Lewis. AfHi-46 was on the same ridge, 250 m southeast of AfHi-45 and 250 m southwest of Thomas Lewis.

Artifacts from AfHi-45 were scattered over an area of less than 0.1 ha and included a single plain body sherd, 2 utilized chert flakes, and 16 pieces of chipping detritus (Kettle Point and Onondaga chert). No fire-cracked rock was observed.

AfHi-46 produced even fewer artifacts: a siltstone abrader with use-wear striations, a chert wedge, a utilized flake, and 5 pieces of chipping detritus (Kettle Point and Onondaga chert).

While not conclusive, the evidence from these three sites is consistent with a tentative identification as hamlets. The Woodholme hamlet of the Lawson site, to be described below, produced only two chert flakes upon its discovery, and three visits were required before any ceramics were found at the Ronto site. Since the sites on the Thomas Lewis property were only visited once, their nature is uncertain but they have the potential for yielding additional artifacts in the future.

LAWSON SITE AgHh-1

Lawson is a village assigned to the prehistoric Neutral period. It is 1.8 ha in size, of which approximately 75% is in an undisturbed woodlot that has been subjected to limited excavation. The northern 25% was in a cultivated field and has been almost completely excavated.

It is located on a flat plateau of clay soil on a triangular promontory with steep slopes on three sides leading down to Medway Creek on the east, Snake Creek on the west, and the confluence of these two watercourses on the south. A gentle slope rises for a distance of 140 m from the point where the creeks meet up to the southeast end of the village. This end probably contained the main entrance to the village. The northwest end of the site opens onto a vast expanse of flat land.

The Lawson site was known to local collectors in the 1860s, one of whom, Dr. Solon Woolverton, took David Boyle to the site in 1894. Woolverton had a large collection from the site and organized weekend outings there under the auspices of the London Entomological Society (Judd 1979:47). Boyle wrote a brief article describing his visit to the Lawson site, which was accompanied by a sketch map (1896:36). Rowland B. Orr, Boyle's successor at the Provincial Museum, visited Lawson in the early 1900s and wrote a brief article also accompanied by a sketch map (1917:50). W.J. Wintemberg knew of the site from his association with Boyle at the Provincial Museum. After taking employment at the Victoria Museum in Ottawa, he arranged to conduct excavations at Lawson over three summers from 1921 to 1923. His report was published sixteen years later (1939). W.W. Jury met Wintemberg on the Lawson site (they had been corresponding for years prior to that) and carried out limited excavations

and field schools there for the University of Western Ontario under the auspices of the Museum of Indian Archaeology.

Some of the rim sherds excavated by Wintemberg from the Lawson site were analyzed by Richard S. MacNeish, who used this material in conjunction with data from the Southwold Earthworks site (excavated by Wintemberg and Jury in 1935) to define the prehistoric Neutral branch of the Ontario Iroquois (MacNeish 1952). MacNeish's figures for Lawson and Southwold were subsequently used by James V. Wright to define the prehistoric Neutral branch in his Ontario Iroquois Tradition (1966).

In 1969 Lawson was designated as an historic site by the Archaeological and Historic Sites Board of Ontario. That same year, Col. Tom Lawson (who met Wintemberg on the site in 1921) and the Fuller family donated the property containing the site to the University of Western Ontario which has since passed control of it to the Museum of Indian Archaeology. These events resulted from the efforts of Jury to preserve and interpret the site for the people of Ontario, a plea initially made by Boyle after he first visited it.

In 1976 the Museum of Indian Archaeology, under the direction of Dr. William D. Finlayson, initiated long term plans for the excavation and reconstruction of the site. Finlayson conducted a field school there in 1976 and full scale excavations took place under my direction from 1978 to 1980. The Museum also conducted field schools on the site for the Department of Anthropology, University of Western Ontario. These excavations are summarized in Pearce (1980a) and the results are incorporated into this thesis. Excavations have continued on a more limited scale since 1981, but these are excluded from this thesis except

where noted.

The Lawson site began as a 1.4 ha village surrounded on the northwest and southeast ends by a double earthwork. A third earthwork was constructed to help reinforce the defences at the southeast end. At some point during the occupation of this core village, the northwestern earthworks and palisades were largely dismantled to accommodate a 0.4 ha expansion. Up to six rows of palisade, at least one ditch, and two earthworks were constructed around the eight new longhouses placed in the expansion.

A total of 12 longhouses have been completely or partially excavated to date; at least two more are known but have not been investigated. Eleven of these are oriented in a northwest to southeast direction, facing into the direction of the prevailing wind.

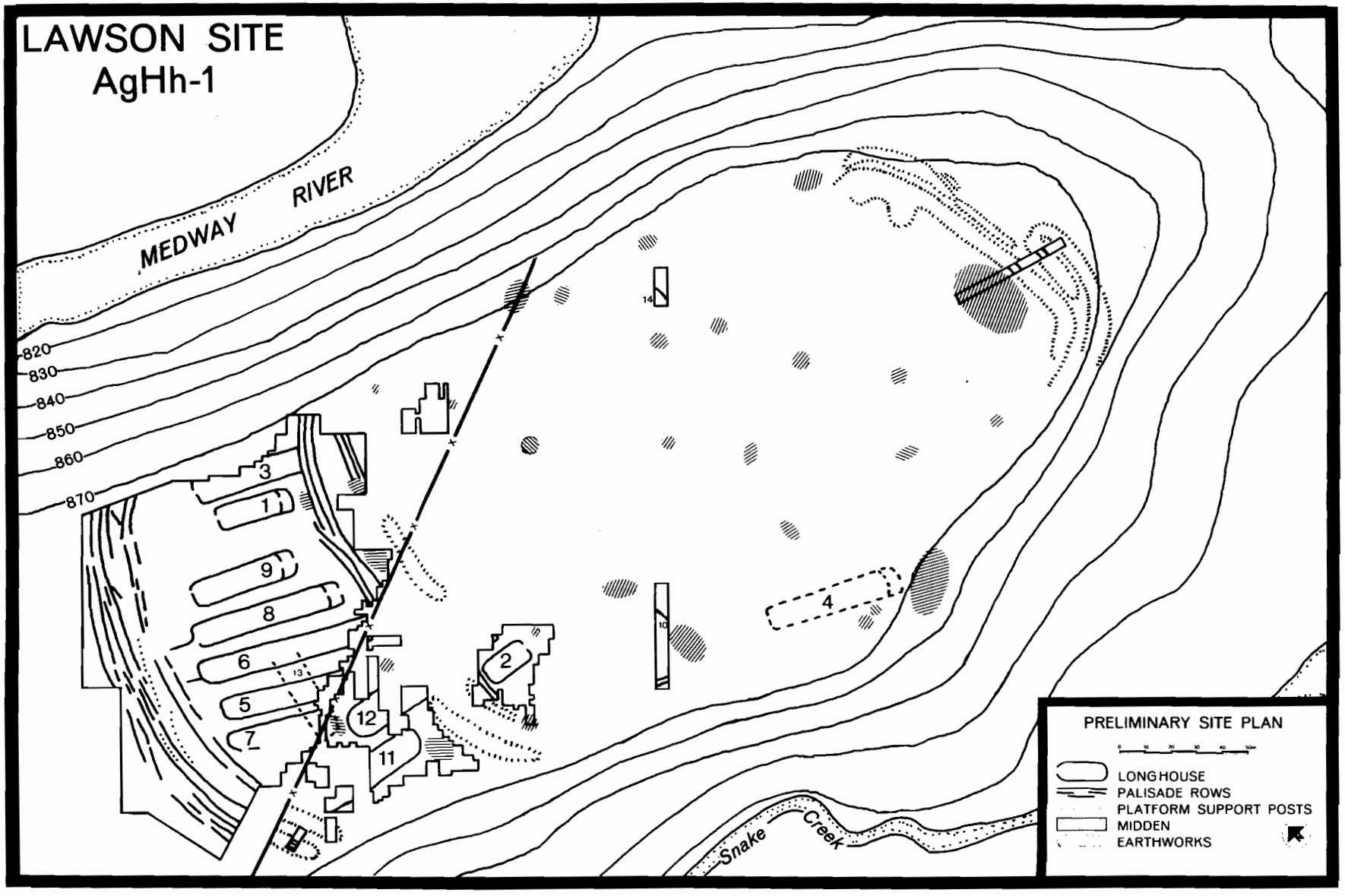
David Smith and I have analyzed 1211 rim sherds from the Lawson site. This sample consists of 959 specimens belonging to the Archaeological Survey of Canada, including the 576 analyzed by MacNeish and 383 apparently not analyzed by him or anyone else, and 252 excavated by the Museum of Indian Archaeology up to 1980. These included the following types: Lawson Incised 36.3%; Pound Necked 18.8%; Niagara Collared 18.5%; Lawson Opposed 10.7%; Parker Festooned 4.2%; Middleport Oblique 2.4%; Ripley Plain 1.8%; Pound Blank 1.2%; and eleven other types and miscellaneous, 6.1%.

The ceramic pipes from Lawson included a predominance of ring and trumpet types: Elongated Ring, Iroquois Ring, Collared Ring, and Plain Trumpet comprised 60% of the assemblage. There were also 10 effigy pipes (eight ceramic and two stone).

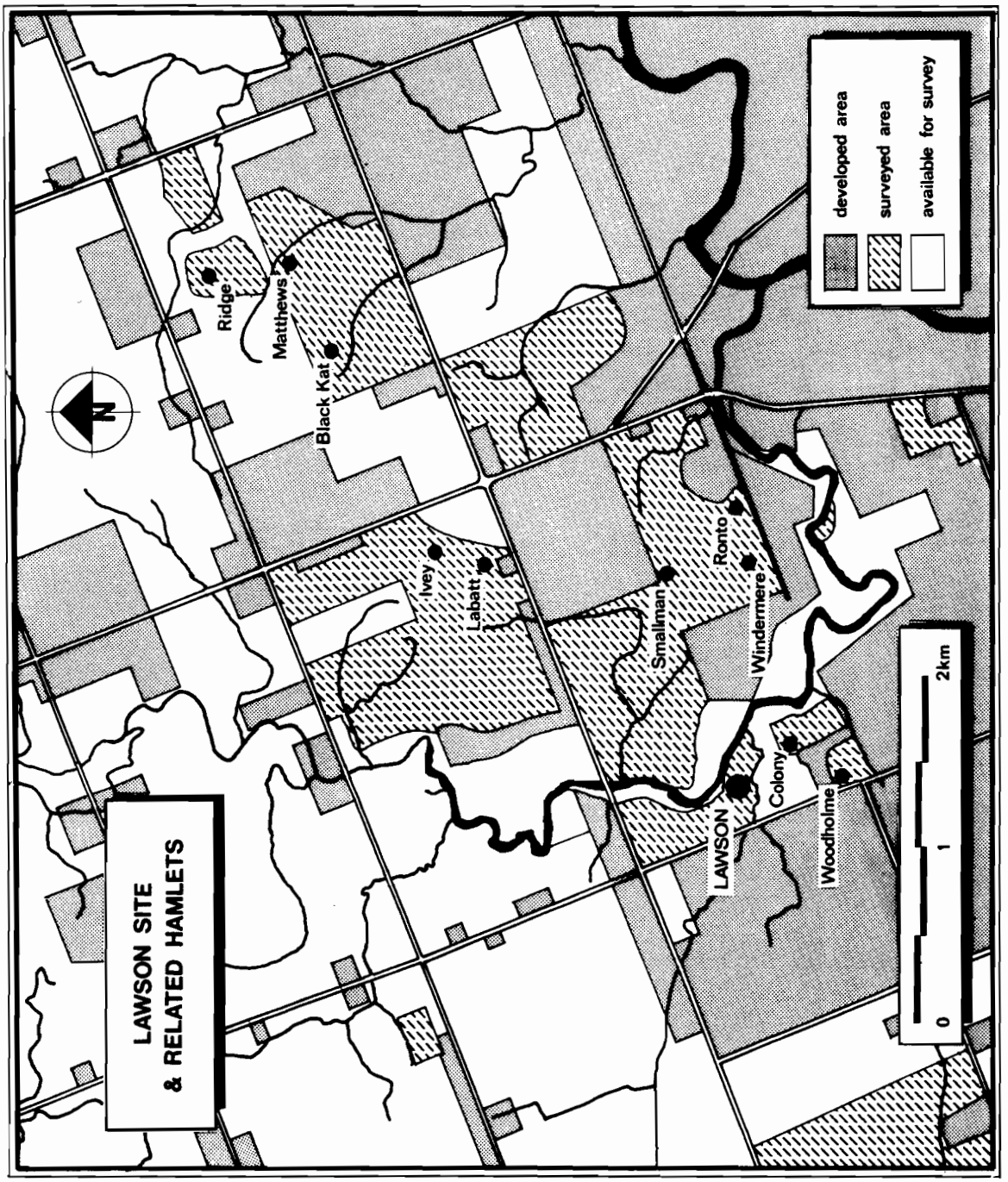
The projectile points from Lawson include both triangular and side-notched forms, there being about three and a half times as many triangular as side-notched ones.

There are two radiocarbon dates for Lawson. One was based on a sample of corn excavated by Wintemberg and submitted some years later by the National Museum. It yielded a date of 200 years B.P. +/- 100 years (M-1552), or A.D. 1750 with a range of A.D. 1650 to 1850. Fox (1978:5) applied a conventional adjustment for dates based on corn (Hall 1967), resulting in a recalibrated date of A.D. 1510 +/- 100 years. If the MASCA (Ralph, Michael, and Han 1974) conversion is applied to the recalibrated date, the midpoint becomes A.D. 1430 with a range of A.D. 1330 to 1530. A recalibration of this date based on Klein et al. (1982) becomes A.D. 1490 +/- 75 years, which conforms with the previously assumed date of circa A.D. 1500 for this site.

The second sample was submitted by the author in 1982, based on a charred white elm palisade post fragment found in the bottom of a midden that was superimposed over the original palisade surrounding the core village. It produced a date of 240 years B.P. +/- 95 years (S-2267), or A.D. 1710 with a range of A.D. 1615 to 1805. If the MASCA conversion is applied, the date becomes A.D. 1630 with a range of A.D. 1520 to 1670-1770. The Klein et al. (1982) recalibration is A.D. 1690 +/- 130 years.



MAP 4: LAWSON SITE PLAN



MAP 5: LOCATION OF LAWSON SITE
AND RELATED HAMLETS

WINDERMERE SITE AgHh-9

This is a hamlet assigned to the prehistoric Neutral period. Its location and artifact assemblage suggest that it is associated with the Lawson site. It was 0.2 ha in size and was totally excavated by the Museum of Indian Archaeology in 1981 (Pearce 1983a).

This site was located on a slight knoll in a plowed field of clay soil. It was 1.4 km east-southeast of Lawson, 500 m north of Medway Creek, and 900 m northwest of the confluence of that creek with the Thames River.

The site was discovered by the Museum during a resource assessment of a proposed subdivision (Poulton 1982a) and salvaged in three weeks prior to its destruction by heavy equipment installing roads and sewers for that subdivision (Pearce 1983a).

While excavating the Lawson site, Wintemberg visited local collectors and noted a number of sites "of the same culture" (1939:2, footnote 1) in the vicinity. One of these was on Lot 18, Concession 4, London Township, the same lot and concession as the Windermere site. Wintemberg's files at the Archaeological Survey of Canada (Box 26, File 7) contain notes on this and other sites. These include a reference dated July 16, 1922 to the following material from this lot: 13 celts or adzes; an antler wedge; an unfinished quartz projectile point; 4 or 5 hammerstones; a bone tube 3 inches long made from a dog or fox femur; and 6 bone awls.

The Museum's 1981 excavations uncovered one longhouse. It measured 7 m wide by 11 m long, was oriented northwest to southeast, and contained no interior features other than a single small, shallow hearth floor. Soil

conditions on the site were excellent for preserving the remnants of post moulds, yet we found no evidence for a north end; it was completely open with both side walls terminating abruptly at the same point along their northwest to southeast axis. This leads to the conclusion that this hamlet was occupied only in the warm season. This interpretation is reinforced for this and the other hamlet sites by the lack of heating hearths and large storage pits inside the houses.

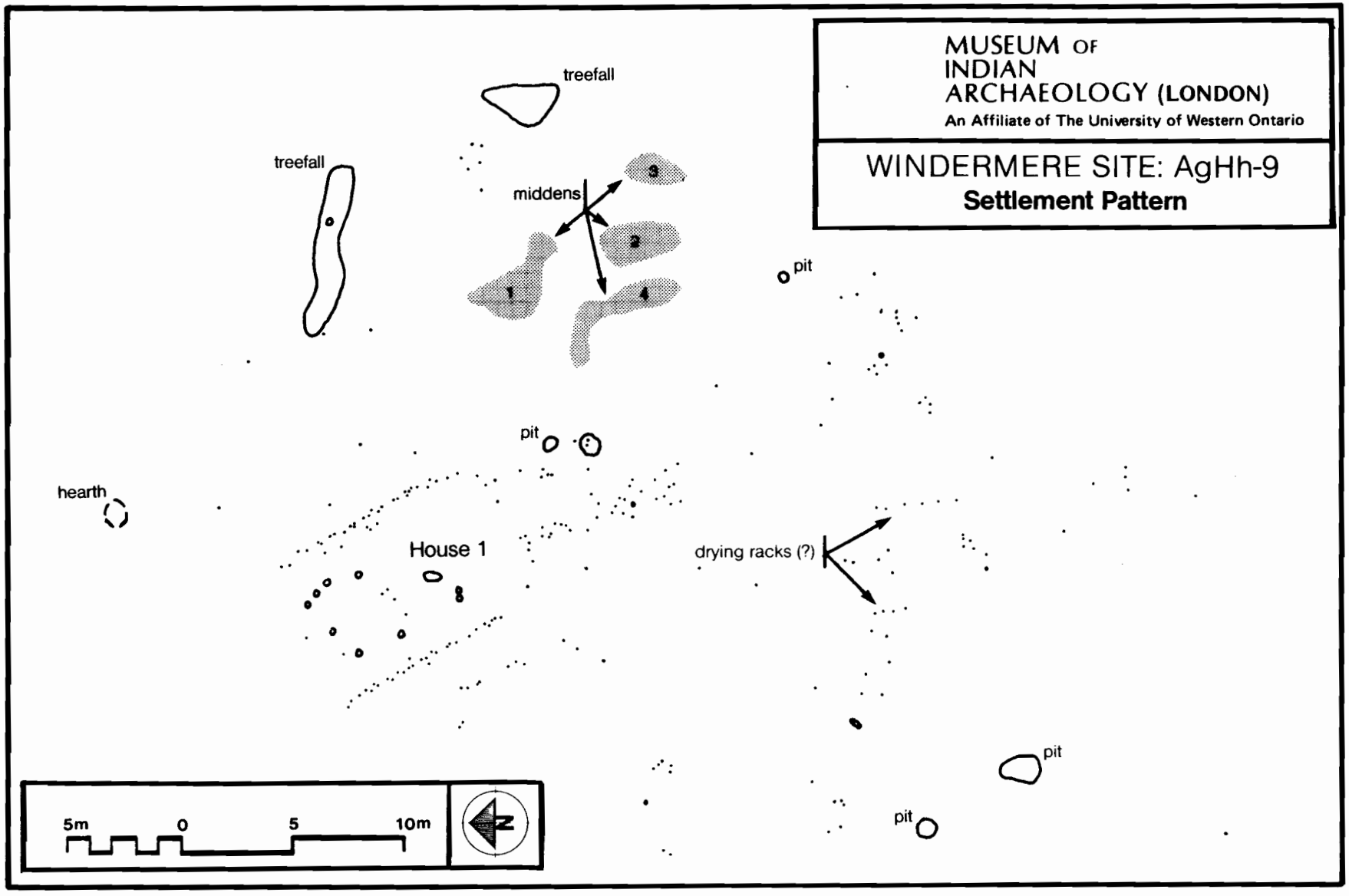
There were four middens (refuse-filled depressions) close to each other just outside the doorway in the south end of the house. Each contained the butchered remains of at least one deer and an assortment of ceramics, lithics, carbonized plant remains, and other faunal material.

A total of 14 ceramic vessels were found at Windermere. This was a small sample but a representative one since the site was totally excavated. These vessels consisted of four types, with one type clearly predominating: 11 (78.6%) Pound Necked and one (7.1%) each of Niagara Collared, Ontario Horizontal, and Middleport Oblique.

There were five pipe fragments representing four pipes: 1 Elongated Ring, 1 Iroquois Ring, 1 Plain Trumpet, and 1 unanalyzable bowl section.

Of the four projectile points found, three were side-notched and one was triangular.

A single radiocarbon date exists for Windermere, based on charcoal from one of the middens. This date was 125 years B.P. +/- 155 years (S-2266), or A.D. 1825 with a range of A.D. 1670 to 1980. If the MASCA conversion is applied, the midpoint falls into an inclusive period A.D. 1680-1800, with a range of A.D. 1530-1610 to some point into the



MAP 6: WINDERMERE SITE PLAN

future. The Klein et al. (1982) recalibration is A.D. 1720 +/- 115 years. Despite this date, a date contemporaneous with the Lawson site, circa A.D. 1500, is favoured.

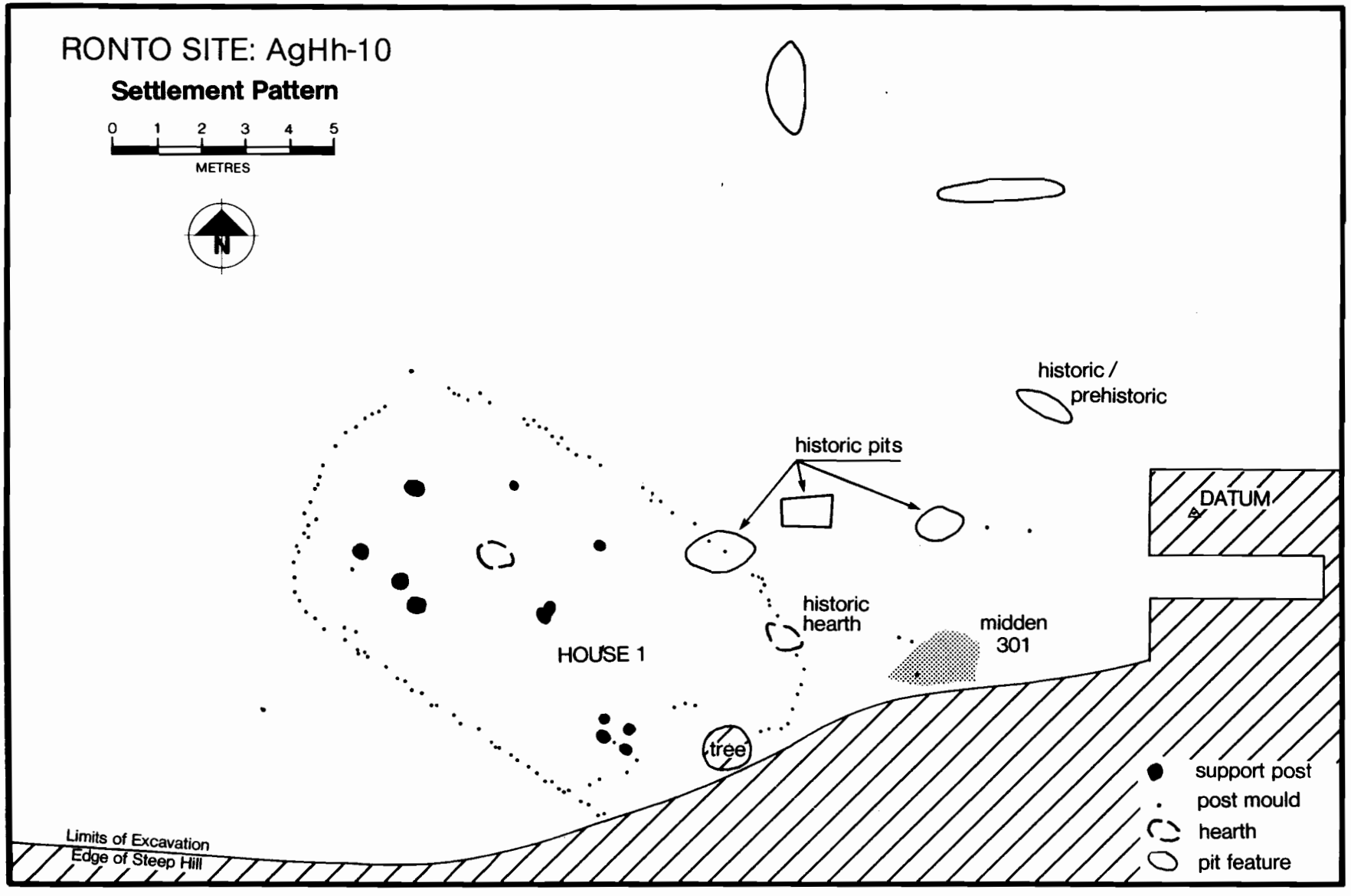
RONTO SITE AgHh-10

This is a hamlet assigned to the prehistoric Neutral period. Its location and artifact assemblage suggest that it is associated with the Lawson site. Ronto was 0.2 ha in size and was totally excavated by the Museum in 1981 (Pearce 1983a).

The site was situated on a clay knoll 1.7 km southeast of Lawson, 300 m southeast of Windermere, and 200 m north of Medway Creek. A tributary of Medway Creek passes 100 m east of the site.

Ronto was discovered by the Museum while conducting a resource assessment for a proposed subdivision (Poulton 1982a) and salvaged in ten days prior to its destruction. Wintemberg (1939:2, footnote 1) knew of artifacts from the same lot and concession as Ronto. These may relate either to Ronto or to Smallman (described below), which is on the same lot.

There was a single longhouse at Ronto. It was 11 m long, 6.75 m wide, oriented northwest to southeast, had bench rows down either side, and was devoid of any interior features except for one small, shallow hearth floor. It is virtually identical to the single longhouse at Windermere, except that the Ronto house had a north end.


RONTO SITE: AgHh-10
Settlement Pattern
0 1 2 3 4 5
METRES
N
historic / prehistoric
historic pits
DATUM
historic hearth
midden 301
HOUSE 1
tree
Limits of Excavation
Edge of Steep Hill
support post
post mould
hearth
pit feature

Five pits outside the house yielded artifacts. One of these was a refuse-filled depression similar to the middens at Windermere.

The total excavation of the site resulted in the recovery of eight ceramic vessels: 5 (62.5%) Pound Necked and 1 (12.5%) each of Lawson Incised, Lawson Opposed, and Miscellaneous.

Of the three pipe fragments found, two were analyzable bowl sections. These represent two different Trumpet pipes.

There were five analyzable Iroquoian projectile points: three triangular and two side-notched. A sixth point was a fragment from an Early Archaic Nettling type.

SMALLMAN SITE AgHh-14

This is a hamlet assigned to the prehistoric Neutral period. Its location and artifact assemblage suggest that it is associated with the Lawson site. It was 0.2 ha in size and was totally excavated by the Museum in 1981 (Pearce 1983a).

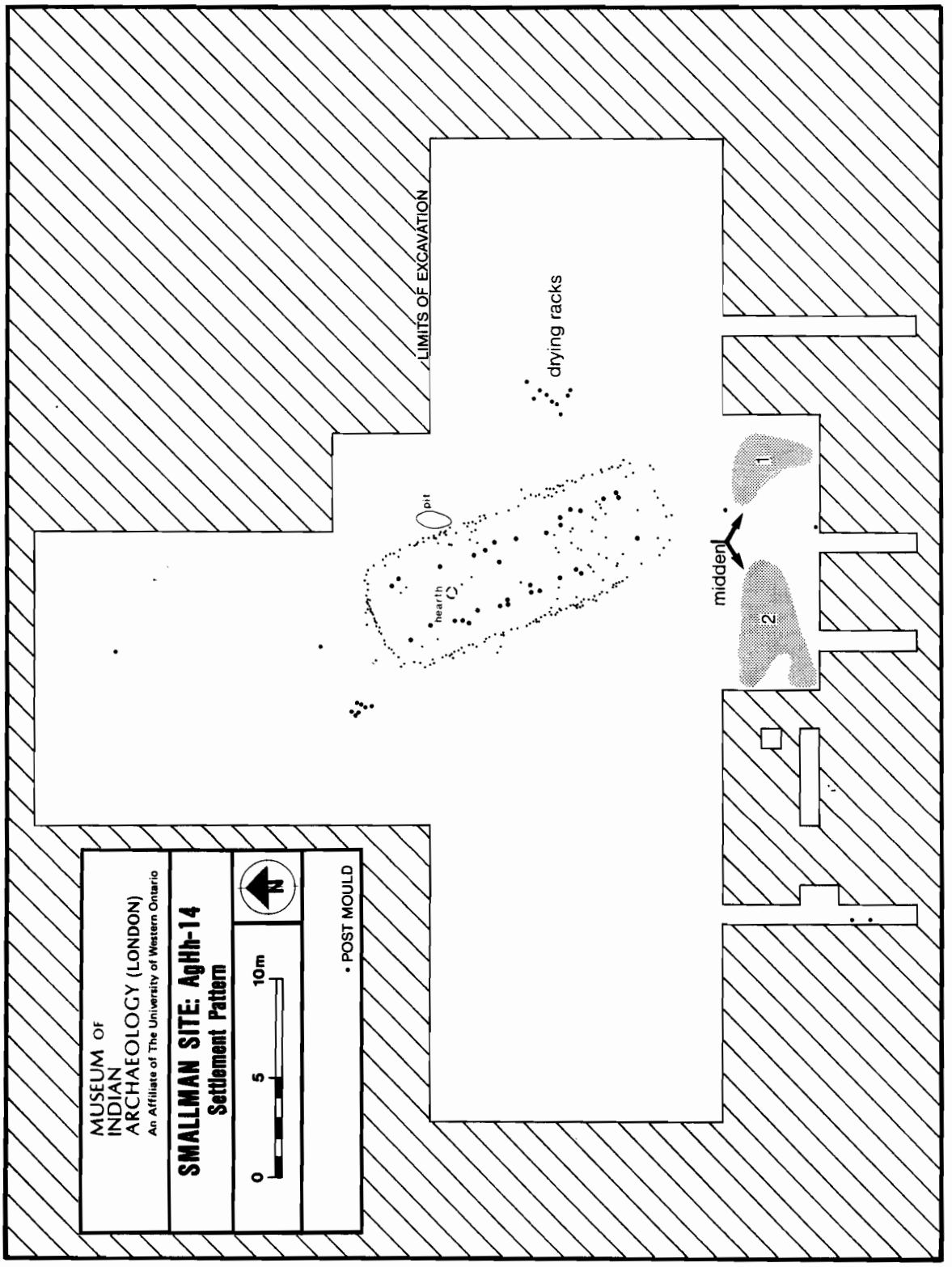
The site was located on a clay knoll 1.3 km east-northeast of Lawson, 600 m north-northwest of Ronto, and 500 m north of Windermere. It was 300 m from an intermittent stream and 1 km north of Medway Creek.

The discovery of Smallman took place during the same resource assessment by the Museum that had resulted in the discovery of Windermere and Ronto (Poulton 1982a). Smallman was also salvaged prior to its destruction by that housing development (Pearce 1983a).

Like Windermere and Ronto, Smallman contained only one house, but it was quite different from the structures at those two sites. The Smallman house was 16 m long, 6 m wide, and oriented northwest to southeast. It had 33 interior support posts, 47 interior isolated posts, and far more wall posts than the houses at Windermere and Ronto. This suggests longer use or the possibility of re-building or repair which may indicate that it was used over several seasons. There remained, however, only one centrally-located hearth floor. There were no other pits or features in the house.

Two middens or refuse-filled depressions were located adjacent to each other outside the south end of the house. Both contained discarded ceramics, lithics, bone, and carbonized plant remains. One of them also contained, in a small isolated pocket, an assortment of debris characteristic of the contents of a pottery kiln that had been cleaned out: lumps of clay, including both fired and unfired and tempered and untempered clay in various combinations, juvenile ceramics, and the remnants of poorly-fired ceramic pots that disintegrated upon touch, all in a matrix of ash, fired soil, charcoal, and fire-cracked rock. These materials support the conclusion that pottery was made and fired at the hamlets.

Twenty-six ceramic vessels were recovered from this completely excavated hamlet. As at Windermere and Ronto one type dominated: 20 (76.9%) Pound Necked; 2 (7.7%) Middleport Oblique; 1 (3.8%) each of Lawson Incised and Lawson Opposed; and 2 (7.7%) miscellaneous.



MAP 8: SMALLMAN SITE PLAN

BLACK KAT SITE AgHh-26

This is a hamlet assigned to the prehistoric Neutral period. Its location and artifact assemblage suggest that it is associated with the Lawson site. It sat on a clay knoll in a plowed field, with a surface distribution of artifacts confined to 0.2 ha. A stream-fed marsh or swale was located 25 m north of the north edge of the site. The site was 3.4 km northeast of Lawson.

This site, like most of the Lawson site hamlets, was discovered by the Museum while conducting a resource assessment for a proposed subdivision (Poulton 1982b). It was excavated over a six week period in 1982 (Arnold and Pearce n.d.).

A single structure occurred on Black Kat: an almost square house 8.5 m by 8 m. There were no interior features or pits except for one small, shallow hearth floor in the exact centre of the house.

A single midden or refuse-filled depression occurred 7 m north of the north end of the structure. It was 3.85 m long by 2 m wide and extended 20 cm below the plow zone.

Eleven ceramic vessels were recovered from this site. These differed from the vessels from the Windermere-Ronto-Smallman cluster in that only one (9.1%) was Pound Necked. The others from Black Kat were Lawson Incised (5 or 45.5%); Lawson Opposed (4 or 36.3%); and miscellaneous (1 or 9.1%).

Of the 25 pipe fragments found, six were analyzable bowls. These included a human effigy in the form of a kneeling figure with the head and torso broken off but retaining bent legs; 3 Conical Plain bowls; 1

Iroquois Ring bowl; and 1 juvenile specimen that had faintly incised horizontal rings over a row of punctates.

There were 33 projectile points, including 20 side-notched, 12 triangular, and a single Late Archaic Genessee type.

MATTHEWS SITE AgHh-29

This is a hamlet assigned to the prehistoric Neutral period. Its location and artifact assemblage suggest that it is associated with the Lawson site. It covered about 0.2 ha on a clay knoll in a plowed field. An intermittent stream was located 75 m to the east. This site was 550 m due east of Black Kat and 3.9 km northeast of Lawson.

The site was discovered by the Museum while conducting a resource assessment for a proposed subdivision (Poulton 1982b). It was surface collected twice by the Museum in 1982, but was not excavated as the land on which it sits is now a designated parkland (Arnold and Pearce n.d.).

No settlement pattern data are available other than a map showing the surface distribution of artifacts. This distribution indicated a site size of 0.2 ha with a large midden on the north slope of the knoll on which the site sits. In this respect, Matthews is very similar to Black Kat. It is believed that a longhouse may be located on the crest of the knoll south of the midden.

It is also believed that Matthews forms one of a trio of hamlets in a cluster with Black Kat and Ridge (described below), similar to the cluster of Windermere, Ronto, and Smallman and other clusters to be described

below. The sites in each cluster are separated by uniform distances of 300 to 600 m, just as Matthews is separated from Black Kat and Ridge.

Unfortunately, the surface collections at Matthews recovered few diagnostic artifacts. These were limited to a single fragmentary rim sherd decorated with incised obliques and four projectile point fragments, three of which are triangular. The site did, however, produce a combination of artifacts that paralleled the surface collections from the aforementioned hamlets that were excavated after they had been surface collected. These all included large quantities of lithic debitage (Kettle Point and Onondaga chert), burnt and non-burnt bone, ground stone fragments, and fire-cracked rock.

RIDGE SITE AgHh-62

Little is known about the Ridge site, but it is believed to be another hamlet of the prehistoric Neutral period associated with Lawson. It was located on a prominent clay ridge 150 m south of a tributary of Stoney Creek, 500 m north of Matthews, and 4.2 km northeast of Lawson.

The site was discovered in 1982 by the Museum (Poulton 1983a) when they were conducting a resource assessment of a proposed subdivision to the south. Only one surface collection was carried out but it defined the site area as roughly 0.2 ha and located a single midden along the south slope of the ridge.

The artifacts recovered included few diagnostics: a fragmentary rim sherd decorated with incised obliques and a neck sherd with an incised horizontal. The remaining material, however, was identical to that from

other hamlets that have been surface collected, including chipping debitage (Kettle Point and Onondaga chert), a biface, a scraper, calcined bone, and a scatter of fire-cracked rock.

Based on these artifacts and its location, it is believed that Ridge forms a third site in the cluster that also includes Matthews and Black Kat.

LABATT SITE AgHh-64

This is a hamlet assigned to the prehistoric Neutral period. The artifacts recovered and site location indicate that it is associated with the Lawson site. It was on a clay knoll in a plowed field, covered 0.2 ha, and was 75 m due north of a natural spring flowing out of the side of the ridge on which the knoll and site were located. It was 1 km north-northeast of Smallman, 1.5 km due west of Black Kat, and 1.8 km northeast of Lawson.

Labatt was discovered in 1983 while the Museum was conducting another resource assessment for a proposed subdivision (Pearce 1983c). It has been surface collected several times but has not been excavated as it is not immediately threatened by construction.

The site produced an array of artifacts characteristic of all the Lawson site hamlets, including ceramics (plain body sherds), a chert biface, lithic debitage (Kettle Point and Onondaga chert), bone (some calcined), and a scatter of fire-cracked rock. Two adjacent areas of concentrated ash, charcoal, and fire-cracked rock on the surface may indicate a subsurface midden.

This site, and the nearby Ivey hamlet (described below) are believed to represent a third cluster of hamlets related to Lawson, similar to the Windermere-Ronto-Smallman and Black Kat-Matthews-Ridge clusters (Pearce 1984).

IVEY SITE AgHh-58

This is a hamlet assigned to the prehistoric Neutral period. The few artifacts recovered and its location suggest that it is associated with the Lawson site. It was located 325 m south of the Labatt site and was probably related to that hamlet. Ivey occupied a flat clay plateau on a prominent ridge, the same ridge that contains the Labatt and Ridge sites; the latter was 2.1 km east of Ivey, which in turn was 1.9 km northeast of Lawson.

Ivey was discovered by the Museum in 1982 while conducting a resource assessment for a proposed subdivision (Pearce 1982c). It was located while test-pitting a manicured lawn beside an estate. One of the test pits struck a subsurface midden, while the surrounding test pits were largely unproductive. No precise site size was determined, but the distribution of productive test pits suggests that it was approximately 0.2 ha in size.

The artifacts recovered included two ceramic sherds, one of which was a neck sherd with a horizontal row of punctates; lumps of clay; lithic debitage (Kettle Point and Onondaga chert); bone fragments; charcoal; and fire-cracked rock.

WOODHOLME SITE AgHh-36

This is a hamlet assigned to the prehistoric Neutral period. The artifacts recovered and site location suggest that it was associated with the Lawson site. It occupied the top of a clay knoll in a plowed field, overlooking a tributary of Medway Creek 300 m to the south. This hamlet was 600 m south-southwest of Lawson.

It was discovered in 1982 by the Museum while conducting a survey of ploughed fields surrounding the Lawson site (Arnold and Pearce n.d.).

Two surface collections were conducted. The first produced only two chert flakes and the site was registered as an isolated findspot. A subsequent visit resulted in the delineation of a surface scatter covering 0.2 ha and the recognition of a small midden. This midden was test excavated in 1983 to discover its size, depth, and productivity (ibid.). This test defined an east-west profile 2 m long and 60 cm deep. A relic hearth floor was discovered in the bottom of the profile trench, suggesting use of the site prior to the establishment of the hamlet. No artifacts were in direct association with that hearth.

The surface collections and test excavation produced three ceramic vessels represented by five sherds. All three vessels were Pound Necked.

Other artifacts recovered included two side-notched projectile points, Kettle Point and Onondaga chert debitage, ground and rough stone pieces, bone, and fire-cracked rock.

COLONY SITE AgHh-35

This site is assigned to the prehistoric Neutral period. The artifacts recovered and site location suggest that it too was associated with the Lawson site. Colony occupied a flat clay plateau along the edge of a very steep, deep ravine leading down to Medway Creek. It lay 300 m south of Lawson and was separated from it by Snake Creek.

Colony was discovered in 1982 by the Museum while conducting a resource assessment for a proposed subdivision. At the time of discovery, three concentrations of artifacts, mainly lithic debitage, were noted. These formed a triangular cluster covering 0.3 ha (Poulton 1982c).

Since this site displayed certain characteristics matched by other hamlets of the Lawson site, including lithic debitage, a projectile point fragment, bone, and fire-cracked rock, it was interpreted as a hamlet. It was therefore excavated by the Museum in 1983, under the same summer works project that investigated Woodholme and Black Kat. These excavations did not locate any midden deposits or structures, despite fairly extensive investigations using a series of bulldozed trenches and systematic test pits (Arnold and Pearce n.d.). The excavations did uncover a single isolated hearth floor, several isolated post moulds, and three short rows of post moulds interpreted as drying racks. Drying racks, consisting of alignments of short rows of post moulds, occurred on all the hamlets excavated to date: Windermere, Ronto, Smallman (Pearce 1983a), and Black Kat (Arnold and Pearce n.d.).

The lack of settlement pattern at Colony leads to a conclusion that it was a male hunting camp. This interpretation is supported by the diffuse nature of the scanty artifact distribution and by the fact that

the few artifacts recovered can be associated with male activities. These artifacts and the lack of settlement pattern also bear a certain resemblance to the only other site in the London area interpreted as a male hunting camp, McGrath (described above).

The entire artifact inventory from Colony was as follows: 2 projectile points (one triangular, one broken); 3 utilized flakes; 91 pieces of chipping detritus weighing 334 gm; 4 chert cores weighing 87 gm; 3 hammerstones; 2 pieces of miscellaneous ground stone; 87 pieces of bone (some calcined) weighing 132 gm; 6 body sherds; 3 fragmentary sherds; and 4 lumps of clay. While the latter items suggest that pottery was used on the site, none of the other items convincingly suggests a female presence and all are consistent with male activities. No artifacts suggestive of exclusively female use, such as scrapers and bone awls, were found at Colony, while these have been found at every other hamlet. While these conclusions are provisional, the excavation of Colony and McGrath suggests that various types of hamlets and camp sites were used by the London area Iroquoians.

REPORTED "CORN HILLS"

In addition to the aforementioned hamlets and camp site that are associated with the Lawson site, we know of two reports of "corn hills" around this village. These may represent two more hamlets. Both reports are considered accurate but neither can be verified as these sites appear to have been destroyed.

The first report was made by W.J. Wintemberg in his Lawson site report:

> The early French missionaries do not say anything about the Neutral methods of cultivating corn and other vegetal products, but that corn was planted in hills, as described by Lafitau (part II, pages 75-76, and Plate VII), is suggested by the former presence of corn hills on and near the site. According to Mr. McComb, they could be seen in what is now the cultivated part of the site on his farm, and there was another patch on the Keays farm, on the next lot west of the site (i.e., lot 21, concession IV). None were to be seen on the Lawson part of the site" (1939:15).

(The final sentence of this quote refers to the undisturbed portion of the Lawson site, it being owned at the time by the Lawson family.)

The cultivated part of the site on what was Mr. McComb's property includes the northern expansion of Lawson that has been excavated, the present location of the building housing the Museum of Indian Archaeology. Prior to construction of that building in 1981, that area was the location of a probable Late Archaic site (Spook Hollow, AgHh-5) salvaged in 1980, and of a subdivision for which the Museum did a resource assessment with negative results. Therefore, if corn hills were located here, they must have been plowed under by Mr. McComb (a fate which also destroyed the earthworks across the northwest end of the site), leaving no visible indication of their presence. If there were corn hills here they may have been "on" the site (i.e., within the palisade and earthworks) as suggested by Wintemberg or just beyond its northern limit. If so, these may have been so close to the site that they were tended without establishing a hamlet.

The same cannot be said for the reference to corn hills on the Keays farm. It is safe to assume that Wintemberg did not see these in 1921-1923, for he says "according to Mr. McComb" rather than "I saw".

Thus these hills must also have been plowed under prior to his visit.

Most of the Keays farm has now been substantially altered by construction of a subdivision, roads, a variety store, a veterinarian clinic, and a sewer. The latter involved re-routing and channelizing Snake Creek. No sites or artifacts have been reported or observed on this lot. If a hamlet existed in association with these corn hills, it has been destroyed by construction or awaits discovery on what little land on this lot remains undisturbed.

The second report of corn hills is contained on a map compiled by one of the earliest surveyors of London Township, Middlesex County. It records the major type of vegetation or dominant tree type in each woodlot in the Township, lot by lot and concession by concession. The surveyors records were researched by the Ministry of Citizenship and Culture (Finlay 1978). The map accompanying this report has a notation of "Indian corn hills" on a lot and concession 3.7 km northeast of the Lawson site, 1.8 km northeast of Ivey, and 1.7 km northwest of Black Kat. The area in question is now occupied by a conservation park and it does not seem likely that corn hills or an associated hamlet survive there today.

ACTIVITY AREAS

An area of land approaching 400 ha in size surrounding the Lawson site has been surveyed by the Museum of Indian Archaeology since 1977, primarily during the course of resource assessments for lands now developed or under proposed development. This has resulted in the discovery of a large number of small sites in addition to the

aforementioned hamlets. These small sites consist of isolated findspots or small concentrations of non-diagnostic material, although some diagnostic material has been found. The latter includes triangular or side-notched projectile points, either alone or in association with chert flakes. While some pre-Iroquoian material has been located, the recovery of items typical of what might be found at Lawson or its hamlets and the spatial location of these in relation to Lawson and its hamlets suggest that a large area may have been utilized by the Lawson site inhabitants.

CHAPTER 5

MATERIAL CULTURE CHANGE

INTRODUCTION

This chapter presents selected aspects of artifactual data and discusses material culture change applicable to the proposed local sequence in the London area. The discussion is confined to ceramic vessels, pipes, and projectile points. Other artifact classes are excluded because of small sample sizes and the lack of comparative data from all sites.

In the following discussions, the accepted cultural historical framework of Glen Meyer, Middleport, and prehistoric Neutral is followed. As indicated earlier, in this thesis these terms are used to refer solely to chronological periods not cultures.

Specific data are presented for the Smale, Roeland, Kelly, Yaworski, and Little sites in the Mount Brydges cluster, the Willcock site in the Byron cluster, the Edwards, Drumholm, and Alway sites in the Oxbow Creek cluster, and the Lawson site and its associated hamlets.

A. CERAMIC VESSELS

A.1 Rim Sherd Types

The following analysis of changes in material culture begins with a general discussion of rim sherd types, the building blocks of Iroquoian

chronological studies. While problems are involved with analyses based on rim sherd types as opposed to more detailed studies of attributes (Wright 1967b), attribute complexes, or attribute combinations (Smith 1983), types still provide a general picture of gross changes in ceramic decorative motifs and techniques through time. Types also have served to establish the existing chronological sequence of Ontario Iroquoian prehistory. No one doubts the validity of this sequence, so we will start with an analysis of the ceramic types that have produced it. Such an analysis leads ultimately to the recognition of specific types, attributes, and attribute combinations which provide information that goes beyond the culture sequence and aids in the elucidation of cultural and social processes. A side effect of such an analysis is the refinement of the chronological sequence at the local and site-specific levels, leading to hypotheses of village re-location and regional continuities.

Although MacNeish (1952) and Lee (1951, 1952, 1958a) recognized and defined certain ceramic types which are now known to characterize the Glen Meyer time period, it was not until the mid-1960s that Iroquoianists began to understand the true nature of that period (Wright 1966). While studies of Glen Meyer sites have expanded considerably (Noble 1975a; Fox 1976; Williamson 1982b), the basic inventory of Glen Meyer period material culture, including ceramic types, remains as defined by Wright (1966). The following discussion will, however, demonstrate that certain ceramic types and attributes were introduced to the study area in the latter part of the Glen Meyer period, as shown at the Willcock and Crawford sites.

Wright (ibid., 26) stated that five ceramic types characterize Glen Meyer sites, comprising between 70% and 100% of ceramic assemblages from

them. These types are Ontario Oblique, Glen Meyer Oblique, Stafford Stamped, Middleport Criss-Cross, and Ripley Plain. Each of these types will be described briefly below. These and other types are illustrated in Figures 13 and 14.

Ontario Oblique (MacNeish 1952:18; Wright 1966:26, 111-113) has bands of oblique, vertical, or opposed motifs, usually executed by linear stamping on collarless vessels. These motifs may also occur on the neck.

Glen Meyer Oblique (Wright 1966: 6 4-115; also a variant of Uren Corded as defined by MacNeish 1952:19-20) has bands of oblique, vertical, or opposed motifs executed with the edge of a cord-wrapped stick or paddle, usually on collarless vessels. These motifs may also occur on the neck.

Stafford Stamped (Wright 1966:27, 118-119) has bands of predominantly horizontal or sometimes oblique crescent-shaped impressions made by a handful of hollow reeds or bird bones, applied obliquely into the wet clay, normally on collarless vessels.

Middleport Criss-Cross (MacNeish 1952:17; Wright 1966:27, 116-117) has single or multiple bands of cross-hatched motif, either as the only motif or in combination with other motifs. The cross-hatched motif is usually made by superimposing obliques that are linear stamped or linear stamped and incised with one row of obliques oriented left to right and the other right to left.

Ripley Plain (MacNeish 1952:25-26; Wright 1966:27, 120-121) is defined exclusively as a plain, collarless vessel completely lacking exterior decoration. It is distinguished from Niagara Collared (MacNeish

1952:26), which is a plain, collared vessel.

Three of these five types represent variations of the same theme: (predominantly) collarless vessels with bands of oblique, vertical, or opposed motifs executed by two different techniques, linear stamped or cord-impressed. A fourth type, Stafford Stamped, may have similar motifs executed in crescent stamps, but its dominant motif is a horizontal one.

Several other Glen Meyer ceramic types also represent variations of this same theme. These include: Glen Meyer Linear Stamped (a single row of oblique or vertical linear stamps); Glen Meyer Necked (single or double rows of oblique or opposed linear stamps on the upper portion of the vessel and incised neck horizontals); Goessens Necked (single or double rows of oblique cord-wrapped stick impressions over incised neck horizontals); and Goessens Oblique (a single row of oblique cord-wrapped stick impressions) (Wright 1966:123-130). These minor types combined with three of the five major types described above account for the overwhelming majority of vessels from all Glen Meyer period sites; there are only very minor percentages of other types that do not conform to this theme. These include Ripley Plain (described above), Woodsmen Corded (exterior cord malleation), and Goessens Punctate (horizontal rows of punctates)(ibid.). Ontario Horizontal (incised horizontal lines) was defined by MacNeish (1952) and Wright (1966), but did not occur on any Glen Meyer period site analyzed by Wright (ibid., 137). The final Glen Meyer period ceramic type defined by Wright (ibid., 130) was Stafford Dentate. It represents still another variant of the major theme: bands of oblique lines executed by a dentate stamp tool.

The Glen Meyer period sites studied in this thesis agree with Wright's (ibid., 26) generalization that five types dominate. These five types account for between 82% and 100% of the vessels from these sites (Tables 3 and 4). A significant exception occurred at the Crawford (Arkona cluster) and Willcock (Byron cluster) sites, where there was no Middleport Criss-Cross or Glen Meyer Oblique. While little is known about the Crawford site ceramics, several sherds of the Iroquoian Linear type (described below) occurred there. More detailed data are available for Willcock, where the remaining three dominant Glen Meyer period types made up a scant 9.0% of the ceramic assemblage. Like Crawford, the Willcock site had high percentages of Iroquoian Linear (25.8%) and other later types, including 16.7% Ontario Horizontal and 7.6% each of Niagara Collared and Middleport Oblique.

The Middleport Horizon (Wright 1960) or Middleport Substage (Wright 1966) was defined in part by high percentages of three ceramic types: Middleport Oblique, Ontario Horizontal, and Lawson Incised. According to Wright (ibid., 61), these three types comprised over 50% of the assemblages from most of the Middleport period sites he analyzed.

Middleport Oblique (MacNeish 1952:16-17; Wright 1966:61) has incised obliques and horizontal lines on the collar and may have incised horizontals on the neck. The combination of obliques and horizontals on the collar is the distinctive feature of this type, and may consist of either obliques over horizontals or obliques crossed by horizontal gashes. In all cases, the obliques form the primary motif (occupying most of the collar area) and the horizontals are secondary (occupying very little space on the collar). I have distinguished this type from variants of

Ontario Horizontal by this characteristic (see below). Some researchers have noted the difficulty in distinguishing between the two but they have chosen to separate them more on the basis of collar development than by motif (Lennox and Kenyon 1984:8).

Ontario Horizontal (MacNeish 1952:16; Wright 1966:131) always has a primary motif of incised horizontal lines, but often has secondary decoration on the collar (i.e., basal collar notches) or can be associated with another motif (i.e., obliques over horizontals or horizontals over obliques). As noted above, I have distinguished this type from Middleport Oblique by using the criteria that the horizontal elements are the primary motif (occupying most of the collar area) while the oblique lines, if present, are secondary (occupying very little space on the collar).

Lawson Incised (MacNeish 1952:14) is one of the simplest types to identify and describe: oblique or vertical incised lines on the collar of collared vessels, with plain necks. This type normally occurs on short collared vessels with a concave interior profile and is distinguished from the similar type of Huron Incised on that basis, since the Huron Incised type frequently has a straight to convex interior profile (MacNeish 1952:34).

The Oxbow Creek Middleport period sites discussed in this study had high percentages of these three types, but combined they did not add up to 50% or more as Wright claimed for all Middleport period sites. The totals of these three types were 57% at Edwards, 39% at Drumholm, and 40% at Alway (Table 4).

One of the reasons why the three dominant Middleport period types did not combine for higher percentages at the Oxbow Creek sites is that a

fourth type, Pound Necked, was extremely popular. MacNeish (1952:14-15) believed that Pound Necked was perhaps a type that was limited spatially and temporally because it occurred in high frequency at only one site he studied, Pound. Wright (1966:60) classified the Pound site as Middleport and tabulated a percentage for the Pound Necked type, based on MacNeish's analysis, of 46. No other Middleport period site had such a high frequency of that type (ibid., 147), or of any other type for that matter, and Pound Necked was totally lacking from sites classified as Uren by Wright (ibid., 146). One is left with the impression that the Pound Necked type was a curious anomaly on Iroquoian sites. It will therefore be discussed in some detail below.

The Pound Necked type was defined by MacNeish (1952:14-15) as having either incised oblique, vertical, or opposed motifs on the collar and incised horizontals on the neck. The important criteria here are that the collar motifs are incised (rather than stamped, which would make them variants of Glen Meyer Necked or Goessens Necked, depending on the technique) and that there are always incised horizontals on the neck. My examination of hundreds of examples of this type from Middleport and prehistoric Neutral period sites indicates that Pound Necked is virtually identical to Lawson Incised and Lawson Opposed. The collar motifs on these three types are the same (Pound Necked may have obliques or verticals identical to Lawson Incised or opposed motifs identical to Lawson Opposed), and the ways the obliques, verticals, or opposed motifs are placed on the collar are the same; the only difference is that Lawson Incised and Lawson Opposed have, by definition, plain necks whereas Pound Necked, by definition, always has incised neck horizontals. All three of these types occur on vessels with a concave interior profile. Black

Necked, which was more popular in southeastern Ontario and in the area that would later become Huronia, differs from Pound Necked in that the neck motif more frequently consists of oblique, vertical, or opposed lines. It also differs from Pound Necked by having an interior profile that is generally straight to convex (MacNeish 1952:36; see also Lennox and Kenyon 1984:9).

Table 17 presents the percentages of the Pound Necked ceramic type on a number of Ontario Iroquoian sites, some far removed from the study area of this thesis. These figures indicate that temporally this type was limited to the Middleport and prehistoric Neutral periods and that spatially it had a wide distribution. That distribution, however, was generally clinal or isotopic in nature. The highest frequency was found at the Pound site near Aylmer, while contemporaneous sites in the London area had lower but still significantly high percentages, and sites farther removed to the north, northeast, and east had much lower percentages. Examining Table 17, one can see that this distribution is fairly regular over distance. While the Nodwell, Moyer, Perry, and Crawford Lake sites had percentages of this type in the 19% to 35% range, no contemporaneous sites to the north or east of these (in southcentral and southeastern Ontario) had more than 11%. These latter sites instead had high frequencies of the Black Necked type, although it must be stressed that some researchers find it difficult to distinguish that type from Pound Necked (Lennox and Kenyon 1984:9). In this analysis, I distinguished the two types on the basis of interior profile and neck decoration, with all sherds having a concave interior profile and bearing horizontal neck motifs classified as Pound Necked.

The Pound Necked type comprised the following percentages at the Oxbow Creek sites: Edwards 24.5%, Drumholm 33.7%, and Alway 36.7% (Table 4). Since these percentages were so high, and because of the proven clinal distribution of this type, it is concluded that Pound Necked was a dominant type for both the Middleport and prehistoric Neutral periods (see below) in southwestern Ontario west of the Grand River. If added as a dominant Middleport period type in conjunction with the three aforementioned types, Middleport Oblique, Ontario Horizontal, and Lawson Incised, the combined totals for these four types on the Oxbow Creek sites are as follows: Edwards 81.1%, Drumholm 72.8%, and Alway 76.7% (Table 4).

While the dominant types of the Glen Meyer period represent variations on a single theme (stamped obliques), the dominant types of the Middleport period represent variations of two themes: oblique motifs by themselves (i.e., Lawson Incised) or oblique or opposed motifs in association with incised horizontals, with those horizontals located on the collar (Middleport Oblique) or on the neck (Pound Necked). The motifs utilized during the Glen Meyer and Middleport periods were basically the same (oblique or opposed lines and/or horizontals), but the technique of execution was drastically altered. In Glen Meyer times, the major technique was stamping (linear stamping, cord-wrapped stick impressions, and crescent stamping), whereas during Middleport times the predominant technique was incising. It is significant to note, however, that some of the Middleport Oblique vessels from the Oxbow Creek sites combined linear stamped obliques with incised horizontals. This means that linear stamping was retained to some degree on these Middleport period sites. This subject will be addressed in more detail in conjunction with the analysis of specific attributes later in this chapter.

Aside from the four dominant types discussed above, no one type was present in a frequency of more than ten percent. The Alway site had only one minor type present, Lawson Opposed (3.3%)(Table 3). Edwards and Drumholm had several minor types, mostly represented by only one or two vessels in the assemblage. These included some of the types which are more characteristic of the prehistoric Neutral period (to be discussed below) (i.e., Lawson Opposed, Niagara Collared, and Pound Blank), as well as several types discussed under the Glen Meyer period above. Several of these types follow the classic "battleship curve" temporal distribution. The dominant Glen Meyer period types did not suddenly die out at the end of that period to be replaced by entirely new types. Rather, they persisted into later time periods, although in greatly reduced frequencies. Some types even persisted through Middleport into the prehistoric Neutral period. For example, the Glen Meyer Linear Stamped type occurred at Edwards (3.8%), Drumholm (9.4%), and Lawson (0.1%)(Table 3).

Wright (1966:43-44) discusses one important ceramic type not yet mentioned: Iroquoian Linear (originally Iroquois Linear: MacNeish 1952:18-19; Ridley 1958b:22). This type has a primary collar motif of horizontals executed by the push-pull technique, also known as stamp-and-drag or interrupted linear (see Wright and Anderson 1969:29 for a description of this technique). MacNeish (1952:19) stated that the dominant technique employed on the rims he analyzed consisted of a series of overlapping linear punches (i.e., repeated and overlapping linear stamps), but the same "push-pull" appearance can be achieved by interrupting an incised technique (see Wright 1966:112). Thus this type may have been produced either by linear stamping or by incising

(interrupted).

Iroquoian Linear was believed by Ridley (1958:22, 28) and Wright (1966:43-44) to be a culture horizon marker, characterizing Pickering sites in southeastern Ontario such as Barrie and Bennett (ibid., 145) (contemporaneous with Glen Meyer in southwestern Ontario) and what Wright believed to be later Uren substage sites such as Downpour and Uren in southwestern Ontario and Elliott in southeastern Ontario It is important to note that both Ridley (1958b) and Wright (1966:44) felt that the Ontario Horizontal type developed directly from the Iroquoian Linear type. This is probably true, since Pickering period sites with a high percentage of Iroquoian Linear vessels also have a significant representation of Ontario Horizontal vessels. For example, the Barrie site had 49% Iroquoian Linear and 7% Ontario Horizontal, while the Bennett site had corresponding figures of 47% and 12% (ibid., 145). This proposition is all the more persuasive since other characteristic Pickering period ceramic types have a horizontal element and were believed by Ridley (1958b:22, 28) and Wright (1966:44) to represent a developmental continuum. These types are, in developmental order: Scugog Classic Bossed to Bossed Scugog Punctate Collar to Iroquoian Linear to Ontario Horizontal. The first and second types are distinguished by the presence (first) or absence (second) of neck decoration (including incised horizontals), while the second and third types are distinguished only on the basis of bossing attributes (i.e., Bossed Scugog Punctate Collar has bosses whereas Iroquoian Linear rarely does)(ibid., 44). The third and fourth types are distinguished by the dominant collar technique (i.e., Iroquoian Linear has push-pull lines and Ontario Horizontal has incised ones). Despite these differences, the fact remains that all of these

types have a horizontal element. All of these types occur on Early Ontario Iroquoian Stage sites in southeastern Ontario, while most contemporaneous sites in southwestern Ontario do not have vessels with horizontal motifs on their collars (or the upper portion of the exterior of collarless vessels). Exceptions to this statement occurred at Willcock and Crawford, discussed below.

The Iroquoian Linear type behaved, as Pound Necked did, in a somewhat clinal manner with its apparent epicentre being located east of the Niagara Escarpment. As noted above, it had its highest percentages on the Early Ontario Iroquoian Stage sites of Bennett (47%) and Barrie (49%)(Wright 1966:145). In later times it extended westward and was found on the following sites in the following percentages: Downpour (12.5%), Uren (15%), Nodwell (7.3%), and Inverhuron (3%)(see Table 17). It also continued as a minor type on Middleport period sites in the Markham area, being present at Thomson (6.1%), Sewell (1.0%), and Robb (0.7%) (Table 17, based on Kapches 1981; these figures vary from Wright 1966:147). According to Wright (1966:148-151), Iroquoian Linear does not occur on later sites, being totally absent from Pound, the Middleport period type site, and all Late Ontario Iroquoian Stage sites he analyzed. Since that time, however, research in the London area has revealed Iroquoian Linear on some sites. One of these is Willcock, where this type comprised 25.8% of the ceramic assemblage (Table 3). That site also had 16.7% Ontario Horizontal. One vessel of Iroquoian Linear was found at Drumholm (Pearce 1982a), and several sherds of this type were excavated by Jury (1948) from the Crawford site near Thedford. A reanalysis of rim sherds from the Lawson site housed at the Archaeological Survey of Canada resulted in the recognition of one Iroquoian Linear rim (Pearce 1980a: Table 19).

Thus, the concept of a horizontal element on the collar of Iroquoian vessels once appeared to have been initiated by peoples living east of the Niagara Escarpment. Here, Iroquoian Linear was a major ceramic type and led to the development of Ontario Horizontal. This required only a switch from the push-pull technique to incising. But push-pull horizontal collar motifs are now known to occur on at least two late Glen Meyer sites in southwestern Ontario (Crawford and Willcock) as well as on a number of Middleport period sites in both southeastern and southwestern Ontario. As additional research is carried out, it has been demonstrated that horizontal collar (and neck) motifs were present in both southeastern and southwestern Ontario in the Early Ontario Iroquoian Stage. This rules out the possibility that this type entered southwestern Ontario by means of a Pickering conquest of Glen Meyer as was previously claimed (Wright 1966). Rather, this motif was shared by peoples in both areas, a topic to be discussed in the subsequent chapter. But the presence of the Iroquoian Linear type in high percentages at Willcock and Crawford does require a further explanation, as this type suddenly appears on these sites and creates an anomaly. Although it is not necessary for all ceramic types to conform to a "battleship curve" temporal distribution, I believe that future surveys and excavations may result in the discovery of sites still earlier than Crawford and Willcock on which this type is represented by a reduced frequency. Until such time, it would be premature to offer an explanation for the high frequency of this type at Crawford and Willcock. It is known that the horizontal collar motifs at Willcock contributed to the use of these motifs at the later Oxbow Creek sites.

Despite its presence on these later sites, Iroquoian Linear was a short-lived type and was soon replaced by the incised horizontals that

define the Ontario Horizontal type. Although Drumholm and Lawson had one vessel of the Iroquoian Linear type, the Drumholm, Edwards, Alway, and Lawson sites greatly favoured incised horizontals, either alone on Ontario Horizontal vessels or in conjunction with obliques on Middleport Oblique ones. Once introduced to the area, incised horizontals became very popular as both a collar motif and a neck motif.

Wright (1966:85-86) stated that four ceramic types were dominant in the prehistoric Neutral period: Lawson Incised, Lawson Opposed, Niagara Collared, and Pound Necked. These four types combined to make up 81% of the assemblage from Southwold and 94% from Lawson, the only sites he used to define the prehistoric Neutral Branch. A revised rim sherd typology based on 1211 rims from the Lawson site (Pearce 1980a) reduces the combined total of these four types to 84% (Table 4).

All four of these types have been defined above, and it was noted that three of the four are nearly identical: Pound Necked vessels are formed simply by placing incised horizontals on the necks of vessels which otherwise would have been Lawson Incised or Lawson Opposed. The fourth type, Niagara Collared, is distinct in that it has no decoration whatsoever.

All four of these types existed on the earlier and ancestral (to Lawson) Middleport period Oxbow Creek sites, although Lawson Incised and Pound Necked were the only ones to occur on all three of those sites (Table 3). Lawson Opposed and Niagara Collared first appeared in the local sequence at the Willcock site. Thus the four types can be derived from earlier periods and have a "battleship curve" temporal distribution.

In addition, the Lawson site had minor percentages of a variety of earlier types which can also be derived from this ancestral population. These included examples of Middleport Criss-Cross, Stafford Stamped, Glen Meyer Linear Stamped, Ripley Plain, Goessens Punctate, Stafford Dentate, Middleport Oblique, Iroquoian Linear, and Ontario Horizontal (Table 3).

The Lawson site also had three types that have not yet been mentioned: Pound Blank, Messenger Punctate, and Parker Festooned.

Pound Blank (MacNeish 1952:15-16) has opposed incised motifs or alternating oblique incised lines (first left to right, then right to left) in combination with blank or undecorated triangles. The distinctive feature of this type is the blank triangles, which may be outlined by punctates as secondary decoration. The necks of these vessels are normally plain. This type occurred on only two sites analyzed by MacNeish, Pound (3%) and Southwold (1%)(ibid., 12), and since it occurred in higher frequency at Pound he named it after that site and said it was confined to the "Pound site horizon" (ibid., 15). He went on to define a similar type in Erie territory as Ripley Triangular and stated that except for the outlining punctates the two types were identical (ibid., 27). The latter type, like the former, had a limited spatial and temporal distribution.

MacNeish failed to recognize the presence of Pound Blank at the Lawson site, even though Wintemberg illustrated at least two examples (1939:Plate 6, Figure 14; Plate 7, Figure 5) and discussed the open triangles in his text (ibid., 53). Wright (1966) basically repeated MacNeish's (1952) typology of 576 rims from Lawson. An analysis of 1211 rims from Lawson, including the 576 typed by MacNeish, 383 rims in the

National Museum not analyzed by MacNeish, and 252 rims excavated by the Museum of Indian Archaeology from 1976 to 1980, resulted in the recognition of 14 (1.2%) Pound Blank rims (Pearce 1980a). Pound Blank has since been found at additional sites in southwestern Ontario, including Edwards and Drumholm in the study area and Moyer and Perry near Kitchener (Table 17). It also occurred at Middleport period sites in the Markham area (Kapches 1981) and on Late Ontario Iroquoian Stage sites (Doncaster and Parsons) in the Toronto area (Wright 1966:148).

A second minor type at Lawson has been defined by the author and David Smith (Pearce 1980a). It is called Messenger Punctate and has been found on a number of Middle and Late Ontario Iroquoian Stage sites in the London area. It is characterized by a single or double row of widely-spaced punctates on a short, poorly-developed collar (ibid., 72). There were nine sherds (0.7%) of this type at Lawson. It is distinct from the Goessens Punctate type (Wright 1966:124-125) in that Messenger Punctate never has more than two horizontal rows of punctates, the punctates are always widely-spaced on the collar, and it occurs only on collared vessels.

The final minor type found at Lawson is Parker Festooned. MacNeish (1952:107, Plate 5, Figure 10) illustrated an example of this type from Lawson, but he called it a variant of the Uren Corded type. The specimen pictured, however, is not corded but dentate stamped, the diagnostic technique of all sherds of this type from Lawson and elsewhere (as will be shown below).

The Parker Festooned type was defined by Lee (1958b:17), based on specimens he excavated from the Parker Earthwork site near Sarnia,

Ontario. This type has both a distinctive motif and technique in comparison to other Late Ontario Iroquoian types. The motif consists of horizontal and/or oblique "festoons" or chains which may appear to be draped around the upper portion of the (collarless) vessel in an undulating fashion. The festoons may extend down the neck in oblique lines to the shoulder and body. The technique at Parker (ibid., 17) and at Lawson (personal observation) is push-pull with a dentate stamp tool. The Lawson specimens have a uniform tool structure of either four or five teeth, while Lee (ibid.) indicated that both single and multiple toothed tools were used at the Parker site. At Lawson, this tool was applied in a remarkably smooth manner, leaving an impression that looks as if it were rouletted into the wet clay rather than applied as push-pull. Lee (ibid.) also noted that the festoon motif may be in the form of a plain or notched applique strip. All of the specimens from Lawson included in this thesis were dentate stamped, but it should be noted that since 1980 at least two examples of Parker Festooned with an applique strip have been found.

The Parker Festooned type is a controversial one (Stothers, Graves and Conway 1982), since it is primarily associated with prehistoric sites in extreme southwestern Ontario (Windsor-Sarnia area) and Michigan. These sites are believed to be the products of a prehistoric population that later evolved into the Algonkian-speaking historic "Fire Nation" (Stothers 1981; Goddard 1978:668). It has been proposed (Pearce 1980a:35-36) that the Parker Festooned vessels found at Lawson are therefore indicative of warfare (capture of prehistoric Algonkian women who, while living at Lawson after capture, continued to make ceramic vessels in the manner to which they were accustomed). A recent trace-element analysis of sherds from both the Parker and Lawson sites (discussed elsewhere in this thesis)

does not support this hypothesis. However, if the Parker Festooned sherds found at Lawson were not made there, but originated elsewhere, they still indicate some type of outside contact. This contact was reciprocal, since typical late Iroquoian pottery has been recovered from sites in extreme southwestern Ontario believed to be Algonkian, such as the Parker Earthwork (Lee 1958b) and Weiser (Stothers, Graves, and Conway 1982:22).

In southwestern Ontario, the Parker Festooned type is not confined to the Lawson site. It has been found at Southwold (D. Smith, personal communication), Clearville (personal observation, collection housed at Museum of Indian Archaeology), Harrietsville (Keron 1983), and Pond Mills (Poulton n.d.). Based on ceramic seriation, all of these sites have been provisionally dated to the period A.D. 1400-1500, which implies that this type had a wide spatial distribution but a limited temporal one. Yet one sherd of this type has been found at the historic Neutral Christianson site, dated A D. 1615 and located near Hamilton (Fitzgerald 1982:337).

In a recent paper by archaeologists familar with the temporal and spatial distribution of the Parker Festooned type in Michigan, it was claimed that this type extended from A.D. 1200 through to the historic era in that area. They defined two varieties of this type and argued that the applique strip version was the earlier of the two, dating to A.D. 1200-1400 with a climax of popularity circa A.D. 1300 (Stothers, Graves and Conway 1982). They also noted that the later non-applique version was executed by trailing or incising in a majority of cases. They stated that push-pull varieties co-occurred with the later phase of the applique version (i.e., A.D. 1350-1400)(ibid., 18).

These statements, which are verifiable by a long list of radiocarbon dates from sites in Michigan and Ohio, do not agree with the current data from Iroquoian sites in southwestern Ontario. At Lawson, which we believe to date circa A.D. 1500, the Parker Festooned vessels are not similar to the vessels from apparently contemporaneous sites in Michigan-Ohio. There is a complete absence of the festoon motifs executed by trailing or incising that characterize sites post-dating A.D. 1400 in Michigan and Ohio, and the push-pull technique occurs on the non-applique version at Lawson. These contradictions require expanations that cannot be supplied at this time, but which will hopefully be forthcoming as additional research is conducted.

Other rims at Lawson (listed as "Miscellaneous" in Table 3) appear to be derived from outside of the London area and may indicate additional contacts with peoples far-removed from the study area. These include types assigned to the prehistoric Huron branch of the Late Ontario Iroquoian Stage, such as Huron Incised, Black Necked, and Lalonde High Collar, all represented by one or two rims, and a single example of a type that may be either Seneca Notched, Long Point Nocked (sic.), Dutch Hollow Notched (MacNeish 1952), or possibly Tuttle Hill Notched (a Whittlesey type from Ohio).

In summary, ceramic typology analysis demonstates both cultural continuity and change. The continuity of certain types on sites throughout the local sequence assists in the definition of that sequence. The changes evident in ceramic types reflect the processes of cultural contact and/or innovation, and involved the adoption of new ideas at least in part as a result of contacts with peoples, both Iroquoian and

Algonkian, living outside the study area. These matters will be discussed in greater detail in the conclusion of this chapter and in Chapters 6 and 7.

A.2 Specific Vessel Motifs and Techniques

Data on the specific decorative motif and technique attributes for ceramic vessels from some of the Glen Meyer sites in the Mount Brydges cluster have been tabulated by Ronald Williamson and were made available to the author for inclusion in this thesis. Similar data were previously compiled for the Middleport and prehistoric Neutral period sites (Pearce 1980a, 1982a) discussed herein, thus allowing detailed comparisons. These studies result in conclusions that are not evident from a comparative analysis of ceramic types. The attribute data are summarized below and in Tables 5 to 16. They include information on vessel form, exterior vessel motif and technique, neck motif and technique, secondary decoration, lip motif and technique, interior motif and technique, castellations, and body treatment.

A.2.a Vessel Form

Not apparent from a discussion of ceramic types is the percentage of collared versus collarless vessels. The following data strongly suggest major changes in this attribute through time. It is during the transitional period from Glen Meyer to Middleport that the dominant vessel form abruptly switches from collarless (90% to 100% on Glen Meyer period sites) to collared (73% to 96% on Middleport period sites)(Table 5). The

predominance of collared vessels continued until the prehistoric Neutral period, with 89% of the vessels at Lawson being of this form. The Willcock site clearly reflects the nature of the transition from collarless to collared vessels. At that site, 59% of the vessels were collarless but a majority of those had a straight to slightly convex exterior/straight to slightly concave interior profile, while a majority of the 41% collared vessels had poorly-defined collars (Poulton n.d.).

A.2.b Exterior Vessel Motifs and Techniques

In discussing this attribute, the discrepency between a high percentage of collarless vessels on Glen Meyer period sites and a high percentage of collared vessels on later Middleport and prehistoric Neutral period sites is eliminated by considering, as Williamson does, the upper portion of the exterior of collarless vessels as a "collar". On most of these collarless vessels, a neck is clearly identifiable by the exterior/interior profile, and thus neck decoration can be readily observed. Everything occurring above the neck on the exterior of collarless vessels is considered to be upper rim motif and can be directly compared with collar motifs on collared vessels.

The variations of upper rim motif within and between all of the sites under study are summarized in Table 6. The corresponding upper rim technique appears in Table 7. From these tables, it can be concluded that the most common decorative motifs on the exterior of the upper portion of Glen Meyer period vessels are simple (obliques or verticals), opposed (i.e., opposing simples), hatched (simple crossed by another simple in a different direction other than horizontal), or plain. All other motifs account for only minor percentages of the total samples. The vast

majority of the simple, opposed, and hatched motifs were executed by linear stamping or impressing with a cord-wrapped stick or "Stafford" stamp (i.e., crescent stamp).

While simple and opposed motifs continued with relatively the same percentages as on Glen Meyer period sites throughout the Middleport and prehistoric Neutral periods in the local sequence, there were major changes in all other motif categories. In particular, the plain, hatched over simple, hatched over horizontal, and horizontal band motifs that make up the remainder of the Glen Meyer period assemblages gave way during the Middleport and prehistoric Neutral periods to simple over horizontal and horizontal line motifs. Table 6 shows that the former four motifs occurred on Glen Meyer period sites but were reduced or absent on later ones, while the latter two motifs occurred in relatively high percentages on Middleport and prehistoric Neutral period sites but were infrequent or absent on Glen Meyer ones. This change involved the replacement of certain early Glen Meyer period types by two types introduced during the late Glen Meyer to Middleport period: Middleport Oblique (simple over horizontal motif) and Ontario Horizontal (horizontal motif). This transition also saw limited use made of a horizontal motif executed by push-pull (the Iroquoian Linear type, discussed above).

Even though simple and opposed motifs persisted through this local sequence, there was a major shift in the way these motifs were executed. This is evident in Table 7, which shows that linear stamping and other forms of stamped impressions (i.e., cord-wrapped stick and Stafford stamp) dominated during the Glen Meyer period, but were quickly replaced by incising on later sites. Linear stamping did occur on the Edwards and Drumholm sites, but in reduced frequency in comparison to the ancestral

Glen Meyer period sites. This technique was totally absent at Alway, and was used on only 3.7% of the rims from Lawson.

The linear stamping that occurred on the Edwards and Drumholm vessels was largely confined to a single type: Middleport Oblique (although there are examples of linear stamping on Ontario Oblique and Glen Meyer Linear Stamped vessels from these sites). Most of the Middleport Oblique vessels from Edwards and Drumholm had a collar motif that consisted of linear stamped obliques over incised horizontals. True Middleport Oblique vessels, as defined by MacNeish (1952:16-17), have incised obliques rather than linear stamped ones and all of the Middleport Oblique vessels from the later Lawson site are incised. Thus, the high incidence of linear stamping for the obliques on the Middleport Oblique type vessels from Edwards and Drumholm can be interpreted as a practice that was retained on these sites from the ancestral Glen Meyer period ones.

Vessels with no decoration behaved in an irregular manner in this local sequence. On the Glen Meyer period sites, plain vessels ranged from 4.6% to 16.6%. These are normally collarless and would be classified as Ripley Plain. Plain vessels became quite rare on the Middleport period sites, being absent from Alway and comprising only 1.9% and 1.6% of the samples from Edwards and Drumholm respectively (one vessel from each site, with the Edwards one being collared and the Drumholm one collarless). There was a marked resurgence in plain vessels at the Lawson site, which made up 21.5% of the rim sherd sample. These include both collarless (i.e., Ripley Plain, 1.8%) and collared (i.e., Niagara Collared, 19.7%) types.

Several of the Niagara Collared rims from Lawson are from the largest vessels in size and capacity on the site. A number of these have been found in a storage context, namely in the bottom of refuse-filled storage pits within longhouses. One such pit, in the south end of House 6, yielded a fragmented but virtually complete Niagara Collared vessel that, when reconstructed, measured 50 cm high and 40 cm in diameter at the lip (Smith and Borland 1983:4). This raises the possibility that these plain vessels were used almost exclusively for storage. In contrast, vessels of this type are absent or rare at the hamlets associated with Lawson, where commodities were obviously not stored for long periods of time (i.e., through the winter). Thus there is a possible functional explanation for their high rate of occurrence at Lawson.

In summary, upper rim exterior motifs on Glen Meyer period sites were predominantly oblique, opposed, or criss-crossed (hatched) lines executed by linear stamping or some other form of stamping. These same motifs continued during the Middleport period, but there was less variability and a switch to incising (although linear stamping continued). The late Glen Meyer to early Middleport period also witnessed the introduction of horizontal motifs as both primary and secondary decoration on collared vessels. Incised obliques and opposed motifs continued through to the prehistoric Neutral period, as did horizontal motifs, but the Lawson site also saw a significant increase in the use of plain vessels. The incidence of the latter may be related to function as outlined above.

A.2.c Neck Motifs and Techniques

The various neck motifs and techniques occurring on the sites studied are tabulated in Tables 8 and 9.

Neck decoration on the vessels from Glen Meyer sites was highly variable, with significant percentages of the following motifs on most of the sites: plain (16% to 38%), simple (38% to 55%), horizontal lines (3% to 12%), horizontal bands (2% to 17%), and hatched (2% to 10%). The motifs other than plain were executed by linear stamping (28% to 45%), other forms of stamping such as cord-wrapped stick and Stafford stamp (10% to 24%), incising (7% to 14%), or a combination of linear stamping and incising (1% to 8%).

Plain necks continued during the Middleport period with relatively the same percentages as in the preceding period (14% to 38%), but there was a marked reduction in variability among the other motifs. In fact, several of the neck motifs utilized during the Glen Meyer period disappeared entirely or appeared on Middleport period vessels in greatly reduced numbers. They were replaced by a single dominant neck motif: horizontals. On the Oxbow Creek sites, the horizontal neck motif occurred on between 52% and 73% of the vessels. There was also a dramatic shift in the technique used to apply these motifs. While stamping dominated during the Glen Meyer period, it was replaced almost exclusively by incising (or trailing) on later sites. On those later sites, linear stamping occurred on only 0% to 4% of the necks, but incising occurred in percentages ranging from 57% to 82%. If one excludes the plain neck motif, this shift to incising, and in particular to incised horizontals, becomes even more pronounced. Incised motifs occurred on between 87% and 95% of decorated

necks on these Middleport sites. Of these, the vast majority were horizontal motifs. For example, at Edwards 32 of 51 collared vessels had neck decoration and on 29 (90.6%) of those this decoration consisted of incised horizontal lines.

Another shift occurred by the time of the Lawson site. At this village, a majority of the necks were plain (72%). When decoration occurred, it was almost exclusively a horizontal motif (19% of the total sample, but 91% of the necks with some form of decoration). The overwhelming majority of these neck motifs were incised (23.6% of the total sample, but 84% of the necks with some form of decoration).

It is therefore evident that neck decorative motifs and techniques changed substantially over time. During the Glen Meyer period, a variety of motifs and techniques were used but most vessels with neck decoration had simple, hatched, or horizontal motifs done by linear stamping or some other form of stamping. During the Middleport period, most vessels with neck decoration had incised horizontals. By the time of the Lawson site, most vessels had plain necks but when decoration occurred it was still in the form of incised horizontals.

A.2.d Secondary Decoration

Secondary decoration encompasses those motifs which occur in addition to a primary motif on both the collar and neck of collared vessels and on the upper portion of the exterior and neck of collarless vessels. Secondary decoration most frequently occurs as a horizontal band of circular punctates or ovate linear stamps below or above the primary motif.

Data on secondary decoration on Glen Meyer period site vessels is limited, but we must include a brief discussion of bossing attributes. These attributes will be examined further under the subsequent heading of interior decoration, where it will be noted that most vessels of this period had bossing.

Other than bossing and punctates associated with bosses, secondary decoration appears to be rare on sites in the Mount Brydges cluster. Unfortunately, Wright (1966) did not present specific quantifiable data on this attribute. None of the vessels illustrated by him (ibid., 159-175, including examples from the Smale site) had secondary decoration that was not associated with bossing (except a castellation with a punctated face from the Goessens site on the Norfolk sand plain). Likewise, none of the vessels illustrated by Williamson (1981:126-133) from sites in the Mount Brydges cluster shows evidence of secondary decoration. The Yaworski site produced, as of 1981, 35 vessels, 12 of which had a primary neck motif and no secondary neck decoration (Williamson 1981:75). This site also yielded 61 neck/shoulder sherds, six of which (10%) had secondary decoration consisting of punctates on plain necks (ibid.).

Secondary decoration on the collar and/or neck of Middleport period vessels was quite common (Table 10). At Edwards, 14 of the 53 vessels (26.4%) bore secondary decoration. Six of these had small ovate linear stamps along the bottom of the collar (4) or at the top of a plain neck (2) on vessels decorated with horizontal motifs (i.e., Ontario Horizontal type vessels with basal collar notches or with upper neck punctates). The other eight occurrences were also ovate linear stamps, but were below the bottom incised horizontal on vessels with horizontal neck motifs (Pearce 1982a:11). At Drumholm, secondary decoration was both more variable and

more common. It occurred on 30 of the 64 vessels (46.9%) as follows: two with basal collar notches associated with an oblique collar motif; one with dividing punctates between a blank triangle and an opposed motif (i.e., a Pound Blank vessel with the blank triangles outlined by punctates); one with notches intersecting the lip and collar, with the collar having a horizontal motif; one with similar notches with the collar having obliques over horizontals; one with upper and lower punctates on a plain collar; two with basal collar notches associated with a horizontal collar motif; 16 with punctates or linear stamps either above or below the horizontals on the neck; two with punctates between opposing obliques on the neck; and four with single rows of punctates on plain necks (ibid., 21-23).

At the Alway site, secondary decoration occurred on 18 of the 30 (60%) vessels. These included eight examples on the collar in the form of upper or lower punctates associated with oblique or horizontal motifs and ten examples on the neck, including nine examples of short oblique gashes and one of interrupted short oblique gashes, all associated with horizontal motifs.

Secondary decoration evidently became rarer through time, for it had only a low frequency at Lawson. Secondary decoration occurred on the collars of only 58 of the 1211 (4.8%) rim sherds analyzed and on only 55 (4.5%) of the necks on those sherds. When present on the collar, it included 19 examples of basal notches, 10 dividing punctates, 10 upper punctates, 10 upper and lower punctates, five lower punctates, two frontal lip notches and basal notches, one frontal lip notches, and one example of upper punctates and basal notches (Pearce 1980a:64). A majority of these included basal notches, most of which were associated with simple or

opposed collar motifs. It is significant to note, however, that four of the 10 Ontario Horizontal vessels at Lawson had basal collar notches (ibid., 70), a trait retained from the Middleport period.

Secondary decoration on the neck of Lawson site vessels consisted primarily of a single row of punctates or short linear stamped obliques, either below (38 examples) or above (11 examples) the horizontals on necks decorated with horizontal motifs (ibid., 67).

Secondary decoration on the collar and neck of Glen Meyer period vessels was therefore rare, especially if one excludes bossing. This may reflect a difference in the conceptualization of decoration as a whole. Secondary decoration may not have been required or desired by the potter since the primary exterior motifs were made up of a series of bands: there were multiple bands of primary motif rather than, as in later times, a single primary motif which sometimes had an associated secondary decoration. On Middleport and prehistoric Neutral period vessels, multiple bands or rows of primary motif were replaced by a single primary motif on the collar and a single primary motif on the neck, sometimes accompanied by secondary decoration to enhance or hi-light those primary motifs. In other words, it is suggested that secondary decoration in the Middle to Late Ontario Iroquoian Stages still served as a row or band of decoration but, as there was an overall reduction in ceramic decorative complexity through time, this band of decoration switched from being present in primary form on most Glen Meyer period vessels to being present in secondary form on only some later vessels. This switch is manifested on vessels of the Ontario Horizontal type, which have a primary motif of horizontals on the collar and often secondary decoration in the form of basal collar notches. Also common during the last two Ontario Iroquoian

Stages were secondary punctates in association with incised neck horizontals, with the punctates occurring either below, above, or below and above the neck horizontals. This form of secondary neck decoration is the only one that occurs with any frequency at the Lawson site.

A.2.e Interior Motifs and Techniques

Bossing was an important attribute in the Glen Meyer period and can be considered as a form of primary or secondary interior decoration. Bosses may occur on either the interior (raised by exterior punctates) or the exterior (raised by interior punctates) on the collar or neck of collared vessels or on the upper portion or neck of collarless vessels.

Bossing was largely confined to vessels from Glen Meyer period sites in the local sequence, although there were two examples from the Middleport period Drumholm site and one from the prehistoric Neutral period Lawson site.

The Glen Meyer period sites in the Mount Brydges cluster investigated by Williamson had relatively high frequencies of bosses, most of which were placed on the lower part of the upper portions of collarless vessels rather than on the neck (i.e., usually 10 mm or more below the lip, but not as far down as the neck). In the following list, the first figure is the percentage of punctation on the interior (which raised exterior bosses), and the second figure is the percentage of those bosses that occur on the upper portion of the exterior of collarless vessels: Smale, 40% and 74%; Roeland, 15% and 40%; Kelly, 32% and 77%; Yaworski, 36% and 61%; and Little, 44% and 55%. In other words, at the Smale site, 40% of the vessels have interior punctation (which raised exterior bosses),

and of those 74% were on the upper portion of the vessel while 26% were on the neck.

Wright (1966:137-142) gave additional data for some of the bossing attributes at the Smale site. Of 46 vessels for which he presented detailed information, nine had bossing attributes. Of these, five had interior punctates which raised exterior bosses, two had exterior punctates which raised interior bosses, and two had exterior punctates which did not raise interior bosses.

The two vessels from the Drumholm site with bosses were both Glen Meyer period types. One was a Glen Meyer Linear Stamped vessel with interior punctates and exterior bosses, while the other was a Goessens Oblique vessel with exterior punctates and interior bosses. Bosses were lacking from the Alway and Edwards sites, but the latter site did have two vessels with very large interior punctates which did not raise exterior bosses. A single rim sherd from the Lawson site had bosses. This was also an earlier type, Stafford Stamped; it had interior punctates and exterior bosses.

Interior decoration other than bossing was very popular on the vessels from the Mount Brydges cluster. It was present on 90% of the vessels from Yaworski; 82% from Kelly; and 86% from Roeland. The most common motifs were simple (obliques or verticals) and were executed by linear stamp or cord-wrapped stick (Tables 11 and 12).

The popularity of interior decoration decreased over time in southwestern Ontario (Noble 1975a:15), as is confirmed by the data obtained from the Middleport and prehistoric Neutral period sites discussed here. At Edwards, 23% of the vessels had interior decoration,

while interior motifs occurred on 27% of the vessels from Alway and 53% of the vessels from Drumholm. While the latter figure is high in comparison to Edwards and Alway, it is still greatly reduced by comparison with the much higher percentages on the earlier Glen Meyer period sites. By the time of the Lawson site, interior decoration had declined to 19% (Table 11). The nature of interior decoration remained relatively constant from the Glen Meyer to Middleport periods, even though it occurred in lower frequency. For example, the most popular decoration on the interiors of the Edwards site vessels was oblique or vertical linear stamped motifs, just as it was on earlier sites. This also held true at Drumholm and Alway, although these two sites had a significant representation of punctate motifs (single horizontal rows of punctates). The eventual replacement of linear stamped motifs by punctated ones became evident at the Lawson site, where 205 of the 216 (95%) rims with interior decoration had that decoration in the form of a single horizontal row of punctates near the lip. In fact, the only other rims from Lawson that had interior decoration were those which were classified as Glen Meyer period types. These had interior decoration in the form of cord-wrapped stick or linear stamped obliques.

Interior decoration occurred on a high percentage of Glen Meyer period vessels. It did so in the form of bosses and punctates associated with bossing and primary interior motifs of oblique or vertical stamps. This motif was often placed some distance below the lip and was complimented by interior punctates/exterior bosses or exterior punctates/interior bosses. During the Middleport period, bossing became rare while the primary interior decoration continued to be stamped

obliques or verticals. As in the earlier period, these motifs were usually placed well below the lip. For example, at Edwards all but one vessel with interior decoration had it 10 mm to 12 mm below the lip (Pearce 1982a:10). Some of the Middleport period vessels had interior decoration in the form of a single row of punctates and at the Lawson site this was the main method used to decorate the interiors. At Lawson, however, the percentage of interior decoration was much reduced from earlier times and the placement of the interior motif was almost exclusively just below the lip (1 mm to 3 mm).

A.2.f. Lip Motifs and Techniques

As with interior decoration, high percentages of lip decoration characterize vessels in the Mount Brydges cluster. It ranged from 58% at Roeland to 83% at Smale, with the other sites having intermediate figures (Kelly, 78%; Yaworski, 68%; Little, 62%)(Table 13). Again, like interior decoration, the most common motifs were simple obliques or verticals executed by stamping, in particular linear stamping. Other motifs included horizontal lines formed by incising or by repeated horizontal impressions with a linear stamp, criss-crossed linear stamps, obliques of cord-wrapped stick, and motifs created by crescent stamps and punctates (see also Wright 1966:137-142).

Lip decoration decreased over time, being present on only 14% of the vessels at Edwards. The figures at Drumholm and Alway were 22% and 3% respectively. This trend continued to the Lawson site, where only 1% of the rims had lip decoration (Table 13).

The motifs occurring on the lip, however, did not change over time. On the Edwards, Drumholm, and Alway sites, the most common motif was the same as on the earlier Glen Meyer period vessels: oblique or vertical linear stamps (Tables 13 and 14). At Lawson, only 13 of the 1211 rims analyzed had lip decoration, but six of these had oblique linear stamps.

Thus lip decoration decreased substantially over time, with a high of over 80% on some Glen Meyer period sites but declining to 1% at Lawson. Despite this marked decrease in popularity, one motif dominated throughout the sequence: oblique linear stamps. This is an interesting paradox as motifs on other parts of ceramic vessels (i.e., interior, collar, and neck) changed over time. In particular, one must question why interior motifs shifted from oblique or vertical linear stamps to horizontal rows of punctates, while lip motifs did not. I cannot present a hypothesis to explain this trend.

A.2.g Castellations

Shape and frequency of occurrence were the only variables recorded for castellations in this study. Data on shape were reduced to three categories: round, pointed, and other.

Vessels from the Mount Brydges cluster had round or rounded castellations; when present, they were round 50% to 86% of the time (Table 15). No data were available for the percentage of vessels with castellations as opposed to those without.

The Middleport period sites examined rarely had castellations. Of the 53 vessels from Edwards, eight (15%) had castellations; and of 33

fragmentary rim sherds, only one had a castellation. Of these nine, eight were pointed and one was round. At Drumholm, 15 of the 74 (20%) vessels had castellations, 12 of which (80%) were pointed. At Alway, only two of the 30 (7%) vessels displayed this feature and both were pointed.

The Lawson site yielded the only castellations in the study area sample that were non-rounded and non-pointed. These other shapes included square and turret forms, but accounted for only 3% of the castellation sample. Of the remainder, 71% were pointed and 26% were round. Of 1211 rim sherds from Lawson, 163 (13.5%) had castellations. The precise figures for this sample were 115 pointed, 43 round, four turret, and one square.

Castellation shape therefore changed from predominantly round during the Glen Meyer period to predominantly pointed during the Middleport and prehistoric Neutral periods. It is not known what the ratio of vessels with castellations to ones without is for the Glen Meyer period, but during the Middleport period between 7% and 20% of the vessels were castellated, while at Lawson the figure was 13.5%. The latter figure may be misleading as it represents a tally on rim sherds, not vessels. It is known that several vessels found at Lawson and since reconstructed had either two or four castellations per vessel, and that one vessel had as many as eight. Thus the number of castellated vessels may have been substantially lower than the count based on rim sherds.

A.2.h Body Treatment

This section describes the manner in which the bodies of ceramic vessels were treated as revealed by an examination of body sherds. This attribute is most often a form of texturing, such as cording, smoothed-over cord, or scarification.

Glen Meyer period vessels seldom had smooth bodies. They were normally treated in some manner. The most frequent forms of body treatment were smoothed-over cord (35% to 56%), corded (17% to 36%), or scarification (2% to 11%)(Table 16).

By Middleport and prehistoric Neutral times, most bodies on ceramic vessels were not treated. Plain body sherds account for between 85% and 100% of the samples from Edwards, Drumholm, Alway, and Lawson. When body treatment did occur, it was usually in the form of cording or scarification.

Body sherd treatment is therefore usually present on Glen Meyer period vessels, but lacking from later Middleport and prehistoric Neutral period ones. It is proposed that body treatment was done to roughen the surface of the vessel to facilitate handling, suggesting there may be some correlation between vessel size, form and/or function, and body treatment. It was observed earlier that most Glen Meyer period vessels were collarless, whereas most Middleport and prehistoric Neutral period ones were collared. Since most Glen Meyer period vessels also display body treatment, it is possible that these vessels were picked up by the body. A rough exterior would assist such handling. On the other hand, later vessels were collared and did not have body treatment. It is suggested that these vessels may have been picked up by the base of the collar

rather than by the body. To test this hypothesis it would be necessary to examine body sherd treatment on collared versus collarless vessels on these later sites, to see if body treatment was largely restricted to collarless ones. Two problems confronting such an analysis would be the relatively small sample sizes of complete or reconstructed vessels and the fact that many of the collared vessels have poorly-developed collars (i.e., they do not necessarily have a convenient "lip" at the base of the collar). These problems might be further elucidated if one were to conduct a series of replicative experiments involving vessels of various sizes, shapes, and body treatments.

B. CERAMIC PIPES

The following is a discussion of general trends through time and a cursory examination of major types of pipes. It does not include a detailed analysis of pipe types or attributes.

The pipes used during the Glen Meyer period were normally small, obtuse-angled specimens with short bowls and short stems. Bowl shape ranged from constricted to cylindrical to slightly bulbous. The most frequent type of decoration consisted of punctate motifs, with the punctates often placed randomly on the bowl rather than in set patterns, such as horizontal or oblique rows. More complex motifs are known, especially from the Smale site (Wright 1966:32-33, 177), but these were typically crude in execution. In fact, some of the more complex motifs are so crude that they have been interpreted as the products of children (ibid., 32).

Williamson did not recover many pipes from the Mount Brydges cluster, but when present they consisted of the small, crude types resembling those from Smale and other Glen Meyer period sites described by Wright (ibid.).

Pipes recovered from other Glen Meyer period sites in the London area were similar. For example, the 1982-83 excavations at the Willcock site by the Museum of Indian Archaeology yielded the following types: at least 18 small, short, plain specimens with constricting, cylindrical, or bulbous bowls; one cylindrical bowl with three horizontal rows of small ovate linear stamps; and six cylindrical or bulbous bowls decorated with random punctates. This site was unusual in that it consisted of a single longhouse with middens at either end, yet produced a surprisingly large number of pipe fragments. The site is interpreted as a late Glen Meyer hamlet and contained a few pipes that are more characteristic of the Middleport period. These included at least two classic Iroquois Ring pipes (one was an Elongated Ring, and the other had nine incised horizontals over a row of tiny punctates) and at least one bowl with an elaborate incised opposed motif. The latter is very similar to examples from the Middleport period type site (see Wintemberg 1948:77, Plate 17, Figures 6-9, 11-13, and 24). Further discussion of these later types is reserved for the summary of this section.

In contrast to all Glen Meyer period sites discussed here, excepting Willcock, the pipes on the Middleport period sites in the study area were large, well-made, and sometimes had elaborate motifs. All specimens from the Edwards, Drumholm, and Alway sites were of the large, right-angled type.

Edwards produced 34 pipe fragments. These pipes fall into three basic categories: Elongated Ring (four specimens, with bowl heights ranging from 33 mm to 49 mm and the number of rings varying from seven to 14); Conical Plain (three specimens); and Conical Decorated (five specimens)(Pearce 1982a). The latter types all had complex motifs of horizontals, obliques, and/or verticals reminiscent of specimens from the Middleport type site (see Wintemberg 1948:77, Plate 17). Two of the five pipes in this category from Edwards also had tiny hollow reed punctates or tiny ovate linear stamps as secondary decoration below the complex bowl motif, a trait reflecting continuity from the preceding period.

The Drumholm pipes included the first known occurrence of a true Iroquoian Trumpet pipe in this local sequence (Table 18). It had four incised horizontal rings as decoration. This site also yielded four plain conical bowls and a conical bowl decorated with a complex motif consisting of a row of punctates over an incised horizontal ring over a row of punctates over an incised horizontal ring over an indeterminate motif of irregularly shaped and spaced incised obliques and horizontals, the latter band covering the elbow and extending onto the stem.

The Alway pipes included three Iroquois Ring specimens with either four or five incised horizontals, two Plain Trumpet pipes, three Conical Plain bowls, and a single Decorated Trumpet bowl with four incised rings.

Both Edwards and Drumholm produced miscellaneous pipe types, including a remarkably similar pipe fragment from each site. These were lobe fragments, triangular in cross-section with short incised gashes on two sides. These specimens, obviously from two different but nearly identical pipes, could have come from pipes with sculptured "ribs" running

down the sides of the bowl. A complete bowl from a similar type of pipe has recently been found on a Middleport period site in the Crawford Lake area near Milton. The latter specimen is an effigy with an appliqued marine mammal and appliqued or sculptured ribs decorated with short gashes (personal observation of the specimen housed at the Museum of Indian Archaeology, brought to my attention by Dr. W.D. Finlayson). The Edwards site also yielded a cylindrical bowl which had several small "nubs" sculptured into the clay, each nub being about 2 mm high. Pipes similar to this have been recovered from both the Lawson (personal observation) and Southwold (Smith 1977:157) sites.

No human effigy pipes have yet been found on any of the Middleport period sites along Oxbow Creek, nor from any site of this period in the London area with which the author is familar.

A large number of Middleport period pipes had incised horizontal and/or incised opposed motifs, corresponding to similar motifs on ceramic vessels of this period (see Woolfrey et al 1976).

The Lawson site pipe assemblage is remarkably diverse, yet consists of six major categories. As of 1980, there were 134 analyzable bowl fragments, including the following: 48 (35.8%) Ring pipes (30 Elongated Ring and 18 Iroquois Ring); 23 (17.2%) Trumpet pipes (18 Plain Trumpet, three Flaring Trumpet, and two Decorated Trumpet); 14 (10.5%) Collared Ring pipes; 13 (9.7%) Miniature pipes (ten Conical Miniature and three Collared Conical Miniature); 11 (8.2%) Conical Plain pipes; and 10 (7.5%) Effigy pipes (seven ceramic and three stone), following the types established by Emerson (1954) and Wagner et al (1973). Minor varieties present at Lawson included two decorated vasiform pipes, three collared

plain bowls, and seven miscellaneous types. A few stone pipes are also present, but except for the three effigies they are excluded from this analysis. Noticeably absent from Lawson are examples of the complex motifs on conical bowls found at the earlier Middleport period sites, which suggests that by Lawson times decorative simplicity was favoured over complexity on pipes. In other words, the complex motifs found on some Middleport period pipes gave way to simple incised rings, either on Ring pipes or on Collared Ring pipes. The exception to this statement pertains to effigy pipes, discussed in detail below.

Nine of the ten effigy pipes from Lawson (as of 1980) are anthropomorphic representations, although one of these also has a zoomorphic design on its stem interpreted as a lizard or reptile. The tenth effigy pipe is missing the bowl, but its stem has a zoomorphic representation wound around it, also interpreted as a lizard or reptile. Of these ten pipes, three are made of stone and seven are ceramic. Interestingly, both of the zoomorphic forms occur on stone pipes.

The two stone effigies which portray human faces are very crude. They have simply been shaped into an ovate form for the head and have shallow circles carved for eyes and mouths. The nose of one was formed by carving away the surrounding area of soft limestone, leaving a slight projection. The nose of the other consists of a small hole drilled through to the inside of the bowl. The third stone effigy, as noted above, was missing the bowl.

The ceramic effigy pipes are generally better made than the stone ones, with more accurate portrayals of the human face. Yet, two of the ceramic ones are very simple, with punctates for eyes and mouths and

sculptured noses. Three others are well-made and have incisions for eyes and mouths and sculptured noses. One of these has sculptured eye-lids and lips and incised eyes and mouth; another has small incisions running perpendicular to the incised mouth to portray teeth.

The final two ceramic effigies stand out from all others recovered from Lawson and are examples of some of the finest Iroquoian effigy representations. One is complete while the other is fragmentary, but both are obviously identical. The complete one appeared in Wintemberg (1948:95, Plate 16, Figures 18-19) and was one of 19 Iroquoian effigy pipes housed at the National Museum selected by Wright (1972c:56, Plate 4, third row, third from left) to illustrate his summary volume of Ontario Prehistory. It is a full human figure crouching on the stem with the back abutting a rather crude bowl. The bowl has an irregular lip and is decorated as follows: a series of criss-crossed incised lines in a band just below the lip, over three incised horizontal rings, over a row of tiny inverted triangular stamps. The bowl is 34 mm high, with an outer diameter at the lip of 18 mm. The stem meets the bowl at an obtuse angle under the buttocks of the crouching figure. The entire pipe is only 58 mm long.

The crouching figure, although resembling an "impish"-looking male, is nevertheless a very real human and not an abstraction. It has meticulous detail, including a sculptured "hat" or "hairpiece" with points, sculptured, rounded ears with drilled holes (i.e., resembling pierced ears), a sculptured nose with nostrils, circular punctated eyes with eye-lids, an incised mouth with short perpendicular incisions for teeth, sculptured arms and hands with incisions for fingers, and sculptured legs and feet with incisions for toes. The figure is sitting

with the buttocks resting on the inner surface of the elbow and the feet resting on top of the stem, midway down its length. The legs are bent up under the chin with the left hand resting on the left knee. The right arm is bent up with the hand over the right side of the face and right ear. The figure is oriented to face the smoker.

The broken specimen is virtually identical to the one just described. It is missing the head and torso, but retains the legs with bent knees, has incised toes, and has the left hand with incised fingers resting on the left knee. It would appear to have been the same size as the complete specimen.

The data presented above illustrate that most Glen Meyer pipes were small, crude, and obtuse-angled and had limited decoration, normally consisting only of random punctates. Middleport period pipes were larger, well-made, right-angled and sometimes decorated with complex motifs. During that period, recognizable pan-Iroquoian types became established, including Ring, Elongated Ring, and Trumpet. Pipes from the prehistoric Neutral period, as known from the Lawson site, included Ring, Trumpet, and Collared types with predominant motifs of incised horizontals. Excepting effigy pipes, the most complex motifs occurred on Middle Ontario Iroquoian Stage sites, with a later trend towards decorative simplicity, as observed by Wright (1966:99) for ceramic vessels.

In The Ontario Iroquois Tradition, Wright proposed that an elaborate pipe complex was one of the characteristics of the Middleport substage. Finding no antecedents for these pipes in the ancestral Uren substage or the still earlier Glen Meyer and Pickering branches, he hypothesized that

they had been borrowed from New York State (1966:97-98), specifically from the Oak Hill Horizon (Lenig 1965). Recent research is casting doubt upon this theory of the diffusion of pipes.

The Willcock site in southwest London yielded both typical Glen Meyer period pipes and some later ones. These included examples of Iroquois Ring bowls with incised horizontals and conical bowls with complex motifs identical to those found on Middleport period sites. Although the sample size from Willcock is low, these pipes nevertheless raise the possibility of an in situ development for the Iroquoian pipe complex in southwestern Ontario.

This possibility had been previously raised by at least two researchers. In a brief statement on the Reid site, a late Glen Meyer period village (circa A.D. 1300) on the Norfolk sand plain, Milton Wright said "artifact assemblages from Reid are representative of late Glen Meyer with definite indications of a continuum to Middleport times. In particular the ceramic pipes are indicative of this continuum" (1978:30). He noted that "types traditionally attributed to Glen Meyer and Middleport (were) present in the same pits" (ibid.). His subsequent analysis of pipes from the Uren site, incorporating Wintemberg's (1928) excavations and his own re-excavation in 1977 (Wright 1979), found further evidence to negate the diffusion of pipes theory. The Uren pipe data, combined with knowledge of pipes from the nearby Reid and Klassen sites, led Milton Wright to the conclusion that "a continuum is seen between the Glen Meyer/Pickering-Uren period, leading into the Middleport period, thereby suggesting an in situ development of this elaborated pipe complex" (1979:80).

Mima Kapches (1981:205-213) presented convincing evidence for the *in situ* development of ceramic pipes within her Markham focus of Middleport period sites, and specifically stated that Wright's (1966) diffusion theory "is no longer acceptable" and "seems inappropriate" (Kapches 1981:213). She demonstrated that the Markham area site pipes showed a "local development" with an increase in variation and manufacturing technique through time (ibid.).

It is also noteworthy that some of the earliest examples of effigy pipes are found on Middle Ontario Iroquoian Stage sites. The Uren site had one effigy, questionably interpreted by Wintemberg (1928:48) as a botryoidal (alligator) form, and the New site in the Markham area, dated by Kapches (1981:244) circa A.D. 1300-1400, had a human effigy. The latter was oriented to face the smoker and had a "top knot" on the back of the head encircled with incised lines (ibid., 144).

C. PROJECTILE POINTS

Iroquoian studies to date have concentrated on the analysis of settlement pattern data and ceramics (vessels/rim sherds and pipes). Few comparative data are available for other artifact classes, such as chipped lithics, ground stone, or bone artifacts. While site reports usually list the numbers of these specimens recovered, they rarely present quantitative information on size or type of material. Thus there is little on which to base an evaluation of change over time.

An exception to the above statement is projectile points, for which there are quantitative data. These data consist of morphological characteristics (point type and shape), measurements (length, width, thickness), and an identification of the source of the material utilized (chert type). Each of these will be discussed below.

In terms of morphology, projectile points from sites in the local sequence consist of three broad categories, with each category having two formal types. These are Early Iroquoian Triangular, including the Levanna or Madison (Ritchie 1961) types (see also Fox 1980b) which tend to be short, equilateral triangles in outline, and derivatives of these such as Glen Meyer Triangular (isoceles triangles 30 to 59 mm in length, 16 to 27 mm wide, and 4 to 6 mm thick with a concave base) and Glen Meyer Spurred (Fox 1982b) (exaggerated concave base that results in a pronounced uni-lateral barb); Late Iroquoian Triangular, including the Middleport Triangular (Fox 1980b) and Nanticoke Triangular (Fox 1981b) types; and Late Iroquoian Notched, including the Middleport Notched (Fox 1980b) and Nanticoke Notched (Fox 1981a) types. The differentiation of Middleport Notched and Middleport Triangular from Nanticoke Notched and Nanticoke Triangular respectively is somewhat arbitrary. Real differences occur in terms of mean length, mean width, and length/width ratio, with the Middleport specimens tending to be longer and narrower than the prehistoric Neutral ones. This trend in size reduction continued into the historic Neutral period when triangular and notched points became smaller and more equilateral in outline. The sample sizes from the sites discussed herein were too small to make this quantitative distinction. These types and variants are illustrated in Figure 15.

Despite the problem of quantitatively distinguishing point types, it can be observed that there were changes in projectile points through time. Table 19 shows that the Glen Meyer (triangular) and Glen Meyer Spurred types were common on Glen Meyer period sites, the Middleport Notched and Middleport Triangular types on Middleport period sites, and the Nanticoke Notched and Nanticoke Triangular types at the Lawson site. Overall these indicate the successive replacement of one type by another through the sequence. Exceptions to this rule occurred at the Glen Meyer period Little site, where all four points recovered were notched (Williamson 1982a:26), and the Willcock site, where 40 of the 44 points were notched (Poulton n.d.). I cannot explain this variation at this time.

Quantitative data on projectile point length, width, and thickness is presented in Table 20. This table also presents data on inter-notch width for the notched specimens. While the sample sizes from most sites are small, it is possible to observe some apparent changes through time in point size. Mean length of the triangular points decreased from 40.3 mm at Roeland to 29.5 mm at Lawson. Mean width for these points decreased from 17.8 mm at Roeland to 14.5 mm at Lawson, while mean thickness decreased from 5.3 mm at Roeland to 4.3 mm at Lawson. Roeland had only one notched point and it measured 32 mm long, 18 mm wide, and 5 mm thick with an inter-notch width of 11 mm. At Edwards the notched points averaged 33 mm, 21 mm, 4.8 mm, and 8.6 mm respectively for length, width, thickness, and inter-notch width while the corresponding figures at Lawson were 30.1 mm, 14.6 mm, 4.2 mm, and 9.0 mm. It is not known if this decrease in point size reflects changes in hunting technology or the size of animals hunted. This aspect of Iroquoian subsistence requires a detailed analysis of other lithic tools such as scrapers and an

examination of debitage. While these lithic tools and debitage occurred on the sites in the local sequence, no attempt was made to examine them for this study.

Source material utilized to make projectile points on all sites but Lawson was mainly Onondaga chert (Table 21), available locally in glacial till, along the north shore of Lake Erie, and along the Niagara Escarpment. Although the earlier sites have some Kettle Point chert, which comes from the eastern shore of Lake Huron near Pinery Provincial Park, they do not approximate the extensive utilization of this type of chert from Lawson, where 54.4% of the projectile points were made from this material.

The above percentages of Kettle Point chert are perhaps misleading, since they refer to the utilization of this material for only one artifact class. In her study of Kettle Point chert, Janusas (1983) tabulated the overall percentage of this material in the entire lithic assemblage (lithic artifacts, debitage, and cores) for some of the sites discussed in this thesis. She found, for example, that Kettle Point chert accounted for the following percentages of the total lithics from these sites: Smale 53.1%, Little 53.5%, Edwards 15.9%, and Lawson 85.8% (ibid, 108). These figures indicate that Kettle Point chert was utilized on Glen Meyer and Middleport period sites, but not nearly to the extent that it was used at Lawson. In fact, Lawson had the highest percentage of Kettle Point chert of all the Iroquoian sites analyzed by Janusas (ibid., 107-108), despite the fact that it is located 64 km east of the source outcrop. Further aspects of chert utilization will be discussed in Chapter 6.

An examination of projectile points indicates that: (a) basic types changed through time, with Glen Meyer (triangular) and Glen Meyer Spurred giving way to Middleport and Nanticoke Notched and Triangular types on later sites; (b) notched specimens became the dominant type on Middleport period sites, but were replaced by triangular forms on the later Lawson site; (c) mean projectile point length, width, and thickness decreased through time; and (d) Kettle Point chert was used throughout the sequence but was most extensively used at Lawson.

SERIATION AND CHRONOLOGICAL ORDERING OF SITES

A detailed seriation of the sites considered in this study is hampered by variable sample sizes and the differing excavation techniques employed by various researchers to obtain those samples. In addition, the proposed chronological ordering of sites cannot be completely verified by independent data such as radiocarbon dates since only a few of the sites have been dated by that technique. Nevertheless the existing seriational and chronological data support the proposed local sequence. The available radiocarbon dates were discussed in Chapter 4, while seriational data in the form of ceramic rim sherd or vessel typology and ceramic attributes were outlined above and are summarized in Tables 3 to 16.

Those tables indicate the major trends evident in ceramic vessel form, decorative motifs, and decorative techniques throughout the local sequence under study and serve to validate the relative chronological ordering of components.

A ceramic typology was available for only two of the Mount Brydges cluster village sites, MiV18 and Smale; both of these were based on an analysis of rim sherds (Wright 1966:137). Ceramic typologies for Willcock, Edwards, Drumholm, and Alway were based on a analysis of vessels, while that for Lawson was based on rim sherds. A previous study on Iroquoian ceramics demonstrated that there were no statistically significant differences in the overall percentages of specific attributes based on an analysis of rim sherds in comparison to one based on vessels (Pearce 1978b:53-57). A Brainerd-Robinson coefficient of similarity chart (Brainerd 1951; Robinson 1951), based on ceramic typology (Figure 4), produced an ordering of sites that was consistent with the proposed local sequence: MiV18, Smale, Willcock, Edwards, Drumholm, Alway, and Lawson. If the order of any one of these sites is changed relative to the others, one of the prime requirements of a coefficient of similarity chart is not met: the highest numbers are not located adjacent to the diagonal.

Ronald Williamson's forthcoming doctoral dissertation on the Mount Brydges cluster will discuss in greater detail the seriation and chronological ordering of the villages there. He believes (personal communication, June 1984) that three of the villages that he has investigated in that cluster seriate in the order of MiV18, Smale, and Roeland. This seriation is supported by a number of radiocarbon dates from those villages or from hamlets that he believes are associated with the villages.

I have discussed above the placement of the Willcock site between Roeland (radiocarbon dated circa A.D. 1200-1250) and Edwards (radiocarbon dated circa A.D. 1245-1315). The Edwards site is earlier than Drumholm according to the coefficient of similarity chart based on ceramic typology

(Figure 4) and on a number of trends in specific ceramic attributes (Tables 3 to 16). Drumholm is followed by Alway and Lawson is the latest site in the sequence based on a number of criteria. The Dolway Place sites are placed intermediate between Alway and Lawson based on their spatial location; inadequate sample sizes did not allow verification of this on the basis of ceramic evidence.

Coefficient of similarity charts based on various specific attributes (Figures 5 to 12) generally order the sites of Smale, Roeland, Willcock, Edwards, Drumholm, Alway, and Lawson in that order and further support the relative chronological placement and seriation of the components within the local sequence. Each of these coefficient of similarity charts was subjected to the "Double-Link Method" of close-proximity analysis (Renfrew and Sterud 1969:265-268). The Mount Brydges cluster hamlets and camps of Kelly, Yaworski, and Little were excluded from these charts as they are associated with the villages of MiV18, Smale, and Roeland and unnecessarily confuse the ordering of the village sites. This procedure demonstrated two interesting problems. First, some attributes, notably exterior motif and neck motif, could not be used to seriate the sites in linear order since this method produced separate clusters of sites. In particular, exterior motif could be used to seriate the earliest and latest sites in the sequence as Smale to Roeland and Alway to Lawson, but the three sites in the middle of the sequence clustered as a group in which Edwards and Drumholm could be interchanged while Willcock had a weak link with all sites. Neck motif could not be used to seriate the sites but rather produced three clusters by this procedure: Smale and Roeland; Edwards, Drumholm, and Alway; and Lawson and Willcock. For this attribute, Lawson had its closest affinity with Edwards, while Willcock

was most similar to Drumholm.

Second, some attributes appeared to be more sensitive as indicators of temporal change and could be used to produce a linear order of sites. This was especially true for ceramic types, exterior technique, interior motif, lip motif, and lip technique. However, when subjected to the Double-Link Method, most of these attributes produced clusters in which specific pairs of sites were consistently interchangeable: Smale and Roeland; Edwards and Drumholm; and Alway and Lawson.

The data presented in Tables 4 to 16 indicate several continuities throughout the local sequence. Even though new types and specific traits were introduced at various times, some types and traits persisted from earlier times as discussed earlier in this chapter.

A preliminary statement on rates of change can be made based on Figures 4 to 12. Figure 4 indicates that the highest coefficients of similarity based on ceramic typology occur between the three villages of Edwards, Drumholm, and Alway. These coefficients are: 123, 128, and 147. In contrast, the lower coefficient between Willcock and Edwards (73) can be explained by the rapid changes that took place during the amalgamation of two or three communities at the Oxbow Creek sites. In addition, the low coefficient between Alway and Lawson (64) must be tempered with a consideration that the Dolway Place sites are intermediate between them. Similar conclusions are reached by examining the coefficient of similarity charts based on specific attributes. These show that change was not present in the form of uniform increments as might be expected if there had been a long sequence of gradual and continuous change. Rather, the coefficients of similarity can be used to verify the proposed model of

change. It is believed that a long period of gradual change during the Early Ontario Iroquoian Stage, represented at the MiV18, Smale, and Roeland sites, was followed by a short period of rapid change, represented at Edwards, in comparison to the earlier Willcock and Mount Brydges cluster villages. This was then followed by another long period of gradual change as represented in the sequence from Edwards to Drumholm, Alway, (the Dolway Place sites), and Lawson. The period of rapid change can be accounted for in terms of the "throwing together" of two or three communities that had previously lived apart into one large community and concomitant changes in virtually every other aspect of the sociocultural system.

TABLES 3 to 21

FIGURES 4 to 12

Site names used on these Tables and Figures are abbreviated as follows:

MiV	= MiV18	Will	= Willcock
Sma	= Smale	Ed	= Edwards
Roe	= Roeland	Drum	= Drumholm
Kel	= Kelly	Alw	= Alway
Yaw	= Yaworski	Law	= Lawson
Lit	= Little		

For Table 17, site names are abbreviated as follows:

Ed	= Edwards	Per	= Perry
Drum	= Drumholm	Myr	= Moyer
Alw	= Alway	Tmn	= Thomson
Pnd	= Pound	El	= Elliot
Dwp	= Downpour	Swl	= Sewell
Ur	= Uren	Robb	= Robb
Nwl	= Nodwell	New	= New
CLK	= Crawford Lake	Mlry	= Millroy
Mid	= Middleport		

Table 3: Ceramic Types for Some Sites in the London Area Sequence

Ceramic Type	Miv	Sma	Will	Ed	Drum	Alw	Law
Glen Meyer Oblique	50.0	10.7	--	--	--	--	--
Ontario Oblique	37.5	28.6	6.0	5.6	6.7	--	--
Middleport Criss-Cross	12.5	28.6	--	--	2.7	--	0.1
Stafford Stamped	--	12.5	1.5	--	1.4	--	0.1
Ripley Plain	--	1.8	1.5	--	1.4	--	1.8
Glen Meyer Linear Stamped	--	7.1	9.1	3.8	9.4	--	0.1
Glen Meyer Necked	--	1.8	16.7	--	--	--	--
Goessens Oblique	--	1.8	--	--	1.4	--	--
Goessens Punctate	--	--	--	1.9	--	--	0.1
Stafford Denate	--	--	--	--	1.4	--	0.1
Middleport Oblique	--	--	7.6	28.3	17.5	23.3	2.4
Ontario Horizontal	--	--	16.7	26.4	18.9	10.0	0.8
Pound Necked	--	--	--	24.5	33.7	36.7	18.8
Lawson Incised	--	--	--	1.9	2.7	6.7	36.3
Lawson Opposed	--	--	1.5	1.9	--	3.3	10.7
Niagara Collared	--	--	7.6	1.9	--	--	18.5
Pound Blank	--	--	--	1.9	1.4	--	1.2
Parker Festooned	--	--	--	--	--	--	4.2
Iroquoian Linear	--	--	25.8	--	1.4	--	1.2
Miscellaneous	--	7.1	6.0	1.9	--	20.0	3.6
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Note: Comparative typologies were not available for Roeland, Kelly, Yaworski, or Little.

Table 4: Summary of Dominant Ceramic Types by Time Period

	Glen Meyer			Middleport			Prehistoric Neutral
Ceramic Type	Miv	Sma	Will	Ed	Drum	Alw	Law
A. (Dominant Glen Meyer Types)							
Ontario Oblique	37.5	28.6	6.0	5.6	6.7	--	--
Glen Meyer Oblique	50.0	10.7	--	--	--	--	--
Stafford Stamped	--	12.5	1.5	--	1.4	--	0.1
Middleport Criss-Cross	12.5	28.6	--	--	2.7	--	0.1
Ripley Plain	--	1.8	1.5	--	1.4	--	1.8
Total	100.0	82.2	9.0	5.6	12.2	0.0	2.0
B. (Dominant Middleport Types)							
Middleport Oblique	--	--	7.6	28.3	17.5	23.3	2.4
Ontario Horizontal	--	--	16.7	26.4	18.9	10.0	0.8
Lawson Incised	--	--	--	1.9	2.7	6.7	36.3
Sub Total	--	--	24.3	56.6	39.1	40.0	39.5
Pound Necked	--	--	--	24.5	33.7	36.7	18.8
Total	--	--	24.3	81.1	72.8	76.7	58.3
C. (Dominant Prehistoric Neutral Types)							
Lawson Incised	--	--	--	1.9	2.7	6.7	36.3
Lawson Opposed	--	--	1.5	1.9	--	3.3	10.7
Niagara Collared	--	--	7.6	1.9	--	--	18.5
Pound Necked	--	--	--	24.5	33.7	36.7	18.8
Total	--	--	9.1	30.2	36.4	46.7	84.3

Table 5: Vessel Form (Collared versus Collarless)

	Sma	Roe	Kel	Yaw	Lit	Will	Ed	Drum	Alw	Law
Collared	4.0	4.0	4.0	10.0	0.0	41.0	96.0	87.0	73.0	89.0
Collarless	96.0	96.0	96.0	90.0	100.0	59.0	4.0	13.0	27.0	11.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 6: Exterior Vessel Motif (Upper Rim or Collar)

Motif	Sma	Roe	Kel	Yaw	Lit	Will	Ed	Drum	Alw	Law
Plain	16.6	9.5	5.7	5.2	11.1	9.1	1.9	1.6	--	21.5
Simple	44.4	52.6	40.9	39.2	33.3	25.7	35.3	54.7	60.0	56.7
Simple over horizontal	2.7	2.8	1.1	2.6	--	--	25.5	14.0	6.7	2.0
Crossed	--	--	--	--	--	--	--	6.3	--	--
Hatched	25.0	10.0	25.0	19.0	33.3	--	--	3.1	--	0.2
Hatched over simple	2.7	4.3	2.3	3.3	--	--	--	--	--	--
Hatched over horizontal	2.7	--	2.3	2.3	--	--	--	--	--	--
Horizontal Line	--	3.3	1.1	2.0	--	46.9	27.5	10.9	13.3	0.5
Horizontal Band	8.3	6.2	4.5	10.5	11.1	--	--	--	--	--
Opposed	--	7.6	13.6	12.4	11.1	3.0	5.9	4.7	13.3	18.9
Other	--	2.9	2.2	2.8	--	15.2	3.9	4.7	6.7	0.2
Total	102.4	99.2	98.7	99.3	99.9	99.9	100.0	100.0	100.0	100.0

Table 7: Exterior Vessel Technique (Upper Rim or Collar)

Technique	Sma	Roe	Kel	Yaw	Lit	Will	Ed	Drum	Alw	Law
Plain	16.6	8.1	4.6	4.6	5.6	9.1	1.9	1.6	--	21.5
Linear Stamped	36.1	41.7	42.5	40.5	55.6	27.3	25.5	28.1	--	3.7
Incised	8.3	1.9	1.1	7.2	--	21.2	49.0	64.1	90.0	73.7
Linear Stamped and Incised	13.8	4.2	16.1	10.5	5.6	12.1	19.6	1.6	--	--
Cord-Wrapped Stick	13.8	14.7	21.8	11.1	16.7	--	--	--	3.3	--
Stafford Stamp *	13.8	14.7	6.9	15.0	11.1	1.5	--	--	--	--
Other **	--	13.7	6.7	11.3	5.6	28.8	3.9	4.7	6.6	1.1
Total	102.4	99.0	99.7	100.2	100.2	100.0	99.9	100.1	99.9	100.0

* Crescent Stamp
** Includes dentate stamp, suture stamp, punctate, cord-roughened, and combinations.

Table 8: Neck Motif

Motif	Sma	Roe	Kel	Yaw	Lit	Will	Ed	Drum	Alw	Law
Plain	37.9	28.3	21.2	15.8	16.7	81.8	37.3	23.4	13.6	71.8
Simple	37.9	53.5	40.4	55.0	50.0	1.5	3.9	7.8	--	0.5
Hatched	10.3	2.5	7.7	1.7	--	--	--	1.6	--	--
Hatched over simple	3.4	1.3	--	1.7	--	--	--	--	--	--
Horizontal Lines	3.4	5.0	11.5	9.2	8.3	13.6	56.9	51.6	72.7	19.1
Horizontal Bands	3.4	2.5	1.9	9.2	16.7	--	--	--	--	--
Opposed	3.4	3.1	7.7	0.8	--	1.5	--	9.3	9.2	0.8
Simple over Horizontal	--	1.9	7.7	1.7	8.3	--	1.9	--	--	--
Other	--	0.6	1.9	5.0	--	1.5	--	6.3	4.5	7.8
Total	99.7	98.7	100.0	100.1	100.0	99.9	100.0	100.0	100.0	100.0

Table 9: Neck Technique

Technique	Sma	Roe	Kel	Yaw	Lit	Will	Ed	Drum	Alw	Law
Plain	37.9	27.4	19.6	14.3	11.1	81.8	37.3	23.4	13.6	71.8
Linear Stamped	27.8	36.9	41.2	39.5	44.8	1.5	3.9	3.1	--	0.1
Incised	13.8	6.4	13.7	11.8	5.6	13.6	56.9	64.0	81.8	23.6
Linear Stamped and Incised	3.4	0.6	7.8	3.4	--	--	1.9	1.6	--	2.5
Cord-Wrapped Stick	13.8	2.7	5.9	10.9	5.6	--	--	3.1	--	0.3
Stafford Stamp	3.4	7.7	3.9	12.6	16.7	--	--	--	--	--
Cord-Roughened	3.4	1.3	2.0	1.7	--	--	--	--	--	--
Other	--	6.9	6.0	5.0	--	3.0	--	4.7	4.6	1.7
Sub-Total	103.5	89.9	100.1	99.2	83.8	99.9	100.0	99.9	100.0	100.0

Table 10: Secondary Decoration

Presence and Location	Sma	Roe	Kel	Yaw	Lit	Will	Ed	Drum	Alw	Law
Present on Collar	N/A	N/A	N/A	N/A	N/A	15.1	8.0	13.0	27.0	5.0
Absent from Collar	N/A	N/A	N/A	N/A	N/A	84.8	92.0	87.0	73.0	95.0
Total	--	--	--	--	--	99.9	100.0	100.0	100.0	100.0
Present on Neck	N/A	N/A	N/A	10.0	N/A	36.4	19.0	34.0	33.0	5.0
Absent from Neck	N/A	N/A	N/A	90.0	N/A	63.6	81.0	66.0	67.0	95.0
Total	--	--	--	100.0	--	100.0	100.0	100.0	100.0	100.0

N/A: No data available.

Table 11: Interior Motif

Motif	Sma	Roe	Kel	Yaw	Lit	Will	Ed	Drum	Alw	Law
Plain	16.6	14.3	18.4	9.8	38.9	62.1	77.0	47.3	73.3	81.9
Simple	61.1	60.4	55.2	42.1	27.8	31.8	20.8	39.2	6.7	0.6
Hatched	2.7	11.5	14.9	17.1	16.7	--	--	1.4	--	--
Hatched over simple	8.3	1.8	3.4	1.2	--	--	--	--	--	--
Hatched over Horizontal	--	--	--	2.4	--	--	--	--	--	--
Horizontal	11.1	7.8	3.1	14.0	16.7	--	--	--	--	0.3
Horizontal Over Simple	--	--	--	4.2	--	--	--	--	--	--
Opposed	--	2.3	1.1	4.9	--	1.5	--	--	--	--
Punctate	--	0.9	3.4	2.4	--	4.5	2.1	5.4	16.7	17.1*
Other	--	0.9	--	1.8	--	--	--	6.8	3.3	--
Total	99.8	99.9	99.5	99.9	100.1	99.9	99.9	100.1	100.0	99.9

* includes both punctated and linear stamped motifs.

Table 12: Interior Technique

Technique	Sma	Roe	Kel	Yaw	Lit	Will	Ed	Drum	Alw	Law
Plain	11.6	14.3	16.3	11.6	38.9	62.1	77.0	47.3	73.3	81.9
Linear Stamped	44.4	44.2	39.5	37.2	33.3	33.3	20.8	39.2	--	17.1*
Stafford Stamped	11.1	17.2	4.7	16.4	5.6	--	--	1.4	--	--
Other Stamped Techniques	2.7	3.7	2.3	7.3	5.6	--	--	4.0	--	--
Incised	5.5	1.4	8.1	8.5	5.6	--	--	1.4	6.7	0.4
Punctated	--	1.9	3.5	1.8	5.6	4.5	2.1	5.4	16.7	*
Cord-Wrapped Stick	19.4	12.1	20.9	11.0	5.6	--	--	--	--	0.3
Other	--	4.7	4.7	6.0	--	--	--	1.4	3.3	0.3
Total	99.7	99.6	100.0	99.8	100.2	99.9	99.9	100.1	100.0	100.0

* Linear stamped and punctated motifs were not distinguished from each other at Lawson.

Table 13: Lip Motif

Motif	Sma	Roe	Kel	Yaw	Lit	Will	Ed	Drum	Alw	Law
Plain	16.6	42.2	22.3	32.0	37.5	51.5	86.0	78.4	96.6	99.0
Simple	41.6	24.3	31.9	37.3	18.8	7.6	6.0	10.8	--	0.8
Hatched	19.4	12.4	11.7	1.8	25.0	--	--	1.4	--	--
Horizontal Line	16.6	17.4	25.5	15.4	12.5	36.3	2.0	5.4	--	--
Horizontal Band	2.7	3.2	3.2	5.9	--	--	--	--	--	--
Other	2.7	0.5	5.3	7.7	6.3	4.5	6.0	4.0	3.4	0.2
Total	99.6	100.0	99.9	100.1	100.1	99.9	100.0	100.0	100.0	100.0

Table 14: Lip Technique

Technique	Sma	Roe	Kel	Yaw	Lit	Will	Ed	Drum	Alw	Law
Plain	16.6	39.2	20.4	30.8	37.5	51.5	86.0	78.4	96.6	99.0
Linear Stamped	33.3	22.6	30.1	27.8	31.3	7.6	10.0	10.8	--	0.5
Stafford Stamped	8.3	8.3	9.7	11.3	6.3	--	--	1.4	--	--
Other Stamped Techniques	5.5	3.7	6.5	4.1	12.5	--	--	--	--	--
Incised	16.6	7.4	6.5	6.5	--	36.3	2.0	8.1	--	0.3
Cord-Wrapped Stick	19.4	9.7	19.4	11.8	6.3	--	--	--	--	--
Other	--	8.7	7.6	7.8	6.3	4.5	2.0	1.4	3.4	0.2
Total	99.7	99.6	100.2	100.1	100.2	99.9	100.0	100.1	100.0	100.0

Table 15: Castellation Shape

Shape	Sma	Roe	Kel	Yaw	Lit	Will	Ed	Drum	Alw	Law
Rounded	50.0	86.0	73.7	56.3	66.7	14.2	12.5	20.0	0.0	26.3
Pointed	50.0	14.0	26.3	43.8	33.3	85.7	87.5	80.0	100.0	70.6
Other	--	--	--	--	--	--	--	--	--	3.1
Total	100.0	100.0	100.0	100.1	100.0	99.9	100.0	100.0	100.0	100.0

Table 16: Body Treatment (Exterior Vessel Body)

Treatment	Sma	Roe	Kel	Yaw	Lit	Will	Ed	Drum	Alw	Law
Plain	11.0	27.0	10.0	29.0	21.0	22.7	96.3	84.5	86.5	100.0
Smoothed-over Corded	56.0	35.0	45.0	35.0	41.0	71.2	1.6	--	--	--
Corded	21.0	27.0	36.0	30.0	17.0	0.1	1.1	10.3	13.5	--
Scarified	11.0	9.0	6.0	2.0	10.0	0.5	0.6	3.5	--	--
Other	1.0	2.0	3.0	3.0	11.0	5.5	0.4	1.7	--	--
Total	100.0	100.0	100.0	99.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 17: Comparative Ceramic Typology for Selected Iroquoian Sites

Pottery Type	Ed	Drum	Alw	Pnd	Dwp	Ur	Nwl	CLk	Mid	Per	Myr	Tmn	El	Swl	Robb	New	Mlry
Middleport Oblique	28.3	17.5	23.3	16.0	--	--	10.1	42.0	15.0	29.0	30.0	1.2	4.6	46.0	29.9	33.3	23.4
Ont. Horizontal	26.4	18.9	10.0	24.0	50.0	48.0	24.2	9.0	38.0	7.0	10.0	29.4	28.2	27.0	19.7	21.0	1.0
Lawson Incised	1.9	2.7	6.7	7.0	--	1.0	3.9	5.0	12.0	25.0	--	0.6	--	1.0	3.0	1.9	3.1
Pound Necked	24.5	33.7	36.7	46.0	--	--	22.8	19.0	5.0	21.0	35.0	--	1.7	3.0	10.9	3.3	1.0
Sub-Total	81.1	72.8	76.7	93.0	50.0	49.0	61.0	75.0	70.0	82.0	75.0	31.2	34.5	77.0	63.5	59.5	28.5
Lawson Opposed	1.9	--	3.3	P	--	--	2.0	7.0	--	--	3.0	--	--	2.0	3.5	11.1	10.4
Niagara Collared	1.9	--	--	1.0	--	1.0	0.6	--	2.0	--	P	0.6	0.8	--	--	--	1.0
Ripley Plain	--	1.4	--	P	18.1	P	--	2.0	1.0	2.0	P	2.5	--	2.0	1.5	0.7	--
Pound Blank	1.9	1.4	--	3.0	--	--	--	--	--	4.0	2.0	--	--	P	--	5.2	0.5
Middleport Criss-Cross	--	2.7	--	3.0	--	P	1.1	2.0	17.0	--	--	--	3.7	2.0	2.2	4.4	--
Iroquoian Linear	--	1.4	--	--	12.5	15.0	7.3	--	--	--	--	6.1	--	1.0	0.7	--	--
Goessens Punctate	1.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Goessens Oblique	--	1.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GM Linear Stamped	3.8	9.4	--	--	3.1	--	--	--	--	--	--	--	--	--	--	--	--
Stafford Stamped	--	1.4	--	--	6.3	P	--	--	--	--	--	--	--	--	--	--	--
Ontario Oblique	5.6	6.7	--	--	3.1	21.0	0.9	--	8.0	2.0	P	32.5	5.8	4.0	1.2	--	--
Stafford Dentate	--	1.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bossed Scogog Punctate Collar	--	--	--	--	--	P	--	--	--	--	--	--	--	--	--	--	--
Miscellaneous	1.9	-	20.0	-	6.3	13.0	27.1	14.0	2.0	10.0	4.0	27.0	55.2	10.0	27.2	19.0	59.4
Total	100	100	100	100	99.4	99.0	100	100	100	100	84.0	99.9	100	98.0	99.8	99.9	99.8
Source	1	1	2	3	3	3	4	5	3	6	6	7	7	7	7	7	7

Sources: 1. Pearce 1983; 2. Pearce et al. 1980; 3. Wright 1966; 4. Wright 1974; 5. Busby 1979; 6. Woolfrey, in Kapches 1981; 7. Kapches 1981.

Table 18: Ceramic Pipe Typology

Type	Sma	Roe	MiV	Will	Ed	Drum	Alw	Law
Plain	P	P	P	P	--	--	--	--
Punctated	P	P	P	P	6.2	--	--	--
Elongated Ring	--	--	--	P	25.0	--	--	22.4
Iroquois Ring	--	--	--	P	--	--	33.3	13.4
Plain Trumpet	--	--	--	A	--	--	22.2	13.4
Effigy	A	A	A	A	6.2	14.3	A	7.5
Conical Miniature	--	--	--	A	--	--	--	7.5
Collared Ring	--	--	--	A	--	--	--	10.5
Conical Plain	--	--	--	A	18.8	57.1	33.3	8.2
Flaring Trumpet	--	--	--	A	--	--	--	2.2
Decorated Vasiform	--	--	--	A	--	--	--	1.5
Collared Conical Miniature	--	--	--	A	--	--	--	2.2
Collared Plain	--	--	--	A	--	--	--	2.2
Decorated Trumpet	--	--	--	A	--	14.3	11.1	1.5
Conical Decorated	--	--	--	P	43.8	14.3	--	--
Other	--	--	--	--	--	--	--	5.3
Total	--	--	--	--	100.0	100.0	99.9	100.0

P = Present
A = Absent

Table 19: Projectile Point Typology (number of complete specimens)

Type	Sma	Roe	Kel	Yaw	Lit	Ed	Drum	Alw	Law
Glen Meyer Triangular	7	4	No Data	--	--	1	--	--	2
GM Spurred	--	--		3	--	--	--	--	--
Iroquoian Notched*	--	1		1	4	--	--	--	--
Middleport Notched	--	--		--	--	9	1	2	--
Middleport Triangular	--	--		--	--	2	1	--	--
Nanticoke Notched	--	--		--	--	--	--	--	16
Nanticoke Triangular	--	--		--	--	--	--	--	87
Total	7	5	?	4	4	12	2	2	105

* Not typed

Table 20: Metric Attributes for Projectile Points (all measurements in millimeters)
(sample size in parentheses)

Type*	Attribute	Sma**	Roe	Kel	Yaw	Lit	Ed	Drum	Alw	Law
1.	Length Range	(3)25-44	(4)31-46	No	-	-	(1) 24	-	-	(2)22-29
	Mean	33.3	40.3	Data			24			25.5
	Width Range	(6)17-30	(4)16-21		-	-	(1) 25	-	-	(2)23-24
	Mean	21.7	17.8				25			23.5
	Thickness Range	(7) 4-6	(4) 5-6		-	-	(1) 4	-	-	(2) 5-6
	Mean	5.0	5.3				4			5.5
2.	Length Range	-	-	-	(1) 31	-	-	-	-	-
	Mean				31					
	Width Range	-	-		(3)19-28	-	-	-	-	-
	Mean				23.3					
	Thickness Range	-	-		(1) 4	-	-	-	-	-
	Mean				4					
3.	Length Range	-	(1) 32		(1) 60	(4)28-38	(4)29-37	(1)40	(1)broken	(16)23-44
	Mean		32		60	29.8	33.0	40		30.1
	Width Range	-	(1) 18		(1) 18	(4)14-26	(9)18-27	(1) 25	(1) 17	(16)12-20
	Mean		18		18	21.3	21.0	25	17	14.6
	Thickness Range	-	(1) 5		(1) 5	(4) 5-7	(9) 4-5	(1) 5	(1) 5	(16) 3-5
	Mean		5		5	6.0	4.8	5	5	4.2
	Inter-Notch Range	-	(1) 11		-	(4)10-15	(9)6-12	(1) 12	(1) 8	(16) 5-15
	Mean		11			13.0	8.6	12	8	9.0
4.	Length Range	-	-		-	-	(2)26-28	(1)broken	-	(44)19-47
	Mean						27.0			29.5
	Width Range	-	-		-	-	(2)14-17	(1) 15	-	(87)11-22
	Mean						15.5	15		14.5
	Thickness Range	-	-		-	-	(2) 5	(1) 4	-	(87) 3-6
	Mean	-	-		-	-	5.0	4		4.3

* Types: 1. Glen Meyer Triangular; 2. Glen Meyer Spurred; 3. All other notched points;
4. All other triangular points
** from Wright (1966:144)

Table 21: Projectile Point Source Material (number of specimens)

Type of Chert		Sma	Roe	Kel	Yaw	Lit	Ed	Drum	Alw	Law
Onondaga	f	N/A	4	No	3	3	14	2	1	41
	%		80	Data	75	75	87.5	66.6	100	39.8
Kettle Point	f	N/A	1		1	-	1	1	-	56
	%		20		25	-	6.3	33.3	-	54.4
Other	f	-	-		-	-	1	-	-	5
	%	-	-		-	-	6.3	-	-	4.9
Unknown or	f	7	-		-	1	-	-	-	1
Unidentified	%	100	-		-	25	-	-	-	0.9
Total Number	f	7	5	?	4	4	16*	3*	1	103
of Points	%	100	100		100	100	100.1	99.9	100	100

* includes fragmentary specimens not listed in Tables 19 and 20.

Figure 4: Coefficients of Similarity Based on Ceramic Types

	MiV18	Smale	Willcock	Edwards	Drumholm	Alway	Lawson
MiV18	X	103	12	11	19	0	1
Smale		X	36	26	49	0	4
Willcock			X	74	87	38	30
Edwards				X	147	123	58
Drumholm					X	128	55
Alway						X	64
Lawson							X

Figure 5: Coefficients of Similarity Based on Exterior Motif

	Smale	Roeland	Willcock	Edwards	Drumholm	Alway	Lawson
Smale	X	151	70	80	104	94	126
Roeland		X	88	104	142	138	145
Willcock			X	121	92	97	77
Edwards				X	141	130	92
Drumholm					X	163	128
Alway						X	145
Lawson							X

Figure 6: Coefficients of Similarity Based on Exterior Technique

	Smale	Roeland	Willcock	Edwards	Drumholm	Alway	Lawson
Smale	X	156	117	99	79	23	57
Roeland		X	113	75	77	24	30
Willcock			X	129	113	55	70
Edwards				X	163	107	111
Drumholm					X	138	141
Alway						X	150
Lawson							X

Figure 7: Coefficients of Similarity Based on Neck Motif

	Smale	Roeland	Willcock	Edwards	Drumholm	Alway	Lawson
Smale	X	158	89	89	79	41	85
Roeland		X	73	78	85	43	69
Willcock			X	105	111	57	173
Edwards				X	158	141	114
Drumholm					X	149	88
Alway						X	67
Lawson							X

Figure 8: Coefficients of Similarity Based on Interior Motif

	Smale	Roeland	Willcock	Edwards	Drumholm	Alway	Lawson
Smale	X	174	97	75	114	47	35
Roeland		X	97	72	112	44	32
Willcock			X	170	167	147	134
Edwards				X	140	164	159
Drumholm					X	119	107
Alway						X	181
Lawson							X

Figure 9: Coefficients of Similarity Based on Interior Technique

	Smale	Roeland	Willcock	Edwards	Drumholm	Alway	Lawson
Smale	X	171	95	70	118	39	64
Roeland		X	139	86	126	35	64
Willcock			X	170	170	133	158
Edwards				X	140	151	188
Drumholm					X	108	130
Alway						X	147
Lawson							X

Figure 10: Coefficients of Similarity Based on Lip Motif

	Smale	Roeland	Willcock	Edwards	Drumholm	Alway	Lawson
Smale	X	145	82	69	68	33	35
Roeland		X	134	100	120	84	86
Willcock			X	119	129	103	105
Edwards				X	173	172	174
Drumholm					X	157	158
Alway						X	193
Lawson							X

Figure 11: Coefficients of Similarity Based on Lip Technique

	Smale	Roeland	Willcock	Edwards	Drumholm	Alway	Lawson
Smale	X	137	82	58	74	33	35
Roeland		X	108	102	118	71	80
Willcock			X	121	134	103	105
Edwards				X	181	172	174
Drumholm					X	157	158
Alway						X	193
Lawson							X

Figure 12: Coefficients of Similarity Based on Vessel Form
(Collared versus Collarless Vessels)

	Smale	Roeland	Willcock	Edwards	Drumholm	Alway	Lawson
Smale	X	200	126	16	34	72	30
Roeland		X	126	16	34	72	30
Willcock			X	90	108	146	104
Edwards				X	182	144	186
Drumholm					X	162	196
Alway						X	158
Lawson							X

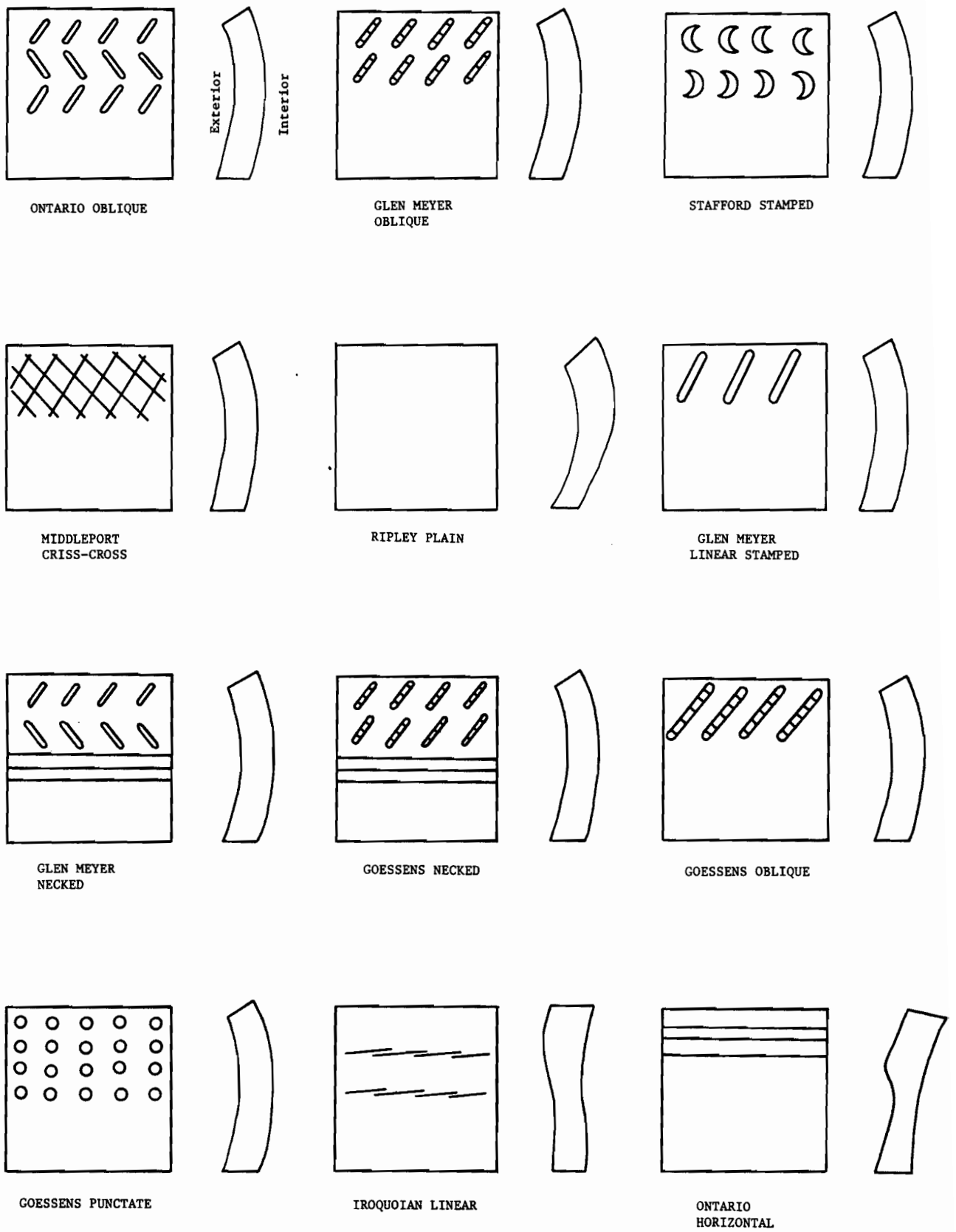


FIGURE 13: CERAMIC TYPES

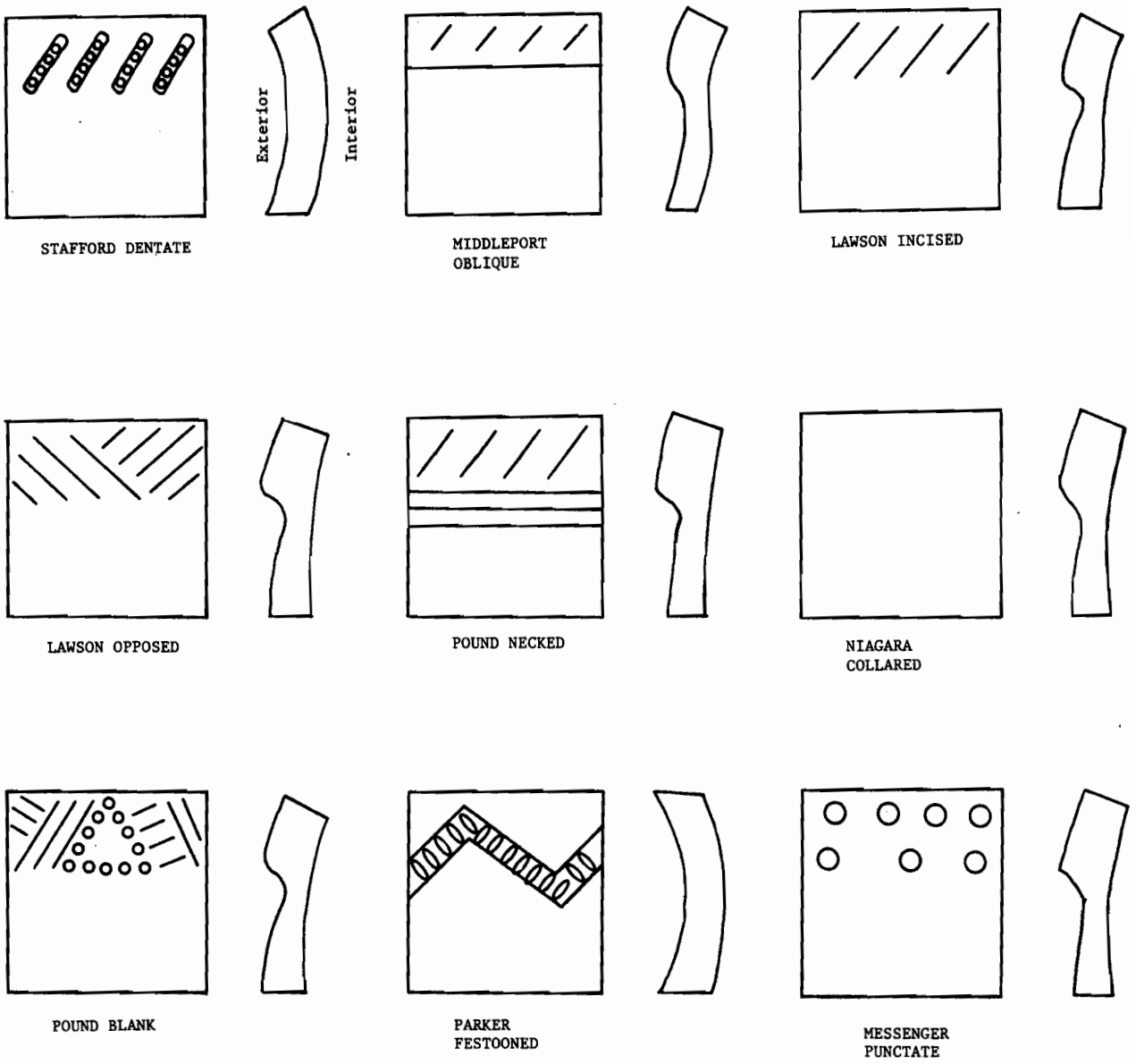
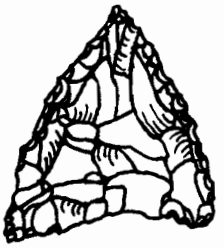


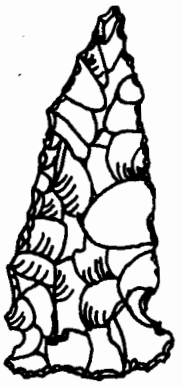
FIGURE 14: CERAMIC TYPES

GLEN MEYER
TRIANGULAR



GLEN MEYER
SPURRED

MIDDLEPORT
TRIANGULAR



MIDDLEPORT
SIDE-NOTCHED

NANTICOKE
TRIANGULAR

NANTICOKE
SIDE-NOTCHED

FIGURE 15: PROJECTILE POINT TYPES

CHAPTER 6

SOCIO-POLITICAL AND IDEOLOGICAL CHANGE

INTRODUCTION

Archaeological data may be used to describe, observe, infer, and explain significant aspects of prehistoric settlement patterns, population size, subsistence practices, social and political organization, warfare, trade, the exchange of ideas, burial practices, and ideology. Each of these aspects of Iroquoian life may be studied individually or they may be investigated collectively. When combined, they tell a reasonably complete story of Iroquoian life and how it evolved over time.

As explained in Chapter 3, these categories are not treated here as "subsystems" composing an integrated whole. Instead they serve as convenient headings under which data are presented to discuss changes over time. As in the previous chapter, data will be presented for the Glen Meyer, Middleport, and prehistoric Neutral periods in sequential order, followed by a brief summary under each heading.

1. SETTLEMENT

My discussion of socio-political change begins with observations on settlement patterns. These will consist of the physiographic setting of known components, their spatial patterning relative to one another, and their settlement type (i.e., village, hamlet, or camp).

A. Glen Meyer Period

Data from the Caradoc sand plain suggest that, in this relatively large, natural ecological zone, at least two distinct Iroquoian communities existed during the early second millennium A.D. One of these was composed of a series of sites in the Mount Brydges area. Extensive surveys of this area (Lee 1951, 1952; Williamson 1982b) have produced evidence for only five major villages, three of which have been investigated and are seriated in the order of MiV18, Smale, and Roeland (Williamson 1983b). These surveys have also documented numerous small, special purpose exploitative camps and hamlets (Williamson 1981, 1982a, 1983b). The other community inhabited a cluster of sites in the Byron area of southwest London and occupied at least two villages there (Dunn and Site AfHi-78).

Only one of these villages, Roeland, has been studied in detail, but it was very similar to Glen Meyer villages excavated on the Norfolk sand plain to the east. These villages varied from less than 0.3 to 1.2 ha in size and were surrounded by single or double palisades. On both sand plains, villages were occupied for considerable lengths of time: they all contained evidence of multiple, overlapping houses packed with interior features and of successive building stages marked by expanding or contracting palisades. Such was the case for the Roeland site (Williamson 1982a) and for the Van Besien (Noble 1975a), DeWaele (Fox 1976), Calvert (Fox 1982c), Force, and Elliott (Wm. Fox, personal communication; Williamson 1983b) villages on the Norfolk sand plain. In each of them, excavations encountered many examples of two, three, or more overlapping houses (see Noble 1975a:8; Fox 1976:177; 1982c:5-9). Preliminary excavations at the 1.2 ha Roeland village uncovered as many as

16 structures, several of which intersected and overlapped. (Williamson 1982a:31-34). This pattern lasted throughout the Glen Meyer period. It has been observed on the earliest known village of this period, Porteous (Noble and Kenyon 1972), as well as on the later ones noted above.

The villages on the Caradoc and Norfolk sand plains were complimented by a variety of special purpose hamlets and camps. Those on the Norfolk sand plain appear mainly to have been fishing camps oriented towards the Lake Erie shoreline and its associated marshes (Fox 1976:190), but these have not yet been systematically investigated. Some hamlets and camps in the Mount Brydges cluster have been excavated (Williamson 1981, 1982a, 1983b) and illustrate the varying settlement types and resource strategies adopted in different regions. These special purpose sites, all less than 0.4 ha in size, include: Kelly, a single longhouse surrounded by a single row of palisade; Yaworski, with two or three structures surrounded by a single row of palisade; Berkmortel, believed to be very similar to Yaworski (and located beside it and Kelly); and Little, a 290 square meter site consisting of a row of post moulds which seems to have constituted a palisade surrounding a cluster of pits that contained vast amounts of deer bone (Williamson 1981, 1982a, 1982b, 1983b). The latter was located beside a swamp and could represent the end of a deer drive (Williamson 1982a:27). Possible hunting camps (Williamson 1982a:49) may also be present in this area. Except for the Little site, all of the hamlets appear to have been strategically located to exploit large stands of oak trees (Williamson 1983b:4-5). Hamlets supporting year-round villages are also recorded for the contemporaneous Owasco period in New York State (Tuck 1971:29, 45).

Williamson (1983b) believes the Mount Brydges sites indicate greater reliance on food collection (i.e., nuts, deer) than on food production (i.e., corn horticulture)(see Subsistence Practices section below). To support this claim, he has documented over 30 special purpose sites in this cluster (ibid., 3) but only five villages. This suggests that the villages were not intensively occupied from late spring to early winter. Instead, a major portion of the population appears to have been scattered across the sand plain in hamlets and camps. The logical extension of this argument would be that since the villages were not densely populated for over one-half of the year, less garbage would would have been produced and fewer resources immediately surrounding the villages would have been utilized. Therefore such villages would not produce the large middens that occur on later Iroquoian settlements and they might have been occupied for much longer periods of time (i.e., 30, 40, 50, or more years). Evidence from Roeland and other excavated villages of this period support this conclusion: there were no large midden deposits (instead garbage was often placed inside abandoned storage pits) and most villages appear to have been occupied for a long time as evidenced by expanding or contracting palisades, multiple overlapping houses, hundreds of complex overlapping features, and thousands of post moulds.

Williamson (1983b:6) believes that the three villages investigated in the Mount Brydges cluster represent the sequential occupation of three sites by a single community. He seriates them in the order of MiV18, Smale, Roeland. The other two sites that he believes are villages have not been investigated in sufficient detail to ascertain their chronological placement relative to MiV18, Smale, and Roeland.

Data from the Norfolk sand plain indicate that this type of settlement pattern was the characteristic one for this early stage of Iroquoian development. Villages in a single geographical area, such as a river drainage, appear to be sequential rather than contemporaneous, supporting the proposition that only one community occupied a particular area. An example of this is the sequence from Van Besien to DeWaele to Uren on Big Otter Creek (Noble 1975a; Fox 1976; M. Wright 1978, 1979). Similar regional sequences have been documented for the contemporaneous Owasco to Oak Hill phases in New York State (Tuck 1971:208-210).

Recent research in the Byron area southwest of London is demonstrating the existence of a second community on the Caradoc sand plain during the Glen Meyer period. Sites there are 12 to 15 km east to southeast of the Mount Brydges cluster. Several sites have been discovered in Byron in the past two years and this area could potentially contain more undiscovered ones. The known ones include two villages (Dunn and Site AfHi-78), at least four hamlets or camps (Willcock, McGrath, Mariem I, and Mariem II), one burial site (AfHi-57), and several isolated finds. Based on a limited number of test pits, the Dunn village is estimated to be larger than 0.2 ha (Timmins 1983:49).

To date, three sites in the Byron cluster have been excavated. Willcock was a 0.2 ha hamlet that consisted of one longhouse with shallow middens outside either end. The house contained a series of at least six large interior heating hearths and a variety of in-house features (Poulton 1983, n.d.). It thus differed substantially from the Kelly and Yaworski hamlets farther west. This settlement type suggests a winter occupation, but confirmation awaits detailed floral and faunal analyses. The artifacts from Willcock, currently being analyzed at the Museum of Indian

Archaeology, suggest a date of occupation late in the Glen Meyer period. Although we must be careful in comparing sites from different regions, the ceramics from Willcock appear later in time than Yaworski, Kelly, and Roeland (personal examination of the collections). A second site in Byron, McGrath, was recently excavated by the Museum of Indian Archaeology. It produced no evidence for a permanent structure and is interpreted as a male hunting camp (Poulton n.d.).

The other excavated site in this area, AfHi-57, consisted of a single burial which produced valuable data on Glen Meyer period mortuary practices (Spence 1982). It is discussed later in this chapter.

Of particular interest in terms of overall community settlement patterns were four isolated finds in an area less than .5 km north of the Willcock site and just southeast of AfHi-57. One (AfHi-76) was a single Glen Meyer Oblique type (Wright 1966;114) ceramic vessel; another (AfHi-75) was a small quantity of ceramic material, presumably from a single pot; and two were isolated projectile points from two different areas (Afhi-60 and 61). All four finds are diagnostic of the Glen Meyer period and together with the known villages, hamlets, and burial indicate that the Byron area was extensively utilized during that stage.

Since neither of the two known villages in this cluster has been excavated to any significant degree, it is not possible to know if they represent different villages of one community or two different communities. Based on the data from other areas noted above, it is hypothesized that they were occupied at different times by a single community.

A third Glen Meyer period community must be mentioned at this point, although it was located outside the study area of this thesis. As hypothesized earlier, it is proposed that this community may have joined the Mount Brydges and Byron communities to form a single large community on Oxbow Creek.

Extensive surveys in Pinery Provincial Park, at the mouth of the Ausable River on Lake Huron, along the Ausable River (Kenyon 1979, 1980), and in the Arkona area (Lee 1950, 1951, 1952), have resulted in the discovery of several sites dating to the Early Ontario Iroquoian Stage. The primary settlement type within the Pinery (an area of sandy soils and shifting sand dunes) is a multicomponent camp, presumably for fishing and chert acquisition, and many of these camps contain Glen Meyer period components. The Kettle Point chert outcrop occurs just to the south of the Pinery (Janusas 1983). W. W. Jury (1949) has discussed the procedure of chert acquisition and resulting camp sites and has excavated one of the better known multicomponent sites in that area, Burley (Jury and Jury 1952). That site contained a Glen Meyer period component.

Moving southeast from the Pinery, Glen Meyer period villages occur along the Ausable River as far inland as Arkona. These include the Crawford site near Thedford, test excavated by Jury (1948), and several villages in the area just east and northeast of Arkona. The sites near Arkona include the Faulds village (Wright 1966:24) discovered by Lee (1950, 1952), at least one other village (Butler I), and several hamlets (Holmes, Utter, Butler II) known to local collectors. Some of the latter were discovered by Lee (ibid.). He also noted other sites in the area that produced pottery but were not classified as to time period or site type. None of these sites, except Crawford, has been systematically

explored as yet.

Ian Kenyon (1979, 1980) and Philip Wright (1974) have observed that no villages post-dating the Glen Meyer period are known to occur in the Arkona-Thedford-Pinery area and they concluded that this area was abandoned at the end of that period. Later periods witnessed the return of groups to the Pinery area to fish and extract Kettle Point chert. They left behind traces of their presence at the several multicomponent camp sites, but there were no permanent villages.

Given the fact that this area was abandoned at the end of the Glen Meyer period, it is possible that the inhabitants of this area moved southeastward to amalgamate with contemporaneous communities in the London area. However, it is also possible that they moved north along the eastern shore of Lake Huron and eventually occupied the Middle Ontario Iroquoian Stage Nodwell site. One factor that might help to resolve the question of the ultimate destination of the Arkona group is the use of Kettle Point chert. It is not known what percentage of this chert type was used at Nodwell, but later sites in the London area contained high percentages of it and the Iroquoians in the London area visited the Pinery to fish. They may have gone there to fish and collect Kettle Point chert because descendants of the Arkona community lived among them.

B. Middleport Period

A cluster of three Middleport period villages occurs just off the northeastern edge of the Caradoc sand plain on sandy loam and clay soils within the Thames River spillway. These villages were located on minor

tributaries of Oxbow (formerly Springers) Creek, about 15 km northeast of the Roeland village in the Mount Brydges cluster and 4.5 km northwest of the Byron cluster.

All three sites in the Oxbow Creek cluster were large: Alway (Jury 1937) was 2.0 ha, while Edwards and Drumholm were each 2.8 to 3.2 ha. The latter two were located less than 100 m apart, and were separated from each other by an intermittent stream that originated from a spring within or directly beside the Edwards site (Pearce 1982a).

Detailed settlement pattern data are not available for these sites. Alway (Jury 1937) and Edwards (Pearce 1982a) were surface-collected and test excavated, while Drumholm was only surface-collected (ibid.).

A portion of a single longhouse (7.8 m wide and at least 25 m long) was uncovered at Edwards. It revealed a dense concentration of interior features and post moulds. Relatively large middens (i.e., 10 m in diameter and up to 53 cm deep) also occurred at Edwards. At least nine of these were present. Eleven middens were observed on the plough-disturbed surface of Drumholm. Middens were spaced irregularly throughout both of these large villages in a pattern typical of later Iroquoian ones.

There are no other substantiated sites in the area besides these three villages, although several nearby farms have yielded artifacts (Pearce et al. 1980). It is believed that at least some of these may mark the location of hamlets, camps, or isolated finds associated with the Middleport period villages, although this is conjectural. The thorough coverage that Dr. W.W. Jury gave this area, which lies within a 4 km radius of his birthplace and home in Lobo Township, allows one to conclude that no other villages are likely to be found there in the future.

Ceramic seriation for these villages (discussed in Chapter 5) produces an ordering that consistently places Alway later than both Edwards and Drumholm. The ceramic traits from Edwards and Drumholm are sufficiently different (Pearce 1982a) to suggest that the latter two villages were sequential and not contemporaneous. Why two large villages were placed so close together, even if they were sequential, remains open for debate.

C. Prehistoric Neutral Period

There are three poorly known sites midway between the Oxbow Creek cluster and Lawson. These are the Dolway Place sites (Pearce n.d.), located along the north shore of the Thames River 3 km east of Oxbow Creek and 3 km west of Lawson. As outlined in Chapter 4, little is known about these sites, but it is believed they are all villages. Ceramics from Orchard, although few in number, suggest a chronological placement later than Alway but earlier than Lawson. This agrees with the spatial location of the three Dolway Place villages midway between the earlier and later sites. The Thomas Lewis site was located near this cluster, and is believed to be a hamlet associated with one of the Dolway Place villages.

The Lawson site occurs on the next drainage system of the Thames River east of the Dolway Place sites, namely Medway Creek. Known for over a century (Boyle 1896; Orr 1917; Wintemberg 1939; Pearce 1980a:1-2), this largely undisturbed 1.8 ha village is interpreted as a prehistoric "fortress". It is located on a high plateau protected by steep slopes on three sides and by a complex man-made defensive system on its only naturally unprotected side. Less than twenty percent of this site has been excavated recently by the Museum of Indian Archaeology (Pearce

1980a), but already a total of 14 longhouses are known. This village consisted of an original core area of about 1.4 ha, and was expanded at least once to the north to accommodate nine new longhouses within 0.4 ha of land.

Recent surveys in the vicinity of Lawson, conducted by the Museum of Indian Archaeology as heritage resource assessments of lands to be developed for housing, have resulted in the discovery (as of August, 1984) of 11 sites believed to be hamlets associated with Lawson (Pearce 1982c, 1983a, 1983b, 1983c, 1984; Poulton 1982a, 1982b, 1982c; Arnold and Pearce n.d.). Three of these were salvage-excavated in 1981. Each consisted of a single longhouse accompanied by exterior house middens or refuse-filled depressions. The houses contained no interior heating hearths and are interpreted as spring-to-fall residences or "cabins" used by women, men, and children while tending crops in adjacent fields. They were also used for gathering and processing wild foods, including deer, other mammals, fish, birds, and wild plants (Pearce 1983a). The three excavated hamlets, each less than 0.2 ha in size, were located within 2 km of Lawson and about 500 m from each other in a triangular cluster. The other hamlets discovered to date include a pair less than 1 km south of Lawson and 500 m apart; another pair just over 2 km northeast of Lawson and separated by 500 m; and a triangular cluster 4 km northeast of Lawson where the sites were again about 500 m distant from each other (ibid.; Pearce 1984). I have suggested (1984) that each longhouse belonged to a single extended family and that these unique clusters of two and three hamlets were simultaneously occupied by related members of a larger social group, such as a matrilineage. Other hamlets northwest and northeast of Lawson are suggested by unconfirmed but reliable reports of "corn hills"

(Wintemberg 1939:15; Finlay 1978). One of the hamlets was located beside a swamp, while the others were on knolls, often some distance from water. It seems likely that these hamlets were located in the midst of fields already cleared or being cleared of vegetation, and not near areas where other resources could be exploited. This contrasts sharply with the location of Glen Meyer period hamlets, which were placed beside water or swamps or near large stands of oak trees.

D. Summary

Available data suggest that at least two Glen Meyer period communities existed in the study area. One occupied the Mount Brydges cluster between A.D. 1050 and 1250, utilizing at least three sequential villages and numerous hamlets and camps. The second lived on sandy soils in the Byron area southeast of London, with two villages known as well as a number of hamlets, a camp, a burial, and some isolated finds. The one hamlet excavated to date, Willcock, appears to have been occupied very late in the Glen Meyer stage. A third Glen Meyer period community involving villages and associated hamlets occupied what is now Pinery Provincial Park and the lower Ausable River drainage between Arkona and Thedford but it eventually abandoned that region.

It is hypothesized that these three and perhaps other communities came together at the Oxbow Creek site of Edwards late in the thirteenth century A.D. This joint community amalgamated small, scattered communities that had formerly lived in 0.3 to 1.2 ha villages to form a single much larger (2.0 to 3.2 ha) one.

Once arriving on Oxbow Creek, this community occupied three sequential villages (Edwards, Drumholm, and Alway) then moved, it is proposed, 3 km east to the Dolway Place sites. Although these latter sites have not been investigated, it would appear that they included at least three villages (Orchard, Tennis Lawn, and McKenzie) and one hamlet (Thomas Lewis). These three villages were probably sequential as the Oxbow Creek ones had been. It is further proposed that this community moved another 3 km eastward to the Medway Creek, where it occupied the Lawson site and its many associated hamlets.

This proposed model was suggested by the spatial distribution of known sites and is supported by the seriational and other material culture evidence presented in Chapter 5.

2. POPULATION SIZE

An accurate estimation of population size is hampered by the lack of any completely excavated village sites in the study area. Yet it is possible to gain some insight into this aspect of the local sequence using available data from sites in that sequence as well as from contemporaneous sites elsewhere.

A. Glen Meyer Period

All Glen Meyer period villages investigated to date are in the size range of 0.3 to 1.2 ha. Fox (1976:184) has estimated that 150 people lived in the 0.3 ha Dewaele village. The contemporaneous 1.2 ha Sackett site in New York State had an estimated 300 people (Ritchie and Funk 1973:220-224). Yet, since most villages of this period have complex

settlement patterns (overlapping and intersecting houses, contracting or expanding palisades) and may have been occupied for considerable lengths of time, statements on population size may be misleading. Cross-cultural studies suggest that semi-sedentary communities in band societies (including both hunter-gatherers and horticulturalists) often are composed of between 150 and 300 individuals (Forge 1972; Trigger 1978b:194-196), while more complex tribal societies frequently have villages of more than 500 people (ibid.). Thus, both archaeological and ethnographic data suggest that a population of up to 300 people is not unreasonable for a Glen Meyer period village.

B. Middleport Period

Several lines of evidence indicate that Middleport period villages often were much larger than ones in the preceding stage and that the longhouses were much longer. These data verify that more people were living together both within individual longhouses and in individual villages than had done so previously and that households also tended to be larger.

A population size estimate is available for the totally excavated Nodwell village (Wright 1974a). This relatively small site covered 1.01 ha and contained 12 longhouses, 11 of which could have been contemporaneous. Wright (ibid., 75) has estimated that over 544 people lived in those 11 houses.

It is believed that considerably more people would have lived at the Edwards, Drumholm, and Alway sites, which were two to three times larger (2.0 to 3.2 ha) than Nodwell.

At least one Middleport period longhouse in southwestern Ontario, at the Reid site, reached a length of 55.5 m (M. Wright 1978:31). If hearths were spaced 5 to 6 m apart, as at Nodwell and Lawson (Table 25), there may have been 9 or 10 hearths in that house, implying up to 160 people based on two families per hearth and eight people per family (Wright 1974a:71). Using a more conservative estimate of six people per family (Heidenreich 1971:99), it still could have housed as many as 100 people. Even longer houses are known for the contemporaneous Oak Hill horizon in New York State. For example, the Howlett Hill site had one house 101 m long and 7 m wide (Tuck 1971:79). If hearths were 5 to 6 m apart, there could have been 16 to 20 in this house, giving a population of between 256 and 320 people. Tuck postulated that this longhouse was occupied by the residents of a 63 m long house on the sequentially earlier Furnace Brook site (ibid., 85) and that they (or their descendants) subsequently moved into a house 122 m long at the next site in his proposed sequence, Schoff (ibid., 96-97). The latter structure may have contained 320 to 384 people, based on the same spacing of hearths and people per family as above. Even if an estimate of six people per family is used, these single longhouses could have been occupied by the same number of people as had lived in an entire village in the preceding period.

C. Prehistoric Neutral Period

Some detailed population estimates are available for the Lawson site, based on data concerning 12 longhouses, including all nine in the expansion area of the site.

The Lawson site houses are described in Table 22. They ranged in length from 10 to 36.25 m with a mean house length of 23.1 m. Their width ranged from 5 to 7.5 m, with a mean of 5.8. There were between 2 and 5 hearths in each house (observed or inferred), with an average of 3.3. These hearths were uniformly spaced at 5 to 6 m intervals down the central corridor of each house. Five houses are known to have had storage cubicles, all at the southeast end of houses oriented northwest to southeast. It is known that two houses did not have storage cubicles, while data are not available for the other five houses which are incompletely excavated to date. All houses had bench rows down both sides. These varied in width from 1.2 to 1.8 m, with a mean of 1.3. The Lawson houses were substantially different from the earlier Nodwell site, as well as from the contemporaneous prehistoric Huron period Draper site. The houses from these three sites are compared in Table 25.

Utilizing the same population estimates as Wright (1974a:71), namely two families per hearth and eight people per family, a population size for the nine Lawson expansion area houses can be calculated at 496 (Table 23). House 13, which crossed under Houses 5, 6, and 7 in the expansion area and is believed to pre-date those structures, contained an estimated 32 people. House 2 in the core area of the village is the smallest house known to date on the site, but still had two hearths and could have accommodated 32 people. House 4 was excavated by Wintemberg (1939) in what is now called the core village; it could have housed 64 people (Table 23). An alternative calculation can be made using an estimate of six people per family rather than eight. This gives an estimate of 372 people in the nine expansion area houses at Lawson.

The author and David Smith of the Museum of Indian Archaeology have independently constructed "hypothetical site plans" for Lawson, based on Wintemberg's unpublished site map obtained from the Archaeological Survey of Canada showing the locations of middens, pits, and the short rows of post moulds that he excavated as well as on our own knowledge of the site. On these grounds we both estimated the locations of 24 to 26 houses in the core village (4 of which are known, Houses 2, 4, 10, and 14). It is interesting to note that Wintemberg estimated there might be 25 to 30 houses at Lawson (1939:6). All of these estimates are just above Heidenreich's (1971:128) estimate of five to six houses per acre based on evidence from a variety of prehistoric and historic Iroquoian sites.

The estimated population of the core village at Lawson can be derived by assuming an average house length of 23.1 m and 3.3 hearths per house (from Table 22). This calculation gives 52.8 people per house. Multiplying this figure by the 26 hypothesized houses gives an estimate of 1373 people in the core village. Combined with the previously calculated figure of 496 people in the nine expansion area houses, the final population for the entire site is estimated at 1869. Using a calculation of six people per family rather than eight gives 1030 people for the core village which, added to the 372 in the expansion area, gives a total site population of 1402.

Wright (1974a:71) calculated the amount of living space available for each person for daily activities within a house by subtracting the areas of each house devoted to storage cubicles and bench rows (used for storage and sleeping, not for daytime activities) from the total house area (length times width), then dividing the result by the estimated number of people in that house. For Lawson, data from 7 houses for which complete

information was available indicate an average of 1.2 square metres per person based on eight people per family (Table 24), or 1.5 square metres based on six people per family. By way of comparison, the earlier Nodwell site allowed double this figure, 2.5 square metres per person based on eight people per family. Data from the Draper site were made available to the author by Dr. W.D. Finlayson of the Museum of Indian Archaeology. His data were not directly comparable as he had not excluded areas of houses devoted to storage cubicles and bench rows (i.e., his calculation was house length times width divided by estimated population). The Lawson data were recalculated to be comparable with Draper. The resulting figure for Lawson was an average of 2.6 square metres per person available within each house (Table 23). The comparable figure for Draper was 5.7 square metres per person. One explanation for such a large difference between these two sites is that the Draper houses were much larger (mean length 40.7 m) and the hearths in those houses were spaced farther apart (mean 7.1 m) than at Lawson where the mean length of houses was 23.1 m and the hearths were only 5 to 6 m apart (Table 25). Still, the differences between Nodwell, Lawson, and Draper suggest significant variation in population density within houses over time and between groups.

Alternative population sizes can be estimated by applying formulae derived from cross-cultural studies. Naroll (1962) determined that in 18 societies he studied, population size approximated one-tenth of the total floor area in square metres. Casselberry (1974) studied nine societies that used exclusively multifamily dwellings and determined that population size could be estimated as one-sixth of the floor area measured in square metres. Both formulae were based on a calculation of floor area that took account of all the space under a roof. For Iroquoian sites this was

obtained by multiplying house length by width (i.e., not deducting the space devoted to storage cubicles and bench rows). Casselberry noted that these formulae tended to underestimate the actual population size. For example, he included data on a Susquehannock longhouse measuring 140 square metres with a known population of 35. His formula estimated a population of 23 (6.5 square metres per person), while Naroll's formula estimated only 14 people. Table 23 provides a summary of population size estimates for the Lawson site longhouses excavated to date using each of these calculations. The results are extremely variable, and no conclusion can be reached as to which may be the most accurate. The variable nature of these results does little to shed light on overall population density as measured in square metres per person.

Heidenreich (1971:128) calculated that the historic Huron (A.D. 1600-50) allowed 4.1 square metres per person within a house. His calculation did not exclude storage cubicles and bench rows, so it is comparable to the Draper figure and the recalculated Lawson one. Thus, his estimate is lower than the one for Draper, but higher than that for Lawson, illustrating that the Lawson people had less space per individual within a house.

Heidenreich also calculated a population density of 180 to 220 people per acre (ibid.) within historic Huron villages, or 445 to 544 people per hectare. This density was equalled at Nodwell (544 people in 1.01 ha), but was almost doubled at Lawson (1038 people per hectare based on eight people per family). The figure for just the expansion area of Lawson is 1240 people per hectare (based on eight people per family). At Draper, Finlayson (1984) has estimated 1836 people in 3.4 ha, for a density of 540 people per hectare. No additional comparative data are available for the

earlier Glen Meyer period, as Fox's population estimate for DeWaele, cited above, was based on Heidenreich's proposed density of 180 people per acre.

The impression left by these data from Lawson is that a lot of people were living there. The same impression is given by the total numbers of certain artifacts found on the site. For example, more than 1625 rim sherds, 388 ceramic pipes, and 700 projectile points were recovered there by Wintemberg and the Museum of Indian Archaeology, although the total excavated area amounted to only 39% of the site (as of 1983).

An alternative explanation for the quantity of material recovered to date from Lawson could be that it was occupied for a lengthy period, possibly 50 years or more. While only the expansion area and a small portion of the core village have been excavated to date, the excavations in the core village have not revealed evidence for the expansion, rebuilding, or overlapping of houses, all of which would characterize a long period of occupation. This supports the original explanation that there were a lot of people living at Lawson.

Table 22: Lawson Site Longhouse Data

HOUSE NUMBER	LENGTH IN METRES	WIDTH IN METRES	AVERAGE WIDTH OF BENCH ROWS	NUMBER OF HEARTHS	NUMBER OF REFUSE FILLED STORAGE PITS
1	15.0	5.75	1.3	2	3
2	10.0	5.0	1.2	2	3
3	21.0	5.5	1.3	3	4
4	27.0	5.1	1.3	4	9
5	23.75	5.3	1.2	3	1
6	36.25	6.4	1.8	5	4
7	13.0	6.0	1.2	2	1
8	31.0	5.5	1.3	4	17
9	21.5	5.7	1.3	3	6
10	?	?	?	?	?
11	25.0	7.0	1.8	4	?
12	35.0	7.5	1.8	5	?
13	18.25	5.0	?	2	?
14	?	?	?	?	?
Mean	23.1	5.8	1.4	3.3	5.3

Table 23: Population Size Estimates for Lawson Site Longhouses

HOUSE NUMBER	AREA IN SQUARE METRES	8 PEOPLE/ FAMILY	6 PEOPLE/ FAMILY	NAROLL'S FORMULA (1/10 AREA)	CASSELBERRY'S FORMULA (1/^{c} AREA)
1	86.25	32 (2.7)*	24 (3.6)*	9 (9.6)*	14 (6.2)*
2	50.0	32 (1.6)	24 (2.1)	5 (10.0)	8 (6.3)
3	115.5	48 (2.4)	36 (3.2)	12 (9.7)	19 (6.1)
4	137.7	64 (2.2)	48 (2.9)	14 (9.8)	23 (6.0)
5	125.8	48 (2.6)	36 (3.5)	13 (9.7)	21 (6.0)
6	232.0	80 (2.9)	60 (3.9)	23 (10.1)	39 (5.9)
7	78.0	32 (2.4)	24 (3.3)	8 (9.8)	13 (6.0)
8	170.5	64 (2.7)	48 (3.6)	17 (10.0)	28 (6.1)
9	122.6	48 (2.6)	36 (3.4)	12 (10.2)	20 (6.1)
11	175.0	64 (2.7)	48 (3.7)	18 (9.7)	29 (6.0)
12	262.5	80 (3.3)	60 (4.4)	26 (10.1)	44 (5.9)
Total	1555.85	592	444	157	258
Mean	141.4	53.8 (2.6)	40.4 (3.4)	14.3 (9.9)	23.5 (6.1)

* Area per person in square metres (total house area divided by estimated house population)
Houses located in the expansion area are: 1, 3, 5, 6, 7, 8, 9, 11, and 12

Table 24: Living Area Per Person (in Square Metres) Within Lawson Site Longhouses Based on Population Size Estimates from Table 23 and Calculated on Living Area of House Rather Than Total House Area

HOUSE NUMBER	LIVING AREA OF HOUSE (Total house area minus area of bench rows and storage cubicles)	AREA PER PERSON BASED ON 8 PEOPLE/FAMILY	AREA PER PERSON BASED ON 6 PEOPLE/FAMILY
1	40.95	1.3	1.7
2	26.0	0.8	1.1
3	55.1	1.1	1.5
4	63.0	1.0	1.3
8	82.0	1.3	1.7
9	60.5	1.3	1.7
11	85.0	1.3	1.8
Mean	58.9	1.2	1.5

Table 25: Comparison of Longhouse Data for the Nodwell, Lawson, and Draper Sites

	NODWELL	LAWSON	DRAPER
House Length Range	12-41.7	10-36.25	14.5-73.6
Mean House Length	27.8	23.1	40.3
House Width Range	5.7-8.1	5-7.5	6.7-7.9
Mean House Width	7.0	5.8	7.6
Mean Number of Hearths per House	3.1	3.3	?
Spacing Between Hearths	5-6	5-6	6-8
Number of Houses With Two Storage Cubicles	7	0	?
Number of Houses With One Storage Cubicle	3	5	?
Number of Houses With No Storage Cubicles	1	2	?

D. Summary

Available data suggest an average population of 300 people or less in Glen Meyer period villages, which ranged in size from 0.3 to 1.2 ha. That many people may have lived within a single large longhouse of the later Middleport period, but there are insufficient data to determine if any longhouses that large were present within the study area. Sites of this period in the local sequence were 2.0 to 3.2 ha in size, and therefore considerably larger than the 1.01 ha Nodwell site, which had an estimated population of 544.

The most precise population size estimate for any of the London area sites comes from Lawson, where a calculation of between 372 and 496 people in the nine expansion area houses yields a hypothesized total village population of between 1402 and 1869. The space available to each person inside the Lawson houses was probably between 1.2 and 1.5 square metres, about half that allowed at the earlier Nodwell site and at the contemporaneous (to Lawson) Draper site. The Lawson population density suggests a certain degree of "crowding", an observation that is also supported by examining the narrow spacing between known houses and the large quantity of artifactual material recovered.

Population size estimates at the regional scale provide some interesting but highly speculative data on population increase through time. It is believed that the three separate Glen Meyer period communities discussed here may have each contained 300 people. It is suggested that these three communities amalgamated to form the sequence of Middleport period villages on Oxbow Creek. A total population of 900 people at Edwards, the first site in this sequence, is not unreasonable

given its size of 2.8 to 3.2 ha, by comparison with 544 people at the 1.01 ha Nodwell site.

It is proposed that this community of 900 people at Edwards lived in two subsequent villages along Oxbow Creek (Drumholm, Alway), moved 3 km east to occupy three villages known as the Dolway Place sites, and then 3 km east again to occupy Lawson. If we begin with 900 people at Edwards and allow a minimal population increase over time while this community occupied five intermediary villages, it is not unreasonable to arrive at the previously calculated figure of between 1030 and 1373 people in the core village at Lawson. European visitors in the seventeenth century remarked on the small size of Iroquoian families and noted various practices to limit family size. These could have restricted the rate of population growth in prehistoric times (Trigger 1969:64).

It must also be remembered that Lawson expanded to accommodate between 372 and 496 more people. It was proposed that this expansion represents a separate population who joined Lawson after the core village had been in existence for several years. The origin of this second population will be discussed in Chapter 7.

The similarity of this local sequence to that proposed by Tuck (1971) for the historic Onondaga must be noted at this point. These two examples suggest that community fusion and sequential development may have occurred on a pan-Iroquoian scale, as did several other concurrent developments.

3. SUBSISTENCE PRACTICES

There were noticeable changes in subsistence practices over time in the local sequence and throughout the Iroquoian culture area. These are reviewed below.

A. Glen Meyer Period

Williamson (1983b) argues that while the Mount Brydges community was growing corn and other cultigens during the Glen Meyer period, it did not depend on these crops for the major part of its diet. Data from the Kelly, Yaworski, Berkmortel, and Little hamlets suggest that acorns and deer were important dietary staples. Supporting this argument is the positive correlation between special purpose sites in the Mount Brydges and Byron clusters and large stands of oak trees. This suggests that some of these hamlets and camps were established mainly to harvest acorns and hunt deer rather than to grow crops. The edges of such stands of trees would have provided optimal browsing areas for deer. Acorns and deer were supplemented by cultigens, fish, other animal products, other nuts (butternut, walnut), and other wild plant foods such as berries, although the relative importance of these categories remains uncertain. All of these foods continued to be exploited throughout the Iroquoian sequence in the London area.

Archaeological data also indicate the dietary importance of wild foods in the Byron area. The Willcock hamlet was, in addition to being within a large stand of oak trees, stategically situated to take advantage of a natural swamp/wetland area that was especially rich in flora and fauna. The faunal sample recovered from that site has not yet been

analyzed in detail, but it contains a large proportion of deer remains as well as an assortment of turtles, ducks, and migratory waterfowl (personal examination of the collection) that would have occupied or frequented a wetland environment. Since the Willcock longhouse contained large interior heating hearths, it is probable that the site was occupied at least during the early spring and/or late fall to exploit cool season resources such as migratory waterfowl. The Little site was also located beside a swamp.

It was once believed that only corn was grown during the Princess Point and Glen Meyer periods and that beans, squash, and sunflower had been introduced into southwestern Ontario only after A.D. 1350, during the Middleport period or later (Noble 1969; 1975a:42-44). This interpretation is no longer tenable. The hamlets investigated by Williamson have yielded direct proof for the presence of all five cultigens that were grown in historic times by the Iroquoians: corn, beans, squash, sunflower, and tobacco (Williamson, personal communication). These crops are also being recovered from twelveth century A.D. or earlier sites elsewhere in southwestern Ontario (Crawford 1982). So far only corn and tobacco are reliably known to have been present during the preceding Princess Point period (ibid.; Fox 1984).

Provided that these crops were already adapted to growing in the north, the potential for a heavy reliance on a variety of cultigens existed in the twelveth and thirteenth centuries. Yet this potential appears not to have been realized, or perhaps could not be attained, by the Iroquoians in this part of Ontario.

All Glen Meyer period sites in this study (i.e., every site in the Mount Brydges, Byron, and Arkona clusters) were located directly on sandy soil. As indicated in the section on soils in Chapter 4, in their natural state these soils have limitations, and some localized areas have severe limitations, for sustaining crop production. In contrast to this, all Middleport and prehistoric Neutral period sites in the study area were located on loam or clay soils that have no limitations in their natural state. Present day farmers in Middlesex County grow tobacco and cereal grains on sandy soil and corn and beans on loam and clay soils, and there is no reason to think that an analogous situation would not have prevailed in prehistoric times. I believe that Early Ontario Iroquoian Stage communities could not have relied heavily on crops of corn, beans, and squash planted on light sandy soils, although they could have relied on such crops after they relocated onto loam and clay soils at the transition to the Middle Ontario Iroquoian Stage.

It is possible that peoples initially occupied sandy soils during the Glen Meyer period because those soils were the easiest to cultivate and were located in areas that also contained marshes, swamps, and large stands of oak trees. If all of the Glen Meyer population in southwestern Ontario was derived from the earlier Princess Point population along the Grand River and expanded mainly westward from there (Fox 1982a:19), they first would have encountered predominantly sandy soils on the extensive Norfolk sand plain. Thus, they would have become familiar with the cultivation of sandy soils and the collection of wild foods that occurred naturally in association with those soils. Thereafter, they may have chosen to remain on sandy soils when they expanded into new areas, such as Byron and Mount Brydges. Small communities of this period may have

continued to live in areas of sandy soil and to rely on natural foods such as deer, acorns, fish, and migratory waterfowl. Yet one could argue that the much larger communities of later periods could not have sustained themselves on soils with such a limited productivity and that this contributed to the eventual abandonment of areas with sandy soil.

This proposed subsistence strategy for the Mount Brydges and Byron communities is analogous in some respects to the model of "Intensive Harvest Collecting" that Struever (1968:305) applied to Middle and early Late Woodland groups in the Illinois-Ohio area. Groups there occupied semi-sedentary villages and relied on wild plant foods and animals. They "cultivated" naturally-occurring wild plants such as pigweed (Amaranthus sp.), lamb's quarters (Chenopodium sp.), marshelder (Iva sp.), and others, but little or none of the introduced cultigens such as corn, beans, or squash (Struever and Vickery 1973:1197-1220). There is no evidence to date that Early Ontario Iroquoian Stage communities actually "cultivated" local (as opposed to introduced) plants as did contemporaneous groups in Illinois and Ohio, but they no doubt collected a wide range of available ones. This "Intensive Harvest Collecting" model need not, however, be applied in its entirety to every Early Ontario Iroquoian community. For example, the Calvert village site near Dorchester, which is not studied in this thesis, had several refuse pits filled with thousands of carbonized corn kernals (Fox 1982c:7).

Therefore, although corn, beans, squash, and sunflower were grown, they may not have been as important as previously claimed for supporting Iroquoian life and promoting Iroquoian sociopolitical development at this time (Noble 1969; 1975b). Several reasons can be adduced for this. These include labour input versus yield and a preference for familiar and

well-understood food sources such as nuts and deer rather than relying on the sometimes unpredictable harvests of cultivated crops. Corn may have been viewed as only one more food to be exploited in a strategy that sought to avoid reliance on any one source, because the productivity of different foods varied individually from year to year. It is also possible that cultigens were not yet fully adapted to a northern climate and as a result produced low yields, thereby necessitating a continuing reliance on hunting, fishing, and gathering rather than on agriculture. These ideas clearly require further substantiation through research.

B. Middleport Period

The 1981 excavations at the Edwards site (Pearce 1982a) produced corn, nut fragments, and large quantities of fish remains and butchered deer bone. They also recovered pitted anvil stones ("nutting stones") that are believed to have been used to crush nuts. Although Edwards was located less than 1 km from Oxbow Creek, it is postulated that among the many fish species present on the site some, such as freshwater drum and pickerel, were brought there as a result of periodic trips to larger bodies of water, such as the Thames River or possibly Lake Erie. Since Kettle Point chert occurred in the lithic assemblage, it is also possible that some fish were obtained while on excursions to the shores of Lake Huron.

At the nearby Alway site, Jury (1937) recovered corn, acorns, wild plums, wild cherries, and faunal remains including deer, beaver, muskrat, woodchuck, dog or wolf, fish, birds, turtles and clams. He noted "an unusually large number of fish bones" at Alway as indicating the importance of that resource (ibid., 2).

Data from Middleport period sites elsewhere in southern Ontario suggest that corn, beans, and squash were dietary staples. Although the only cultigen identified at Nodwell was corn (Wright 1974a:292), this may be because relatively small flotation samples were collected. More detailed flotation at the Slack-Caswell quarry hamlet on Nanticoke Creek near Lake Erie revealed corns, beans, squash, sunflower, hawthorn, walnut or butternut, plum, and sumac (Jamieson 1979:112-116). Middleport period sites in the Milton area, such as Crawford Lake, have also yielded corn, beans, and a number of wild plant foods (Finlayson and Byrne 1975:33).

As noted above, all of these Middleport period sites (and later prehistoric Neutral period ones) were located on loam or clay soils, not on lighter sandy soils as all Glen Meyer period ones had been. Thus, more reliance could have been placed on cultivation during these later periods, since the heavier loam and clay soils would have supported this. Although loam and clay soils are harder to cultivate in terms of labour input, they are more reliable in terms of crop production since they retain moisture longer than sandy soils and hence are less liable to crop failure.

The only detailed faunal analysis for a Middleport period site pertains to Nodwell. Even though this site was outside of the study region of this thesis and the Carolinian biotic province, Stewart's (1974) faunal study demonstrated that a wide range of species was being exploited in southern Ontario at this time period. Nodwell yielded the remains of a large number of diverse species, including deer, moose, bear, raccoon, porcupine, beaver, marten, rabbit, squirrel, muskrat, wolf, dog, chipmunk, woodchuck, fox, otter, mink, passenger pigeon, gulls, Canada goose, grouse, loon, Great Blue Heron, swan, Bald Eagle, sandhill crane, ducks, sturgeon, whitefish, pike, mullet, sucker, bass, catfish, walleye, lake

trout, freshwater drum, turtles, frogs, and clams (ibid.).

Available data therefore suggest that, even though there was more reliance on the cultivation of cultigens during this period, wild plant foods and animals continued to be important dietary items.

C. Prehistoric Neutral Period

Data concerning prehistoric Neutral period subsistence practices are more complete than for the earlier Middleport period, but the overall picture still suffers from the lack of detailed floral and faunal analyses. Studies conducted to date have provided a checklist of species present on sites of this period but no quantitative comparisons.

While corn and other cultigens were present but appear not to have constituted a major portion of the diet on Glen Meyer period sites, the evidence from Lawson and its hamlets leads to the conclusion that cultigens were of primary importance. Considerable effort must have been expended in preparing fields and cultivating the known edible cultigens and tobacco. At Lawson, corn, beans, squash, and sunflower have been identified, with corn clearly predominating over the others in most flotation samples processed to date. Corn was present in every area of the site, including middens and interior and exterior longhouse refuse pits. It would appear that some of the many large refuse-filled pits inside houses were originally used to store corn. Wintemberg's unpublished field notes (on file at the Archaeological Survey of Canada) state that some of the pits he excavated in 1921-23 contained thick layers of corn (cobs and kernals). While the more recent excavations by the Museum of Indian Archaeology have not encountered pits with "layers" of

corn, they have discovered ones that have produced extremely large quantities of corn, and in one instance, beans.

As during the Middleport period, all prehistoric Neutral period sites in the London area were located on non-sandy soils. Lawson and its associated hamlets were on clay soil, with one hamlet (Ronto) on extremely heavy clay (Pearce 1983a:2). Today Middlesex County farmers use these clay soils most productively for the cultivation of corn and beans. It appears that the prehistoric inhabitants of this area during the Middleport and prehistoric Neutral periods selectively searched out similar heavy soils as locations for their villages and hamlets.

Supporting evidence for the importance accorded corn and other cultigens by the inhabitants of the Lawson site comes from the numerous hamlets surrounding Lawson. As of August 1984, 11 of these had been discovered and four excavated. These were summarized in Chapter 4, as were the reports of "corn hills" in the vicinity of Lawson. They are interpreted as agricultural "cabin" sites, although in addition to the cultivation of crops meat, fish, and an assortment of wild plant foods were obtained and processed in them.

The Lawson site faunal sample was dominated by deer bone, all of which was fractured and exhibited extensive signs of butchering (Pearce 1980b). In addition to Virginia deer, virtually every other faunal species known to have been present in southwestern Ontario in the late prehistoric period has been found. While some of these may have been of little importance for the subsistence requirements of the Lawson inhabitants, they indicate the variety and diversity of available game. They also indicate that many different exploitation techniques must have

been employed. The species identified include: bear, raccoon, otter, skunk, fox, wolf, dog, bobcat, woodchuck, squirrel, chipmunk, beaver, marten, fisher, mink, muskrat, elk or wapiti, and rabbit; numerous species of fish including catfish, bass, sucker, salmon and pickerel; several species of birds including wild turkey, grouse, passenger pigeon, ducks, geese, crane, owls, hawks and Golden Eagle; and an assortment of turtles, reptiles, and clams (Wintemberg 1939:11-14; Pearce 1980a:28). Specialists at the Ministry of Natural Resources have informed me that salmon were probably not present in the Thames and Sydenham drainages, but were introduced in historic times. Thus, the recovery of this species at Lawson suggests that excursions may have been made to larger bodies of water, such as Lake Erie or Lake Huron, where this species did occur in prehistoric times. Lawson has yielded large quantities of Kettle Point chert, including cores (Pearce 1980a; Janusas 1983), so it is probable that fishing was conducted at the same time that the Lawson inhabitants quarried this chert at its outcrop on Lake Huron. This interpretation is substantiated by the recovery of prehistoric Neutral period ceramics from multicomponent camp sites in that region (Jury 1949; Jury and Jury 1952). The various salmon species (including lake trout) spawn in the fall, suggesting a probable time of year for the Lawsoners to travel to these larger bodies of water. Since most other fish species spawn in the spring, it is likely that at least two trips were made each year to these waters to fish.

An extensive array of faunal species has also been identified from the hamlets associated with the Lawson site. For example, deer, bear, canis sp., muskrat, squirrel, catfish, sucker, pickerel, passenger pigeon, frogs, turtles, and clams were found at the Windermere site (Pearce

1983a:13). Today a large number of edible wild plant foods are available directly on and beside the Lawson site, including the ravine of Snake Creek southwest of the village. These include acorns, hickory nuts, butternuts, wild plum, raspberries, strawberries, elderberries, Chenopodium, and Portulacca (Pearce 1980a). The exploitation of these species would have increased the subsistence base and its diversity. Nuts, raspberries, strawberries, elderberries, Chenopodium, and Portulacca were also identified at the Windermere hamlet (Pearce 1983a:13).

These data suggest that cultigens, wild plant foods, and animals continued to be important sources of nutrition during the Late Ontario Iroquoian Stage. The evidence from Lawson and its associated hamlets indicate that horticulture was practiced at a substantial level and was probably the major food source. Even into the historic period, however, the Iroquoians of southwestern Ontario appear to have depended more heavily on hunting than did the historic Huron.

D. Summary

Corn has been recovered from some sites of the Princess Point period dating prior to A.D. 600 (Stothers 1977:117-118) and other cultigens were present in Ontario during the Early Ontario Iroquoian Stage (Crawford 1982). Yet, the current data suggest that, at least for the Mount Brydges and Byron communities, these cultigens were not dietary staples. Rather, acorns were a storable and reliable food commodity that could have allowed year-round village life, when supplemented by corn, other cultigens, and a wide variety of mammals, birds, fish, and wild plant foods. For this reason, Williamson (1983b) argues that previous statements concerning the importance of corn for early Iroquoian socio-political development (Noble

1969; 1975b) may be in error.

Although we have little quantitative evidence, the importance of corn and other cultigens appears to have increased during the Middleport period. One tangible proof of this is that almost everywhere in southwestern Ontario the transition from the Early to Middle Ontario Iroquoian Stages involved a shift from sandy soils onto heavier clays and loams. Modern Middlesex County farmers grow only tobacco and cereal grains on sandy soils, and corn and beans on clays or loams. It appears that prehistoric Iroquoians in southwestern Ontario had discovered the superiority of these latter soils for corn horticulture by A.D. 1245-1315.

There was a trade-off to be made, however, as the accompanying shift in settlement meant a movement away from the bountiful supplies of acorns on the Caradoc sand plain. Nevertheless, supplies of wild plant foods were found away from sandy soils and the waters of Oxbow Creek contained valuable fish resources. Regardless of what type of soils communities exploited, they continued to travel to Lake Huron to fish.

During the Middleport period it is probable that beans, squash, and sunflower were grown in greater quantities than during the preceding period. By the later prehistoric Neutral period, cultivation was vigorously practiced, with hamlets and fields of "corn hills" being established for considerable distances around major villages such as Lawson. Yet, meat, fish, and wild plant foods continued to play an important role in supplementing the diet.

4. SOCIAL AND POLITICAL ORGANIZATION

As indicated by Fitting and Cleland (1969) and Trigger (1981), significant aspects of prehistoric social behaviour that can be studied archaeologically include household organization; the economic roles played by men and women; the degree to which men and women worked together or separately; and the economic importance of the tasks performed by either sex. Political organization is closely linked to social organization. Political organization in general refers to the processes that regulate the operation of societies. These processes include foreign relations, defence, maintaining internal order, validating and maintaining patterns of authority, and organizing complex activities relating to the welfare of the society (Trigger 1978b:154) It has been argued that archaeological data should be empirically evaluated to suggest the nature of prehistoric Iroquoian social and political organization without relying naively, as researchers have in the past, on direct ethnographic analogies (Trigger 1981). This section will empirically evaluate the available archaeological data that relates to social and political organization for the Glen Meyer, Middleport, and prehistoric Neutral periods, making only limited use of the direct historical approach. This particular source of insights is not, however, ruled out.

A. Glen Meyer Period

Williamson (1982b, 1983b) believes that the villages of the Mount Brydges cluster were utilized on a year-round basis and that corn and other cultigens were grown at or near those villages. Yet, it is probable that the bulk of the population did not remain in such villages from spring to fall. Rather, they occupied a series of special purpose food

collecting and processing hamlets scattered across the Caradoc sand plain. Hunting parties also may have been absent during much of the winter.

The available data from the Kelly and Yaworski sites indicate that longhouses were built at these hamlets and that these structures were surrounded by a single palisade. The longhouses contained interior hearths and pits, but a majority of activities at the hamlets were conducted outside of these houses. At Kelly, clusters of pits between the house and palisade were interpreted as representing different food processing events (Williamson 1981, 1983b). The range of artifacts recovered indicates that men, women, and children were present at each hamlet, probably for most of the warm season.

Seasonality, based on floral and faunal data, can be determined as spring to late fall for Kelly and Yaworski (MacDonald 1981a, 1981b). Interior house hearths suggest that some of these sites were occupied during the early spring and late fall. The build-up of shallow midden deposits at the Kelly site suggests that it may have been occupied for the entire spring, summer, and fall (Williamson 1981). That people made extensive use of some of these sites is indicated by a longhouse over 20 m long with interior bunk lines at Kelly (ibid.) and by multiple structures at Yaworski (ibid.; 1982a). Lack of evidence for repair of these structures and for overlapping or intersecting pits suggests that each hamlet was probably not used for more than a single year.

Williamson argues (1982a:57) that the Glen Meyer period community he is studying followed a subsistence-settlement pattern similar to that defined for the early historic Ottawa by Fitting and Cleland (1969). This involved a semi-sedentary community whose major village was inhabited

throughout the year by some women, children, and the aged. The men seldom remained at the village for long periods: from spring to fall they assisted the women in food procurement and food processing activities at hamlets, while in the winter they hunted for long periods on their own away from the village.

This model will be discussed in detail in Williamson's forthcoming thesis. It should be noted, however, that Trigger has argued that semi-sedentary villages initially arose as a desire to "minimize or eliminate the period during winter when hunter-gatherers were compelled to disperse in search of game" (1981:24) in micro-band units that consisted of small extended families. To avoid doing this required a reliable supply of storable food. Such food could have been obtained either by horticulture or, as Williamson believes for the Mount Brydges community, by harvesting a storable commodity such as acorns (see also Trigger 1981:24).

The earliest semi-sedentary communities in Ontario could simply have been continuations of the macro-band aggregations of the Middle Woodland period (ibid.). Such macro-band settlements most likely consisted of between 100 and 300 people, this being the estimated size of Early Ontario Iroquoian villages as noted earlier.

If this were the case, everyone in a community must have known each other and interacted regularly; hence decisions could have been made on an informal basis (Forge 1972; Trigger 1981:24-25). There may have been an hereditary spokesman or individuals who had "achieved" prestigious roles, such as were present in various historic northern Algonkian bands (Rogers 1962:B4). In general, however, both social and political

organization appear to have been loosely structured along kinship lines (lineages and possibly clans), with community elders probably being looked to for advice and leadership.

Settlement pattern data for Glen Meyer period sites indicate two different types of structures: prototypes of the classic Iroquoian longhouse and small circular, very short rectangular, or oval structures. The longhouses often contained all of the features of later Iroquoian ones: centrally-aligned hearths, interior bunk lines, internal partitions, storage cubicles, and interior storage pits (Noble and Kenyon 1972; Noble 1975a; Fox 1976; Wright 1978; Williamson 1981, 1982a, 1983b). Without a doubt, these houses were occupied by extended families, whose blood relatives were most likely related to each other as members of the same lineage or clan, as in later Iroquoian times.

The small circular, oval, or short rectangular structures that occurred together with longhouses on some Glen Meyer period sites, such as Dewaele (Fox 1976) and Yaworski (Williamson 1982a), pose an interpretational problem. They may have performed a special function, as sweat lodges (Fox 1976:180; Williamson 1982a:67), for storage (Fox 1976:186), or for processing foodstuffs (Williamson 1982a:67). Yet, since some of them contain hearths, pits, entrances, and interior post moulds (Fox 1976:181), it can be argued that at least those ones were residences. Because of their small size and tendency to contain single hearths, they perhaps served as houses for one or two nuclear families (ibid., 186). Thus, two house types occur on some Glen Meyer period sites: the typical longhouse for extended families and circular or short rectangular ones for one or two nuclear families.

Determination of residence and descent rules for this period of Iroquoian development is hampered by both methodological and theoretical problems (see Trigger 1981:23-31). It has been assumed that, with the emergence of horticulture and semi-sedentary villages, the importance of female work teams increased, to the degree that residence became matrilocal and kinship and descent matrilineal. Intra-site data from the Glen Meyer period indicate that some villages were occupied for long periods by groups who lived in both longhouses and small circular, oval, or short rectangular houses. It remains unclear how all members of a community were related, what residence and descent rules were followed, and whether spousal partners were chosen from within a village or from neighbouring ones. It is generally assumed that Middle Woodland hunter-gatherer bands in this region tended to be patrilocal and exogamous and that men normally obtained wives from neighbouring bands (Brose 1970:165-168). We do not yet know at what period Iroquoian residence became matrilocal. Whallon (1968) suggested that ceramic patterning could reveal aspects of social organization, in particular residence rules. He and others believe that ceramic homogeneity over a large area reflected the widespread movement of women and that ceramic heterogeneity within individual villages during the earliest Iroquoian periods could support the argument that the women in those villages had come from different areas. Ceramic homogeneity within villages of later Iroquoian periods was interpreted by Whallon as a reflection of matrilocality, when women remained in the village of their birth. We are only now accumulating the necessary raw data to begin a study of this nature for the London area since ceramic samples from neighbouring communities are required to test these ideas.

Regional settlement data suggest that in Glen Meyer times single communities were spatially isolated from each other (i.e., the Mount Brydges, Byron, and Arkona clusters) and that village sites in most areas were sequential and not contemporaneous. This means that spouses must have been selected either from different lineages within each village, or from contemporaneous villages located some distance away. The latter would require continuous contact and interaction between neighbouring communities, often many kilometres apart. Yet, if men from the London area went to Lakes Huron and Erie to fish during the Early Ontario Iroquoian Stage as suggested earlier, communities may not have been socially isolated even if they were located a considerable distance apart.

Archaeological and ethnographic data have suggested that the minimal size of band and small-scale tribal societies was about 300 people (Forge 1972; Trigger 1978b:196). The lifelong inhabitants of a village could all have been members of a single clan that was made up of a number of extended families (ibid.). This casts doubt on the proposition that spousal partners were derived from within such a village, since most of its residents of a least one sex were probably related to each other. This supports the hypothesis that there was inter-village interaction to obtain, amoung other things, spouses.

In contemporaneous New York State, a dual cemetery at the 1.2 ha Sackett site (Ritchie and Funk 1973:220) was interpreted as representing two clans within that village. Similar multiple cemeteries are known for protohistoric and historic Five Nations Iroquois sites, but it is unclear whether they represent moiety, clan, or lineage groups (Wray and Schoff 1953). Moreover, multiple cemeteries of this sort have not been documented for any period in Ontario. These data therefore do not rule

out the possibility of single clan occupation within Early Ontario Iroquoian Stage villages and the need for inter-village interaction to obtain spouses (see also Trigger 1981:31).

The available data suggest that men and women played a reciprocal role in fulfilling subsistence needs, with each present at the village and at various hamlets for at least part of the year.

B. Middleport Period

Settlement data show a major transformation between the Glen Meyer and Middleport periods: 0.4 to 1.2 ha villages located on sandy soils were replaced by 2.0 to 3.2 ha ones on clay and loam soils. Houses also became much longer and began to be aligned in a more orderly fashion within the village (see Wright 1974a:5).

All Middleport period houses excavated to date appear to be true longhouses; none of the small circular or short rectangular houses found on some Glen Meyer period sites have been noted (see Wright 1974a; M. Wright 1979; Jamieson 1979; Pearce 1982a). This would seem to indicate a more rigid adherence to residence and descent rules, which were most likely matrilocal and matrilineal. It can be suggested that the switch to matilocality had been finalized, with no "hold-outs" who preferred for whatever reason to live as nuclear or very small extended families.

There are several lines of evidence indicating that by the Middleport period there had been a complete transformation to "formal village life" (Noble 1975b:38). Longhouses were relatively uniform in terms of shape and internal arrangement compared to houses of the earlier Glen Meyer period. They were also "formally" arranged within the clearly defined

limits of the village. This reflects some degree of community planning and an attempt to maximize the use of available space and resources. Within the village, there were specific areas for refuse disposal (i.e., middens) and other "void" areas that perhaps served as communal activity places. The plan of the Nodwell site (Wright 1974a:5, 86) reveals that there were open areas that were not used for middens in the southeast corner of the village, along its entire western edge between Houses 4 and 10, and along the entire area between the two palisades at the eastern edge of the site. The inhabitants of some Middleport period villages also were sufficiently organized to carry out large scale public works programs, such as the erection of complex defensive systems and possibly earthworks (see Warfare section below).

This planning and organizational ability suggests that a single person or group of individuals had a certain degree of coordinating "power" within each village. It is not surprising, therefore, to find references to "chiefs" appearing in the archaeological literature for the first time in connection with the Middleport period (Noble 1975b; Trigger 1976, 1981:37). For example, Wright (1974a:56, 307) has interpreted House 10 at Nodwell as one that served to accommodate ceremonies and large public meetings, functions which in historic times were associated with the chief or leader of a village. This house had large bunk lines, greater width, the largest square footage, and a larger estimated area per person than did any other house at Nodwell (ibid., 52-56). It also had fewer pits per square foot than all but one house (ibid., 67), indicating a less intensive occupation or a functional difference and produced relatively fewer artifacts than did other large houses. For example, House 10 yielded 23 ceramic vessels, whereas House 8, which was of

comparable size to House 10, yielded 96 vessels (ibid., 146, 171).

Dual or multiple orientations of groups of longhouses have been interpreted as suggesting the existence of multiple social groups such as clans. This phenomenon has also been noted at a number of late Iroquoian villages, such as Southwold (Smith 1977), Lawson (Pearce 1980a, 1980b), and Draper (Finlayson 1984). While Glen Meyer period sites give the impression of a haphazard arrangement of houses complicated by overlapping and intersecting structures, later villages reflect conscious ordering. Although few Middleport period sites have been sufficiently excavated to determine detailed settlement patterns, those that have all display multiple house orientations (see also Finlayson and Byrne 1975:36).

The complete site plan available for Nodwell (the only totally excavated Middleport period site) reveals two house orientations. Houses in the centre of the village were consistently oriented north-south, while houses at the south and north ends of the village tended to be oriented west-east (except House 12 which was oriented northwest-southeast)(Wright 1974a:5). Given this arrangement, it can be argued that at least two, and possibly three, socially distinct groups occupied Nodwell. An alternative argument, however, would be simply that more efficient use of space is made by multiple house orientations than by aligning all houses either parallel to each other or randomly. The latter proposition only concerns utilization of space and does not necessarily imply the existence of distinct social groups. Houses also may have been deliberately oriented in certain directions for defensive reasons.

Yet there is additional evidence for the existence of major social groupings at Nodwell that were not spatially segregated. Wright's

detailed analysis of the artifacts from individual houses at Nodwell led him to conclude that, in terms of ceramic traits, certain houses were "conservative" while others were "progressive" or "intermediate" (ibid., 242-243). A recent trace-element analysis (Trigger et al. 1980) of sherds from Nodwell confirmed a definite difference between Wright's groups of houses. In this study it was found that the ceramics from Houses 6, 7, and 11, which Wright assigned to his "conservative" category, were chemically very similar, yet quite distinct from ceramics from House 8, which he called "progressive". The main difference between these groups was in the level of calcium present in the clay, which was interpreted as possibly meaning that the potters of each group (i.e., those who were associated with the conservative houses versus the progressive ones) obtained their clay from different sources. Such a behavioural difference could imply that these potters acted differently because they belonged to two different groups, such as clans. Yet, there was no relation between conservatism and house orientation. Nevertheless, Wright (1974a:228) believed that this type of investigation could be used as "evidence for or against both clan and lineage inheritence of distinct ceramic attributes".

Susan Jamieson (1979:91-92) suggested that clusters of specific ceramic types within different areas of the longhouse at the prehistoric Neutral period Slack-Caswell hamlet represented individual families, a conclusion that was also posited by David Arthurs' (1979) detailed analysis of House 2 at the prehistoric Huron period Draper site. Although his interpretation has since been questioned as a result of Finlayson's (1984) reexcavation of that house, which demonstrated considerable "contamination" of the structure and its contents by a previous palisade

cutting through it, this approach was based on valid analytical techniques that could be tested at other sites.

Cross-cultural studies indicate that villages of 300 people or more have internal segmentation (i.e., multiple lineages and/or clans) and some form of village council on which spokesmen from these segments are represented (Forge 1972; Trigger 1981:37; see also Sahlins 1961; 1968). Furthermore, villages of over 500 people most frequently have "authoritative officials" (Naroll 1956:690). Population estimates discussed above indicate that far more than 300 people inhabited individual villages during the Middle Ontario Iroquoian Stage (550 at Nodwell, perhaps 900 or 1000 at Edwards and Drumholm). Thus, a council with spokesmen from village segments probably existed at these sites.

In reviewing historic Iroquoian social organization, William Fenton stated that the clan was a singularly important element; a person may forget his precise family line, "but clan identity is remembered so that in a given generation individual behaviour is strongly coloured by membership in a clan" (1978:310). Lineages formed clan segments, and together lineages and clans constituted "the building blocks of the social system" (ibid., 309).

It appears that by the Middleport period the Iroquoian longhouse and village, as known from ethnohistorical records, were already in existence. Archaeological data, the direct historic approach, and ethnographic analogy suggest that many of these villages were occupied by more than 500 people living in lineage-based longhouses and that their affairs were conducted by spokesmen who sat on a village council. This council, in turn, may have been presided over by one or more "headmen" or chiefs who,

in consultation with their councillors, coordinated large public works and played a leading role in formulating other major decisions (i.e., when and where to stage attacks, direct extended hunting trips, or move a village). There is no evidence that Iroquoian chiefs ever had coercive authority (see below); instead a system in which individual assent was required for all decisions seems to have been followed.

C. Prehistoric Neutral Period

Recent excavations at the Lawson site and its associated hamlets are now furnishing some very reliable data about social and political organization during the prehistoric Neutral period, some of which has not heretofore been discussed.

As noted in the Settlement section above, Lawson began as a 1.4 ha core village and was expanded at least once to allow the construction of nine new houses in 0.4 ha of land. The estimated population of these nine houses is 496 people (Table 23). This suggests the movement of a clan or clan segment from elsewhere into Lawson, possibly the amalgamation of a small sister village. None of the new houses was expanded nor was there evidence for substantial repairs or re-building. This suggests that this new population lived at Lawson for only a short period of time. In other words, shortly after this new population moved to Lawson, the entire village was relocated. Ceramics from the expansion area are not distinguishable from those of the core village, except for a lower frequency of the Parker Festooned type, indicating that the inhabitants of the Lawson core village and those from the hypothesized sister village were closely related.

The ability of a village to incorporate another group of this size indicates a well organized community. Large scale organization and community planning at Lawson is also reflected by the elaborate defensive system that embodied four to six rows of palisade, double earthworks, ditches, and lookout platforms (see Warfare section below).

Cross-cultural studies suggest that tribal societies that routinely maintained villages of 1500 people or more must have "some form of coercion" and that "some form of executive representation is required for government at even a minimal level of effectiveness. Coercion can be viewed as one means by which community decision-makers are assured that their routine decisions will be executed" (Trigger 1978b:199). Archaeological evidence for both the prehistoric Neutral and earlier Middleport periods suggests that chiefs and a village council were in existence but there is no evidence that Iroquoian societies transcended the tribal level.

House 6 in the expansion area of Lawson has been interpreted as a "chief's" residence or a structure used for special village gatherings (Pearce 1980c:2). It was not only one of the longest houses known on the site, but also one of the widest and it had wider bench rows than any other house excavated on that site to date. Given the area of living space available within this house, it also had the lowest density of refuse-filled storage pits (Table 22).

Additional support for the argument of a special function for House 6 comes from the artifacts recovered inside it and the context in which those artifacts were found. Excavations in 1980 revealed that one of the hearths had been superimposed over a large refuse-filled storage pit that

contained a partially reconstructable ceramic vessel (Pearce 1980c:2). Excavations in 1982 revealed two extremely large and deep refuse-filled storage pits. One was 100 cm by 85 cm in plan view and 86 cm deep. It contained, from top to bottom, a layer of artifacts and refuse, a layer of charcoal and carbonized plant remains (mainly corn kernels), a sterile layer of subsoil, and a rich artifact bearing layer. The second pit was 120 cm by 100 cm in plan view and 104 cm deep and had a layered profile similar to the one just described. Worthy of note, however, were the contents of the lowest artifact bearing level: a very large reconstructable ceramic vessel (50 cm high and 40 cm in diameter at the lip) of the Niagara Collared type. Above the sherds of this vessel were an articulated black bear radius and ulna with the distal ends deliberately cut (not gnawed) off. Below the sherds was a complete snapping turtle carapace with two holes drilled in a manner identical to historic Iroquoian turtle rattles (Smith and Borland 1983:4-5). Artifacts of this nature have not been found in any other house at Lawson (except House 8, discussed below) and may be used to support the argument that House 6 was a special structure.

Special significance can also be assigned to House 8, located directly beside and parallel to House 6. These two houses were separated from each other by a corridor that varied from 1.9 m to 2.4 m wide. House 8 was unusual because it contained 17 refuse-filled storage pits, far more than any of the houses excavated to date (Table 22). This house also contained a number of other small pits. These refuse-filled pits as well as some of the small ones produced a variety of noteworthy artifacts not found in other houses or middens on the site to date.

One large refuse-filled pit at the northwest end of House 8 contained both calcined and non-calcined human bone fragments, ceramics, faunal material, and a pocket of ash and fired soil surrounded by preserved (carbonized) organic material, including the tip of a sharpened wooden stake, other wood fragments, charcoal, basketry or a woven mat, and bark. Fragments of calcined human and mammal bone were in this pocket of ash and the context of these finds suggests that a container (basket?) was burnt in situ in the lower level of the pit. A second refuse-filled pit beside this one yielded vast quantities of carbonized corn kernels and bean lobes. Four other refuse-filled pits each produced a reconstructable ceramic vessel and large quantities of carbonized plant remains. A small pit in the southeast end of this house contained a large modified elk antler club. This antler had a slit cut into one end, interpreted as the socket for a chert point. A small pit in the centre of the house yielded three partially-articulated feet identified as immature beaver (1 right hind foot and 2 left hind feet, representing a minimum of two individuals). Another small pit at the northwest end yielded only one item, the fragmented and butchered distal end of a human femur.

The nature of House 8 and its location adjacent to House 6 suggest that it may have housed the "chief's" family and relatives. It is therefore proposed that any special events held in House 6 would have been supported by the occupants of House 8. As a result, there were fewer pits and debris in House 6 and a greater number of pits, debris, and "unusual" artifacts in House 8 than in the other houses, at least within the expansion area. Direct interaction between Houses 6 and 8 is confirmed by archaeological data: rim sherds from two vessels in House 6 were matched to two vessels from House 8.

In historic times among the Iroquoians, the conduct of war was entrusted by each clan to a "war chief", while all other matters were handled by a "peace chief" (JR 10:229-231; 16:229). The two chiefs were often related as brothers or cousins from the same lineage, or were at least members of the same clan (ibid.). This custom of selecting chiefs from the same social group persisted into the nineteenth century (Morgan 1851:57-71). It is therefore possible that House 8 could have been the residence of the "war chief" where prisoners were slain (JR 13:58-59). In one Huron settlement this house was called the "house of cut-off heads" (ibid.; Tooker 1964:43), a name which reflected the Huron practice of ritually torturing prisoners and displaying scalps (JR 13:37-79). To extend this analogy further, House 6 could have been the residence of the "peace chief", where council meetings and special village gatherings took place. The materials in House 8 and their context would not be out of character in a war chief's house, assuming that prehistoric Neutral ceremonies and activities were similar to those documented for the historic Huron.

As in the Middleport period, prehistoric Neutral houses and villages were "formalized" (Noble 1975b:38). The houses at Lawson were a model of efficient organization and utilization of space. In fact, most of the houses in the expansion area, as well as those excavated to date in the core area, were standardized in terms of the placement of entrances, internal partitions (which often separated a small storage cubicle at the southeast end from the main living area), bench rows, centrally-aligned hearths, and refuse-filled storage pits under the bench rows and in the corners of the houses. Several houses also had small pits containing nothing but ash and charcoal placed adjacent to hearths; these are

interpreted simply as places where ash was buried in the process of cleaning out a hearth. All of this suggests a strict adherence to a set way of building and using houses. A similar pattern also existed at Southwold, the only other prehistoric Neutral period site in southwestern Ontario that has been extensively excavated to date (Smith 1977).

The expansion area of Lawson has been completely excavated, while only minor portions of the core area have been investigated. Yet, significant data have been obtained regarding the orientation of houses, and the placement of those houses in relation to middens, palisades, open areas, and other houses.

All nine houses in the expansion area were oriented northwest to southeast, with narrow parallel corridors between them. This aspect of spacing will be discussed in the Warfare section below. All of the middens known in the expansion area occurred outside the southeast ends of the houses. The houses with storage cubicles all had them in the southeast end only. As with the Middleport period Nodwell site discussed above, there were open areas in the Lawson expansion, most notably between Houses 1 and 9 and north of Houses 1 and 3. These areas could have been used as communal activity zones, as they contained no features or post moulds.

Of the four houses excavated or partially excavated in the core area of Lawson, two had a northwest-southeast orientation while at least one was oriented east to west. Alignments of pits, hearths, and post moulds recorded by Wintemberg from his 1921-23 excavation (Wintemberg 1939) in what is now known to be the core area of the village possibly represent additional houses oriented east to west. This suggests the likelihood of

dual or multiple house orientations similar to those at Nodwell (Wright 1974a). Such orientations are known for the Southwold site (Smith 1977:69-70; 143). The resulting clusters of houses have been interpreted as representing two or more clans within Iroquoian villages. Detailed ceramic analyses have not been conducted for the houses at Lawson to know if such clans can be distinguished ceramically. At Southwold, however, there were statistically significant differences in collar design motifs for rim sherds from the two largest stuctures at the west end of the site by comparison with pottery from all other houses and areas at that site (Smith 1977:87).

The most detailed evidence supporting the concept of internal village segmentation is provided by the nature and distribution of hamlets surrounding the Lawson site. I have proposed elsewhere (Pearce 1983b; 1984) that each hamlet, consisting of single house and associated midden or middens, may have been occupied by one extended family and that clusters of two or three adjacent hamlets represent larger social groups, such as lineages or clans. Each group may have claimed rights over certain parcels of land on which only members could set up hamlets, while other groups established their hamlets elsewhere.

Analysis of the ceramics from the hamlets excavated to date lends support to this interpretation. The ceramics of all three hamlets in the Windermere-Ronto-Smallman cluster were remarkably similar (Pearce 1983a; 1984). For example, the Pound Necked type occurred as follows: 78.6% at Windermere, 62.5% at Ronto, and 76.9% at Smallman (Pearce 1983a:39). By contrast, the Black Kat hamlet, located 2 km northeast of the Windermere-Ronto-Smallman cluster, produced the following percentages of types: 46% Lawson Incised, 36% Lawson Opposed, and only 9% Pound Necked.

There also were statistically significant differences between these clusters in terms of specific attributes. For example, the Black Kat vessels had no interior, secondary collar, or secondary neck decoration while vessels from Windermere, Ronto, and Smallman had substantial amounts of these. The pipes from these hamlets, although few in number, also showed a marked difference. Trumpet pipes but not Iroquois Ring types were found at Windermere, Ronto, and Smallman; whereas at Black Kat there was an Iroquois Ring specimen but no Trumpet pipes. There were three stone pipe fragments from Black Kat and none from Windermere, Ronto, or Smallman. Although the sample sizes for ceramics and pipes from these hamlets are small, they are completely representative since each of these four hamlets was totally excavated.

Alternative interpretations are that the hamlets in each cluster could have been occupied by groups consisting of selected members from several different families, or by "corporate groups" (Hayden 1976) that were not necessarily composed of related individuals. It is also possible that the hamlets in each cluster were occupied consecutively rather than simultaneously, with those closest to Lawson dating earlier than those farthest away. This could account for the marked differences in ceramics and pipes between the Windermere-Ronto-Smallman cluster and the more distant Black Kat site. Yet, since Windermere, Ronto, and Smallman were so similar, and since the time span for Lawson was probably not long enough to reflect significant temporal differences at the hamlets, I prefer the hypothesis that the Windermere, Ronto, and Smallman hamlets were occupied simultaneously by three related extended families who were not related to the family at Black Kat. This also suggests that the ceramic and pipe differences between these groups of sites are due to

social rather than temporal factors. Excavations of additional hamlets will help to resolve this issue. Further excavations in the core area of the Lawson site will also be useful for suggesting which people from particular houses or groups of houses may have occupied each cluster of hamlets. In the main settlement, however, the mixing of refuse within middens can be expected to blur these patterns to a considerable degree.

Ethnohistorical documents inform us that the Huron established hamlets or cabin sites in or near their fields. Men built houses at such sites but then most of them went off to hunt, fish, trade, and wage war, while the women and children remained, from late spring to early fall, to tend the fields. The men returned in the fall and assisted with the return move to the main village for the winter season (JR 8:143; 10:51-53; 14:57; 15:133, 155; 16:249; 17:99, 103, 115; 19:125; 20:45; Wrong 1939:72,74,101,237-239; Biggar 1922-1928:137). It was assumed that the Neutral created hamlets as the Huron did.

Data from the hamlets associated with the Lawson site indicate, however, that men spent considerable lengths of time at the hamlets. In fact, the hamlets are best interpreted both as agricultural cabins where women grew crops and collected wild plant foods and as food processing centres where men processed their take from hunting and fishing nearby. Evidence for these activities included large quantities of fish and butchered deer bone; other faunal remains (i.e., bear, raccoon, muskrat, passenger pigeon); vast amounts of chipping detritus; chert and stone tools; and some pipes. All of these can be related to male activities (Pearce 1983a). A stong male presence at each of the Lawson hamlets may have been dictated by fear of attack. It is known that among the historic Huron, large numbers of able-bodied men remained at home when there was

danger of war.

The nature and location of the Lawson hamlets indicate that they were not cabin sites built by men as base camps for hunting, fishing, trading, or conducting warfare. Such cabins are documented for the Huron (JR 33:83; Wrong 1939:185; Biggar 1922-1928:82-83). Rather, they were suburban hamlets inhabited by men, women, and children during the summer months while they performed a variety of activities: growing crops, collecting wild plant foods, hunting and fishing, processing meat and fish, and making and using stone and bone artifacts. The occupants of these hamlets also enjoyed leisure time and decorated themselves much as they did at the main village of Lawson as manifested by the recovery of gaming discs, cup-and-pin type modified deer phalanges, and bone beads. It is proposed that in the fall, these hamlets were abandoned when everyone returned to Lawson for the winter with an ample store of foodstuffs and related by-products (i.e., bone and antler artifacts).

These additional data can be used to support the argument that each hamlet was occupied by an extended family, with clusters of hamlets occupied by members of a single lineage. At the same time, this decreases the possibility of their being socio-economic units such as corporate groups, as it seems unlikely that unrelated peoples of opposite sex would live and work together at the hamlets. It appears that at both the Lawson site and its hamlets men and women worked together to obtain food, at least during the growing season, and that each sex contributed to these tasks.

One may ask, why these hamlets were established in the first place? The answer is probably multivariate. The agricultural hamlets of this

period may have been transformations of the earlier nut-collecting and food processing hamlets used during the Glen Meyer period. As the large Iroquoian sites continued to grow and expand, and as nearby fields became depleted of nutrients, it may have been necessary to open new fields farther from the village. Rather than travel back to the village every night, families may have decided to live in small huts in the midst of their fields. They may also have chosen to live among their crops to protect them from animal foragers and human enemies. Also, they may have sought to escape the dirt, filth, and stench of the main village during the warmest part of the year. The women and children, in particular, may have enjoyed a respite from the crowded conditions of village life.

It is known that at least some men (and perhaps women) went on extended expeditions to collect Kettle Point chert from the shores of Lake Huron. They probably hunted and fished while on such trips. Warfare also occupied some amount of time for the men. Whether or not all of these activities occurred outside of the growing season is unknown, but it is a logical deduction that they did. In particular, male trips may have been planned to coincide with the productive early spring and late fall spawning periods on Lake Huron. Thus, men could have "gone fishing" but still have been available at the critical times of the year to help prepare fields for planting and assist with the harvesting. Trading, warfare, and some hunting could have been done during these fishing and chert acquistition expeditions and not interfered with life at home. This interpretation, although differing substantially from what is known ethnohistorically for the Huron, is supported by the archaeological data from the London and Kettle Point areas. The numerous camp sites on the eastern shore of Lake Huron in the vicinity of Kettle Point contain

prehistoric Neutral period ceramics, lithics (i.e., projectile points), fish remains, and copious amounts of Kettle Point chert; the latter was reduced from block cores to bifaces or preforms on such sites (Jury 1949) for subsequent use at the interior villages.

D. Summary

Archaeological data, particularly settlement pattern at the village and regional levels, can be used to demonstate the existence of two distinct communities in the London area during the Glen Meyer period. One occupied a series of sequential villages and associated hamlets and special purpose sites in the Mount Brydges cluster. The second one occupied villages, camps, and hamlets in the Byron area. A third community lived outside the study area, in the Arkona area. Interaction between the Mount Brydges and Byron communities and the Arkona one is inferred in the form of the former two communities going to the vicinity of the latter one to obtain Kettle Point chert and to fish.

Because the Glen Meyer period villages are small and typical of a localized in situ development, it is argued that villages in each community were occupied by less than 300 related individuals, all members of a single lineage or clan. Spouses may have been choosen from an unrelated lineage or clan that occupied a contemporaneous village in an adjacent area. In other words, it is proposed that the Mount Brydges community may have consisted of members of one social group, possibly a single clan, while those living in the Byron community may have represented a separate social unit, possibly a second clan. Direct interaction between the two is hypothesized, based on the necessity to derive spouses from outside of one's own clan, since Iroquoian clans were

exogamous in historic times. Interaction between the two communities within the study area (Mount Brydges and Byron) and the one in the Arkona area also may have been necessitated for this reason.

This arrangement changed considerably when these communities merged to initiate the succession of large Middleport period villages along Oxbow Creek. Here, it can be argued, the village was internally segmented and spouses could have been derived from different clans within a single village. This is all the more likely if each of the original communities that merged at Oxbow Creek was made up of one clan, creating three such social units at the Middleport period villages. Representatives of these different social units could have sat on a village council presided over by a chief or headman. Members of these units may have chosen to live as separate groups within the village, perhaps in houses that were oriented in different directions.

By the time the Iroquoian community under study reached the Lawson site, social and political organization had probably attained a level of complexity closely resembling that documented by the Jesuits for the historic Neutral. A population exceeding 1400 may have had their affairs coordinated by a single "chief" or, more likely, a war chief and peace chief each presiding over their respective councils. Other officials who sat on these councils may each have been delegated the responsibility for looking after specific affairs, as documented by Brebeuf, Chaumonot, Daillon, and others for the historic Neutral and Huron (JR 18: 37-45; 21:187-237; see also Jury 1977:17).

Throughout this five-century evolution, the roles of men and women appear relatively unchanged in terms of who did what and the overall

economic importance of each. In the Glen Meyer period, women probably were responsible for gathering wild plant foods, especially acorns. In later times, they continued to harvest wild plant foods, but the emphasis had shifted from collecting acorns to planting, cultivating, and harvesting corn, beans, and squash. Throughout this sequence, men played key roles in hunting and fishing. We do not yet have enough quantifiable subsistence data to determine if the percentage of different faunal remains changed as a consequence of the increased dependence on horticulture. We also do not know if the role of men changed as the importance of women as food producers increased, as Witthoft (1959:33) once suggested. Although his suggestion is a challenging one, it must be remembered that, as horticulture increased, the role of men in clearing fields did also. Men also had to work harder to build larger and more substantial houses and to fortify villages more heavily. It is by no means obvious that male labour declined in social value as Iroquoians relied more on a horticultural diet.

5. WARFARE

Various types of evidence are used to infer whether or not conflicts took place among native groups in prehistoric times and to identify the groups that may have been involved. Archaeologists employ these same clues to estimate the intensity of warfare and how this changed through time. The evidence on which Iroquoian archaeologists rely includes settlement pattern data, such as village locations, palisades, house orientation, house placement, internal cordons, and other defensive measures as well as artifactual data, such as scattered human bone (which

is interpreted as evidence of prisoner sacriface, especially when it occurs in middens), "foreign" ceramics, and cherts not native to the region. We must be cautious, however, in interpreting the latter two items as evidence for warfare since they also may have entered a region as a result of intergroup exchange. The latter subject will be addressed in a separate section.

A. Glen Meyer Period

Most Glen Meyer period sites excavated to date were surrounded by single or double rows of palisade. Yet, palisades are equivocal and need not have been erected as defensive measures. They also may have been constructed as a means of defining the limits of a site or as protection against snow or the prevailing winds (Noble 1975b:38, 40). A single row of poles would be effective as a fence to keep out animals but, unless kept low, would have been vulnerable to strong winds. The single palisade around the Kelly hamlet may have acted as "a structure to keep out wild animals" (Williamson 1982b:9). These "wild animals" (i.e., bears, wolves) may not have been dangerous, but they would have created a nuisance by trying to steal food from within the village and routing through the garbage. We must conclude that palisades probably served multiple functions, only one of which was defence from human enemies.

It can be assumed that palisades were mainly defensive in nature when more than a single row occurs. Two or more rows suggest that a more formidable defensive barrier was desired. Two rows were present at the Roeland village in the Mount Brydges cluster (Williamson 1982a:[illegible]-33). Double rows of palisade have also been encountered at Glen Meyer period villages on the Norfolk sand plain, such as DeWaele (Fox 1976:177-178) and

Van Besien (Noble 1975a:8). Noble concluded (ibid., 9) that the palisades at Van Besien left "little doubt that wartime defence was a major village concern".

The appearance of two or more rows of palisade above the ground remains speculative. Historical accounts indicate that three rows joined together with the inner and outer rows crossed at the top may have been a standard Iroquoian defensive barrier (Pendergast 1980:12-19). These references, for which there is some archaeological confirmation, apply, however, to the historic Huron, St. Lawrence Iroquoians, and New York State Iroquois, not to the prehistoric Iroquoians in southwestern Ontario. Available data from prehistoric sites of the three Iroquoian periods in southwestern Ontario suggest that rows of palisade were erected in pairs rather than in rows of three. For example, there were two rows at Nodwell (Wright 1974a) as well as at the Roeland, DeWaele, and Van Besien sites. The four rows of palisade at Southwold (Smith 1977) were aligned in two pairs with each pair associated with an earthwork and the earthworks separated by a distance of 5 to 11 m. This pattern also occurred at Lawson, with the pair of palisade rows in each of two earthworks separated by a distance of 5 to 10 m. The northwest end of Lawson was protected by six rows of palisade aligned as three pairs. At both Southwold and Lawson, extra rows of palisade were erected but in most cases these extra rows were placed less than 50 cm from an existing row and can therefore be interpreted as a single row of closely spaced and staggered posts rather than as a separate third row.

Additional evidence of warfare for the Glen Meyer period is limited. Some scattered human bone was found at Roeland (Williamson 1982a:34), but apparently not in sufficient quantities to suggest that large scale

warfare took place.

As noted in the Settlement Pattern section above, the interpretation of Glen Meyer period village patterns is complicated by numerous overlapping houses and expanding or contracting palisades. It is generally difficult to determine with certainty which houses were contemporaneous and thus statements regarding house placement and orientation cannot be made. Because of this we do not know if houses were constructed in such a manner as to increase the defensive nature of the village. This could have been done by orienting them parallel to each other to create long, narrow corridors as in later Iroquoian villages (see below). Yet some Glen Meyer period villages on the Norfolk sand plain (e.g., DeWaele and Van Besien) had internal cordons (Fox 1976:178; Noble 1975a:9-10), which are interpreted as a defensive measure that was used to block access to certain areas of the site or to channel attackers in certain directions (see Fox 1976:187).

These data suggest that peoples of the Glen Meyer period were concerned about protecting themselves. Presumably they would not have been concerned if they had not been threatened by attack. Still, it is not possible to comment on the nature of this threat. The frequency and/or intensity of warfare does not appear to be as great as it was in later times. The identity of the enemy is also not clear at this time.

B. Middleport Period

The shift of communities from sandy soils to heavier loams and the joining together of small communities to form larger ones (which could itself be evidence of a common external threat) saw concomitant changes in

social and political organization, which have been documented earlier in this chapter. These resulted in the construction of well-planned villages. It can be argued that the placement and orientation of houses within Middleport period settlements were arranged, at least in part, to increase their defensive capabilities.

Although there are no extensively excavated villages of this period within the study area, some idea of their internal arrangements can be perhaps inferred from the Nodwell site (Wright 1974a). At Nodwell there was a double palisade and the houses seem to have been placed and oriented so as to enhance village defences. For example, House 9 could have been erected parallel to House 10, but instead the west end was shifted southward to create a V-shaped corridor between those two structures. House 12 was placed at the apex of this corridor and the arrangement of these three houses is such that attackers would have been channelled down corridors that could easily have been defended. Similarly, House 6 could have been erected parallel to Houses 4 and 7, but instead was placed to create four V-shaped corridors between it and Houses 2, 4, 7, and 9. In addition, the east end of House 11 and the east side of House 12 were placed very close to the inner palisade, once again creating long, narrow corridors (ibid., 7). Houses located close to or abutting a palisade may have been a defensive measure, but in doing so it would have made them vulnerable if the palisade were set ablaze.

This pattern of Middleport period house construction was also followed in the Milton area. For example, houses at the Crawford Lake site were positioned to create long and narrow as well as V-shaped corridors (Finlayson and Byrne 1975:36).

Wright (1974a) has suggested that the Nodwell village, located 128 km from the nearest known contemporaneous villages to the east, was situated near the shores of Lake Huron to allow the exploitation of fish resources and to trade with northern Algonkians. Yet he also proposed that the Nodwell population did not remain in that area because of "endemic guerrilla warfare" with contemporaneous peoples living west of Lake Huron (ibid., 305-306). By this he meant the Central Algonkian-speaking peoples.

The heavy palisading of Middleport period villages and the defensive placement and orientation of houses indicate that warfare was of some importance at this time. The scattered human bone that has been recovered from Nodwell (Stewart 1974), Crawford Lake (W. D. Finlayson, personal communication), and the Middleport period type site (Wintemberg 1948:39) further corroborates this statement.

It was hypothesized above that socio-political organization for this period would have required the existence of village councils. The evidence for this included village size and the coordination that would have been required to plan and execute villages in a systematic manner. Large-scale coordination would also have been necessary for a movement on the scale indicated for the inhabitants of the Nodwell site. Similar coordination would also have been needed to construct earthworks, an extremely labour-intensive task. In southwestern Ontario, the earliest evidence for earthworks comes from the Middleport period Pound site. Although these mounds are no longer visible, their presence was reliably documented in the 1890s by David Boyle (1892:11-12; 1898:44; see also Fox 1976:172).

Iroquoian earthworks, like palisades, are equivocal but are generally regarded as defensive in nature. Evidence from Lawson (discussed below) suggests that they were mounded up to support the base of a double row of palisade, with the crest of the mound located midway between the two rows. Lawson (Pearce 1980a) and Southwold (Smith 1977) both had ditches in front of and between double sets of earthworks. These ditches may simply have been the means of obtaining dirt to construct the earthworks but they also may have created a more formidable barrier (Pearce 1980a:15). A ditch in front of an earthwork could double its height and would also have created the impression that this barrier was higher than it actually was. Therefore, the presence of earthworks on some Middleport period villages, as well as on several later Neutral period sites, suggests that the threat of warfare was great enough to cause some peoples to take great time and effort to defend themselves. A further discussion of the spatial and temporal distribution of earthworks is contained in the Spread of Ideas section later in this chapter.

C. Prehistoric Neutral Period

The Lawson site has been described as a prehistoric "fortress" (Pearce 1980a, 1980b) and there is just cause for doing so. Numerous features of the site, from its actual location to the placement and orientation of houses, can be interpreted as defensive in nature (Pearce and Smith 1980a). This leads to the conclusion that considerable amounts of time, energy, manpower, and coordination were expended to protect the village and its inhabitants.

A reconnaissance of the London area today reveals that Lawson was strategically placed to secure natural protection. It appears to have

been deliberately situated to make advantageous use of one of the best naturally-occuring protective barriers in the region. This consists of steep slopes on three sides of a flat peninsula of land formed by the confluence of two watercourses. The eastern edge of the site is naturally defined by a 30 to 45 degree slope which drops 21 m down to Medway Creek. The western and southern edges of the site are naturally defined by a 15 to 30 degree slope which drops 16.5 m down to the Snake Creek ravine. The severity of this slope decreases at the southeast end of the site, forming a gentle (10 degree), but totally natural, incline down to the confluence of these creeks. This no doubt served as the main entrance to the site and provided ready access to the water. Yet, because this entrance incline is only 10 m to 20 m wide, it could easily have been defended in times of conflict.

The northern to northwestern end of the site opens onto a broad expanse of relatively flat land and was therefore vulnerable to attack. This area of Lawson has been totally excavated, revealing that a complex defensive system had been constructed there. This included six rows of palisade with staggered gaps to create an entrance maze, two lookout platforms stockpiled with throwing rocks, two earthworks at the base of the inner four rows of palisade, and a ditch outside the outermost palisade (Pearce 1980a, 1980b). The original palisade around the north end of the core village was equally complex. It consisted of six rows of palisade as well as two earthworks and two ditches. The eastern and western edges of the site were naturally protected by steep slopes, but the inhabitants nevertheless constructed two rows of palisade supported for part of the distance by a single earthwork. The south end of the site which had the gentle entrance incline was defended by four rows of

palisade, two earthworks, and two ditches (Wintemberg 1939; Pearce 1980a; 1980b; 1980c).

The defensive features of the north and northwest end of the site also included short rows of posts running diagonally between palisade rows. These increased the complexity of the entrance maze as they blocked corridors. It can be assumed that the villagers would know how to negotiate this maze successfully, but attackers would get lost in the multitude of corridors. This would alert the site inhabitants to their presence if they attempted to enter.

Even if the enemy managed to gain access to the village at this end of the site, they would have been confronted with a series of long, narrow corridors created by the arrangement of longhouses and cordons. The expansion area of Lawson contained nine longhouses, all oriented parallel to each other and separated by passages that averaged one to two metres in width. There were cordons connecting the northwest ends of Houses 6 and 8 to the inner palisade and the northwest end of House 3 abutted the inner palisade. All of these features can be interpreted as attempts to confuse the enemy and channel them down corridors that could have been easily defended (Pearce and Smith 1980a). It can be assumed that all of these defensive precautions were employed from the time Lawson was first settled. Although only minor excavations have taken place within the core village, we know that House 2 abutted the inner palisade.

This concern with defence was not unique to Lawson, as many of these same features have been noted for the Southwold Earthworks. In addition to multiple palisades, earthworks, ditches, cordons, houses abutting palisades, and houses aligned to create long, narrow corridors, Southwold

had cordons attached to houses to lengthen corridors, and possibly an option not documented elsewhere: the deliberate lengthening of houses as a defensive measure (to increase the length of a corridor and/or block access to an open area) rather than as a response to population increase (Smith 1977; Pearce and Smith 1980a). Another feature unique to Southwold was an internal water supply, which was provided by a creek running through the site, thus ensuring access to water if the settlement were under attack or siege (Smith 1977).

There is no doubt that the Lawson inhabitants were frequently engaged in warfare. In addition to the defensive precautions revealed by settlement pattern data, artifactual remains indicate that warfare and torture were not uncommon. Most significant among these are the large number of pieces of fragmented human bone, some of which display evidence of torture in the form of cutting, burning, or crushing. A majority of these were recovered as single pieces within middens. Scattered pieces of human bone were found in most of the middens excavated by Wintemberg (notes on file, Archaeological Survey of Canada) and have been recovered by the more recent Museum of Indian Archaeology excavations. The presence of a single human femur in a pit in House 8 was noted earlier. Human skull gorgets were also found on this site by Wintemberg (1939:89) and he noted an awl made from a human fibula (ibid., 31).

The direction of this warfare may be inferred from artifacts found at Lawson. Evidence of a concern with the west includes Kettle Point chert from the shores of Lake Huron, other types of chert from Michigan and Ohio, and the Parker Festooned pottery type. While these items may be used to support the idea of warfare with a western enemy, they may also be used as evidence for peaceful activities (discussed in the following

section). Some of these items, particularly Kettle Point chert, may have been obtained while people from the Lawson site were on fishing expeditions or trips intended specifically to acquire this chert that did not involve interaction with other groups. For purposes of the present section, it is sufficient to note that these items occur at Lawson in measurable quantities. In particular, 85.8% of the total number of pieces of lithic debitage were Kettle Point chert (Janusas 1983:108) and there were isolated occurrences of other western cherts (Bayport, Plum Run, Upper Mercer, Stoney Point)(identifications by W. Fox and S. Janusas). The latter pieces were finished artifacts, not cores or debitage, suggesting the deliberate exchange of artifacts, not the collection of "foreign" chert. In addition, 4.2% of the typable ceramic rim sherds from Lawson were of the Parker Festooned type (Pearce 1980a:73).

The exchange of goods, whether peaceful or otherwise, between peoples in Michigan and Ohio and peoples in Ontario was reciprocal, as certain sites in the former area reflect a number of influences from eastern (i.e., southwestern Ontario) sources (Fitting 1970:190; Brose 1976:46).

It is ethnohistorically documented that the historic Neutral were fighting "le Nation du feu" (Fire Nation) who occupied eastern Michigan and northern Ohio in the seventeenth century (JR 21:195; 27:10). The Fire Nation has been equated with the Mascouten tribe (Goddard 1972; 1978:668), also known as the Assistaeronon (Stothers 1981:47). Yet in prehistoric times, it may not be possible to distinguish the many Central Algonkian tribes (i.e., Fox, Kickapoo, Sauk) from each other (Goddard 1972; 1978:668; Fitting 1970:191). Thus, it is more proper to refer to potential interaction in prehistoric times as being with the Central Algonkians rather than with the Mascouten alone.

Archaeological data from the historic Neutral Hamilton site (Lennox 1981) and the Indian Hills site on the Maumee River in Ohio, identified as a protohistoric Assistaeronon (Mascouten) village (Stothers 1981:47), has led to the conclusion that the historic Neutral from the Hamilton site raided central Algonkian villages in Michigan and Ohio, such as Indian Hills, and brought back captives (ibid., 52). This conclusion has been reached on the basis of ethnohistoric documentation and ceramic analysis, in particular the presence of large quantities of shell-tempered pottery at the Hamilton site, a trait not common on historic Neutral villages but occurring in 100% of the sherds from Indian Hills (ibid., 52). Some of this shell temper occurred in sherds from ceramic vessels that are typologically similar to ones from Michigan and Ohio Algonkian sites rather than to historic Neutral ones (Lennox 1981). Although Lennox initially attributed some of these sherds, and shell-tempering in general, to influences from the Wenro (ibid., 349), he has since (personal communication) taken into consideration the evidence from Michigan and Ohio and now favours the above interpretation.

The Indian Hills site is placed within the Indian Hills Phase of the Sandusky Tradition, which was preceded in time by the Fort Meigs and Wolf Phases. These phases were apparently distinct from the contemporaneous Younge and Springwells Phases of the Western Basin Tradition (Stothers 1981:51). While the terminology used to describe the culture history of the Michigan-Ohio area has been and continues to be altered (see Fitting 1965; Fitting and Zurel 1976; Stothers 1975b, 1981; Stothers, Graves and Conway 1982), there is little doubt that the prehistoric peoples in that area were ancestral to the historic Algonkian-speaking Mascouten and Kickapoo (Ontarraronon)(Stothers 1981). It is also known that some of

these peoples had lived in extreme southwestern Ontario since at least A.D. 500 (Riviere au Vase Phase)(ibid.; see also Fox 1982a).

The consensus among researchers is that extreme southwestern Ontario was occupied by Algonkian-speaking peoples, who inhabited sites such as Weiser, Parker, and Liahn 1 (Stothers 1981:51). Although some sites, such as Parker, have yielded a limited amount of characteristically "Neutral" pottery (Lee 1958b), just as the Lawson site has yielded Parker Festooned sherds, the sites in extreme southwestern Ontario are best interpreted not as part of the Ontario Iroquoian Tradition (see Stothers 1979; Fox 1982a). Rather, they are attributed to the same Central Algonkian-speaking peoples who lived in Michigan and Ohio and later evolved into the historic Mascouten, Kickapoo, Fox, and Sauk.

A recent article by William Fox (1980a) expounds some of the arguments concerning the identity of the belligerants involved in the warfare that took place in the fifteenth and sixteenth centuries. He noted that only one Iroquoian (i.e., prehistoric Neutral period) rim sherd was found at the Weiser site and that most of the triangular projectile points from that site were made from Bayport chert, which outcrops in Michigan, rather than from the more locally available Kettle Point chert. In contrast, the Lawson site had Parker Festooned pottery and no projectile points made from Bayport chert. Since 89% of the side-notched projectile points at Weiser were made from Kettle Point chert more characteristic of the Lawson site and since these same artifacts conformed in size and shape to those found at Lawson, and also because Parker Festooned pottery that is more characteristic of Weiser occurred at Lawson, Fox postulated (ibid., 12) "that the Lawson people were procuring the pots, while the Weiser people were 'getting the points'." In other

words, Lawson people were fighting the Weiser people at the latter site, resulting in the loss through warfare of side-notched projectile points made from Kettle Point chert. They were then returning to Lawson with female captives who continued to manufacture pottery in the style to which they were accustomed (i.e., the Parker Festooned type). Although we cannot positively confirm at this time that Weiser and Lawson were contemporaneous, this is a plausible explanation and one that suggests a continuous state of hostility between Iroquoians and Algonkians. However, a recent trace-element analysis of Parker Festooned sherds from the Lawson site revealed that they contained no magnetite, which was a common element in most of the Parker Festooned or similar type sherds from the Weiser site (Trigger et al. n.d.). For an alternative explanation for the presence of Parker Festooned pottery at Lawson, see the following section on Intergroup Exchange.

Arguments could also be made for a state of hostility between Iroquoian peoples in the London area and the Algonkian inhabitants of the Parker Earthwork site near Sarnia (Lee 1958b). Even though Parker is close to the Kettle Point chert outcrop, its inhabitants made little use of this material (Fox 1980a:7). The Iroquoian people in the London area apparently "controlled" the outcrop at Kettle Point, since they used vast quantities of this chert, while very little of it occurs on contemporaneous Central Algonkian sites closer to the source (Weiser, Parker). This is reminiscent of the claim that the Rev. W.R. Harris (1901:33) made many years ago about the control that was exercised by the historic Neutral over the sources of Onondaga chert outcropping along the Niagara and Onondaga escarpments in the Hamilton-Brantford area. That a community could "control" a valuable resource such as chert says something

of its inhabitants' political dominance over a tract of land.

The aforementioned trace-element analysis of Parker Festooned sherds included ones from the Lawson and Parker Earthwork sites, as well as typical prehistoric Neutral period sherds from Lawson. This study revealed three distinct clusters of elements within these three samples, and demonstrated that the Parker Festooned sherds found at Lawson did not originate on the Parker site. Neither is it likely that these sherds were made by Parker site captives residing at Lawson (Trigger et al. n.d.). The Weiser site was ruled out as a source for these sherds based on the absence of magnetite in the Lawson sherds, so we are unable to conclude at this time where these sherds originated. This study did identify significant differences between the Parker Festooned sherds and all other sherds from Lawson, reinforcing our belief that these Algonkian-like vessels were made at some place other than Lawson.

D. Summary

Anthropologists have suggested that three themes motivated Iroquoian warfare: the desire of young men to acquire personal prestige; avenging the injuries inflicted by one tribe or confederacy on another; and obtaining prisoners for torture and sacrifice. These three themes were not mutually exclusive, but were intricately interwoven to compliment and reinforce each other (Trigger 1969:52).

It is proposed that warfare or conflict of some nature existed during the Glen Meyer period, although the evidence for this is limited to the presence of double palisades around some villages of this period and internal cordons and scattered human bone within them. There is more

evidence of a concern with warfare during the Middleport period. Stronger palisades now surrounded villages and earthworks were constructed at some sites for additional fortification. Houses were also deliberately sited within villages to create corridors that would channel attackers in certain directions and could easily be defended. By the prehistoric Neutral period, there is evidence that warfare was very intense, necessitating the elaborate defensive measures exemplified at sites such as Lawson and Southwold. These measures now included the choice of village location. Artifactual data, in particular human skeletal remains with burn marks or evidence of crushing, suggest that several forms of torture and wounds were inflicted upon enemy captives at Lawson.

This warfare continued into the historic era, when historical records indicate that the Neutral were pitted against the "Fire Nation". Recent archaeological data confirm this documentation and extend the conflict between the Iroquoians in southern Ontario and the Central Algonkians in extreme southwestern Ontario, Michigan, and Ohio back into prehistoric times. It has been proposed that this conflict was going on circa A.D. 1500 between peoples in the London area and those who lived at sites such as Weiser and Parker. It is not known whether this conflict was already under way circa A.D. 1000. Yet, since Glen Meyer period sites were fortified and there were precursors to the Algonkian populations in extreme southwestern Ontario, Michigan, and Ohio at this time (i.e., Riviere au Vase, Younge, and Springwells Phase components), it is possible this 650-year "range war" (Fox 1980a:12) had already started. There is no archaeological evidence of an alternative foe for the prehistoric Iroquoians in the London area in the form of peoples living to the south or east. It is unlikely that communities in southwestern Ontario had been

fighting each other during the Early Ontario Iroquoian Stage if, as was proposed earlier, they were intermarrying. Intermarriage was not required in later periods, when most villages were occupied by more than one clan, and it is therefore possible that various southwestern Ontario Iroquoian groups were at war with each other. Such warfare could have resulted in the spread of ideas, especially ceramic traits transmitted by female captives among the Iroquoians within that region. These traits would have been transmitted over longer distances by single events than ones that were transferred as a result of intermarriage between neighbouring communities. Heidenreich (1971:228) noted that in 1623 some Huron attempted to organize a war party to fight the Neutral but were dissuaded from doing so (Wrong 1939:151, 157). This, however, occurred after the Huron were heavily involved in European trade and may not indicate a state of hostility between the Huron and Neutral in earlier times. Regardless of the identity of the participants in this warfare, it may have arisen as conflict over hunting territories (Fox 1980a:12) and other resources. If the Iroquoians in southwestern Ontario "controlled" the chert outcrop at Kettle Point and other resources in that area, part of that warfare may have been prompted by measures taken to defend those resources from others. Yet there is no evidence that an Iroquoian garrison was permanently stationed there to facilitate this defence. Nevertheless, the small quantities of Kettle Point chert found on nearby Central Algonkian sites suggests that their defence was effective.

Once started, this conflict increased in intensity and was not concluded until the New York State Iroquois dispersed the Neutral in the 1650s. It is possible that in order to secure more beaver trapping areas, the historic Neutral began to drive the Central Algonkians farther west in

the 1640s before they themselves were attacked by the Iroquois (Trigger 1976:624-625).

6. INTERGROUP EXCHANGE (TRADE)

Problems with the archaeological interpretation of prehistoric intergroup exchange arise from the fact that ideas as well as artifacts may be "exchanged" between populations as a result of warfare, marriage, and other forms of social interaction. In addition, it is suspected that numerous objects made from perishable materials may have been exchanged that have not survived on archaeological sites. These include baskets, hides, foodstuffs, and wooden artifacts. As a result, we do not know the full range of exchanged items. Finally, those objects that do survive on sites may not have arrived there as a result of direct trade but rather through various intermediaries. The following is a discussion of material objects which may have been acquired by intergroup exchange (trade). I will not discuss in detail the nature and ramifications of this exchange (see G. Wright 1967:181-197; Jamieson 1979:141-147). In a subsequent section on Spread of Ideas, the concept of diffusion and other modes of intergroup interaction will be discussed.

A. Glen Meyer Period

It is known that prior to the Early Ontario Iroquoian period, a wide variety of far-reaching trade networks existed. This was particularly true for the Middle Woodland period, when there were connections between the Hopewellian Interaction Sphere centred in the Midwest-Riverine area (Struever and Houart 1972) and contemporaneous groups in southwestern (Saugeen)(Finlayson 1977) and southeastern (Point Peninsula) (Johnston

1968) Ontario. Items exchanged included silver, copper, mica, marine shell, and chert, either in the form of raw material, blanks, or finished artifacts. These came from diverse sources and the exchanged materials criss-crossed eastern North America (Spence 1983). Trade networks that involved southern Ontario are also known for the Late Archaic and Early Woodland periods. These included the Meadowood complex and its associated mortuary ceremonialism (Spence, Williamson, and Dawkins 1978:33-46; Granger 1978).

Yet, it appears that the quantity of trade goods and established networks diminished rapidly in southern Ontario at the end of the Middle Woodland period. This was no doubt partially associated with the decline of mortuary ceremonialism and Hopewellian influences. Certainly, the few known early Iroquoian burials are not accompanied by elaborate grave goods, such as are found in Middle Woodland burial mounds.

Whatever the reason, few objects from Glen Meyer period sites can be attributed to trade. Specific examples of known traded materials include four commodities recovered from the Van Besien village on the Norfolk sand plain: steatite, probably originating from Pennsylvannia; native copper from the shores of Lake Superior; red ochre (hematite) from the Mattawa River district in northern Ontario; and chert indigenous to Ohio (Noble 1975a:48). At Van Besien these materials were found to have been fashioned into a single steatite pipe; a possible copper awl; red ochre slips on a few ceramic vessels; and 19 items of chert. Raw chert was exchanged rather than finished artifacts, since the latter included 16 flakes, 2 cores, and only one artifact, an end scraper (ibid.).

The four materials noted above have been found on several other Glen Meyer sites, albeit in minor quantities. This indicates a possible continuation of earlier Middle Woodland trade networks as well as interaction with contemporaneous peoples living between the southwestern Ontario recipients and those at or near the sources of these materials. Additional examples of goods that were probably traded include Ohio chert recovered from the earliest known village of this period, Porteous (Noble and Kenyon 1972:17), and minor quantities of native copper, steatite, and red ochre from other sites on the Norfolk sand plain (Wright 1966:37-39). The Dewaele village yielded two rolled beads of native copper and one of the few examples of marginella shell (originating along the Atlantic seaboard) known in southwestern Ontario for this period (Fox 1976:190). Conch shell, also from the Atlantic seaboard or the Gulf of Mexico, was found among the Princess Point or Glen Meyer period burials at the Surma site in Fort Erie. This shell was in the form of beads and the burials also were accompanied by a steatite pipe (Emerson and Noble 1966:77-84; Stothers 1977:75). Several Early Ontario Iroquoian sites in the study area had varieties of chert not indigenous to southwestern Ontario. The only other known traded commodity from these sites was a small steatite bead from Smale (Wright 1966:38).

B. Middleport Period

Possible traded commodities known for the Middleport period are even fewer than for the Glen Meyer period, but this may be due to sampling, as fewer of the later sites have been investigated. Nevertheless, Wintemberg (1948:3) noted that no materials suggestive of trade were found at the Middleport period type site. Yet some limited trade did go on during this

period. Red ochre and a pendant made of marginella shell were recovered at the Uren site (Wintemberg 1928:35; M. Wright 1979:62).

Wright (1974a:303) proposed that the occupants of the Nodwell site moved 128 km westward from the nearest known cluster of contemporaneous sites in Simcoe County to settle near the shores of Lake Huron, in part in order to be able to participate in a lucrative trade with Algonkian-speaking tribes that lived along the north shore of Lake Superior and the north and west shores of Lake Huron. The recovery of native copper artifacts at Nodwell, identical in form to ones used by those Algonkians, as well as possible Algonkian ceramics, support this hypothesis (ibid., 303-305). It is also likely that the people at Nodwell were interacting with Algonkians who lived at sites such as Juntunen in Michigan. The last major occupation at this multicomponent, stratified site has radiocarbon dates of A.D. 13^^ +/- 75 years (M-1188) and A.D. 1330 +/- 100 years (M-1391). Excavations there uncovered a typical Iroquoian longhouse and ossuary, as well as some Iroquoian ceramics (McPherron 1967:267). This level also contained more copper artifacts than all other levels at this site (ibid.). McPherron (ibid., 278) noted that it was during this phase of occupation that external relationships, previously directed westward, shifted eastward towards Ontario. He also suggested that the longhouse and ossuary may have resulted from the acculturation of these Algonkians by the Ontario Iroquoians (ibid., 300). There is no better known candidate for the latter than the occupants of Nodwell, a site that has a radiocarbon date of A.D. 1340 +/- 75 years (S-503)(Ramsden 1977:32). It can also be noted that a Macomb Linear ceramic vessel, similar to ones from Juntunen, was found at Nodwell (Wright 1974a:212), supporting the hypothesis of interaction between these

two sites. Wright (ibid., 305-306) believed that this interaction was more hostile than friendly.

Non-indigeneous items from the Edwards, Drumholm, and Alway sites in the study area were few in number. Edwards had significant (between 10 and 50%) percentages of Kettle Point chert in most lithic artifact classes and a single projectile point made from a localized chert which outcrops only on the lower Sydenham River near Lake St. Clair (S. Janusas, personal communication)(Pearce 1982a:15). As noted elsewhere, however, these cherts may have been obtained without the London area Iroquoians interacting with anyone.

C. Prehistoric Neutral Period

Certain items of non-local origin were recovered from the Lawson site, but not enough to state that there was a discernible increase in trade. Many of these items are identical to those found on earlier sites, indicating a continuation of existing networks. These items include native copper, red ochre, marginella shell, and cherts native to the Michigan-Ohio area, such as Bayport, Plum Run, Upper Mercer, Ten Mile Creek, and Flint Ridge. The latter are each represented by one or two projectile points. There were also three artifacts made of cherts outcropping to the east, in the Niagara Peninsula. These include single examples of Ancaster, Selkirk, and Goat Island chert projectile points. The chipping debitage from Lawson has not yet been searched to see if the non-indigenous cherts are present in a form other than finished artifacts.

Wintemberg (1939:10-11) reported a single copper nugget and a copper knife or spearhead. These may not be related to the occupation of the

site during the prehistoric Neutral period, since a small Archaic period component exists on the same property. However, the 1980 excavations at Lawson uncovered three tiny copper fragments in the ditch around the original core village. Only a handful of red ochre nodules have been found and there were two "paintstones" with deep red stains. Marginella shell was used on Lawson for both beads and pendants. Wintemberg (ibid., 14) reports 2 beads and one pendant. The more recent excavations by the Museum of Indian Archaeology have recovered two or three additional shell beads.

Wintemberg (ibid., 10) identified two additional materials from Lawson that have not yet been identified on any of the other Iroquoian sites in the study area, nor have they been encountered during the more recent excavations at Lawson by the Museum of Indian Archaeology. These were yellow ochre and "a reddish, jaspery material". The source of the former is unknown, but the latter may refer to Pennsylvannia red jasper, which may have entered Ontario along with the several types of chert from the Michigan-Ohio area.

One additional item worthy of note recoved by the 1976-1980 excavations at Lawson is a steatite pipe bowl.

D. Summary

Throughout the Iroquoian sequence, there was a relatively minor "trickle" of non-indigenous materials into the London area, and more generally into southern Ontario. This suggests continued intergroup exchange. The evidence is predominantly limited to four basic commodities: native copper, red ochre, marginella shell, and cherts

outcropping in Michigan and Ohio; a few other foreign materials such as steatite also occur.

These items suggest a persistence of earlier trade networks. Yet trade does not appear to have been either as intensive or as extensive as it had been between the Late Archaic and Middle Woodland periods. As a consequence, it can be concluded that trade involving foreign or exotic materials had little impact on developing Iroquoian culture and that the Ontario Iroquoians did not actively search out these materials to make particular artifacts. Nor does there appear to have been a consistent trade in "finished" artifacts between any two groups.

The only traded commodities that could have passed through New York State were marginella shell and possibly steatite and red jasper from Pennsylvannia. In contrast, various types of chert originating in the Michigan and Ohio areas, along with Parker Festooned pottery, seem to indicate greater interaction with peoples to the west than to the east. This was particularly true for the prehistoric Neutral period when it seems that southwestern Ontario Iroquoians were interacting more with the Algonkians living in extreme southwestern Ontario, Michigan, and Ohio than they were with contemporaneous Iroquoians to the east. It is noteworthy that the occupants of the Lawson site used vast quantities of Kettle Point chert or locally available Onondaga chert, but made little or no use of cherts originating along the Niagara Escarpment (i.e., Selkirk, Ancaster, or Goat Island cherts). In view of the conclusions reached in the Warfare section above, it seems likely that this interaction with Central Algonkians was, at least during the prehistoric Neutral period, of an unfriendly nature. While it is possible to "trade" with a former enemy during times of peace, it is uncertain if there really were times of peace

during this period. Most of the interaction was probably of a hostile form.

7. SPREAD OF IDEAS

In the latter part of Chapter 3, I proposed the concept of an "Iroquoian Interaction Sphere" to explain the spread of ideas among the northern Iroquoian-speaking peoples by means of stimulus diffusion. This section will expand that discussion by examining aspects of Iroquoian prehistory in the London area that can be elucidated by means of these concepts.

A. Glen Meyer Period

Specific traits that can be explained in terms of intersocietal interaction during this period, as well as all subsequent periods of Iroquoian prehistory, include aspects of ceramic stylistic similarity. It is known that a number of specific ceramic motifs and techniques were used by all or most Iroquoians at certain points in time and that changes in these motifs and techniques between the Glen Meyer and Middleport periods in Ontario were paralleled by similar changes between the Pickering and Middleport periods in southeastern Ontario as well as the Owasco and Oak Hill periods in New York State. The example cited earlier, the occurrence of the Lawson Incised or similar Richmond Incised pottery types on sites attributed to the ancestors of all of the known historic Iroquoian tribes, illustrates this point.

Specific parallels between the Glen Meyer period in southwestern Ontario, the Pickering period in southeastern Ontario, and the Owasco

period in New York State, are evident simply by examining the plates and text of Wright (1966) for Glen Meyer and Pickering and Ritchie (1969) for Owasco. For example, Ritchie (ibid., 290-293) discusses Owasco period pottery in terms of elongated bodies, conoidal bases, outflaring (i.e., collarless) rims, stamped vertical or oblique motifs executed with a cord-wrapped stick, cord malleated bodies, and the use of "nodes and bosses". All of these traits were repeated on both Glen Meyer and Pickering pottery in Ontario. There were differences between the three areas at this and all subsequent times, but there were also a number of other striking similarities, from artifacts to settlement patterns. These similarities are aptly demonstrated in three articles in the Northeast volume of the Handbook of North American Indians by Fenton (1978), Tuck (1978b), and Trigger (1978d).

It is also likely that specific ceramic traits spread within more limited geographical regions, such as southwestern Ontario or certain areas of that region. Glen Meyer communities were, it is proposed, interacting by means of intermarriage and this could have facilitated the spread of ceramic and other traits among neighbouring communities (see also Whallon 1968). In later periods certain ceramic traits were largely confined to specific regions, indicating that intersocietal contact was limited both spatially and temporally. The discussions of the Pound Necked and Iroquoian Linear pottery types in Chapter 5 exemplify this.

While these similarities across space can be illustrated, it is also necessary to attempt an explanation for them. Intersocietal contact is indicated, but the possible reasons for it must be explored. In earlier sections of this chapter, I suggested that villages of the Early Ontario Iroquoian Stage in southwestern Ontario may have been composed of single

lineages. This would require intercommunity contact in order to obtain spouses. Thus, social organization may be one factor promoting intersocietal contact. It was also proposed that the Ontario Iroquoians in the London area were travelling to the shores of Lake Huron to collect Kettle Point chert and to fish. Thus, raw material acquisition and subsistence activities are other factors potentially resulting in intersocietal contact. Trade by its very nature involved such contact, although evidence presented above suggests that it was not very important to the Iroquoians of the London area. Still, some trade did go on. Some Iroquoian men left the London area on military expeditions, although their final destinations remain somewhat unclear. War parties would, however, have provided opportunities to trade, steal, and borrow goods as well as ideas from other groups. Political factors other than war are another aspect of intersocietal contact. This aspect will be considered in greater detail for the Middleport and prehistoric Neutral periods below.

Archaeological data, therefore, illustrate stylistic similarity in specific ceramic motifs and techniques involving Iroquoians in southwestern and southeastern Ontario as well as contemporaneous Iroquoians in New York State, and Algonkians in Michigan and Ohio. This contact may have involved neighbouring groups or been carried on directly over far greater distances. Opportunities for both local and long-distance contact existed and a variety of factors that are not mutually exclusive have been proposed to account for how it took place.

B. Middleport and prehistoric Neutral Periods

The spread of ideas during these two periods can be documented not only in terms of the stylistic similarities of ceramic vessels but also in

terms of earthworks, ossuary burial (possibly), and specific pipe styles and motifs.

The use of earthworks provides a good example of the spread of an idea throughout large parts of the northern Iroquoian culture area. Guthe (1960:209) and Fox (1976:172) have proposed that the idea of using an earthwork as a defensive measure on village sites was "borrowed" by New York State and Ontario Iroquoians from non-Iroquoians living in Michigan and Ohio. Ultimately, this notion may be tied to the ill-fated "Southern Hypothesis" of Iroquoian origins discussed in Chapter 2.

It is known that some Owasco period (Castle Creek phase) sites, such as Chamberlin, dated circa A.D. 1290, had earthworks (Tuck 1971:29, 34), but no examples are known to date that early in Ontario. The use of earthworks was not common to all Iroquoians, but rather seems to have been limited to certain areas at certain times. For example, significant numbers of them are recorded on village sites in parts of New York State, mainly adjacent to the Niagara River and the eastern end of Lake Erie (i.e., Ripley, Buffam Street, Shelby [Parker 1924; White 1961]), and to certain parts of southwestern Ontario, mainly west of the Grand River (i.e., Pound, Lawson, Southwold, Harrietsville). Earthworks were used in other parts of New York State (Beauchamp 1900) and Ontario (i.e., Roebuck [Wintemberg 1936; Pendergast 1983:49]), and on some historic Petun villages, such as Sidey-MacKay and Melville (Garrad 1975), but not to the extent that they occurred in the aforementioned regions. Thus, earthworks appear to not represent the widespread diffusion of a single trait among all of the Iroquoian peoples as once thought (Guthe 1960), but instead are indicative of the selective borrowing or limited spread of an idea among certain groups at certain times. In particular, the southern Ontario

examples occur on sites dated roughly between A.D. 1400 and 1500. They apparently do not occur before that date, their appearance is limited to only certain sites during that period, and later occurrences are sporadic or non-existent. The ultimate origin of this trait, the mechanisms by which it spread or was borrowed, its apparent correlation with an increase in warfare, and an explanation of why it was used only by certain groups at certain times are topics requiring further research.

Guthe (1960:212-213) proposed that ossuary burial was another example of diffusion from the Michigan and Ohio area into New York State (and Ontario?), as it did not occur on Owasco period sites in New York State. Yet, it will be shown in the subsequent section on Burial Practices that some Early Ontario Iroquoians used "proto-ossuraries". These are small pits containing multiple secondary interments and may be interpreted as a forerunner to the documented ossuaries of the historic period. In addition, ossuary burial per se was limited to only some groups at certain times, while other groups used alternative forms of burial.

The major item whose distribution was explained by diffusion was ceramic pipes in the period circa A.D. 1350-1400. Wright (1966:63) proposed that an elaborate pipe complex diffused into Ontario around that time from the area of New York State containing the ancestors of the historic Onondaga, Oneida, and Mohawk tribes. He did this mainly because he could find no antecedents for this complex in Ontario while an analogous pipe complex developed in New York State during the Oak Hill Horizon (Lenig 1965). Wright proposed some form of interaction between Ontario's Middleport horizon and Oak Hill; Lenig (ibid.) advanced a similar explanation, believing that Oak Hill sites showed various influences from Ontario. But neither author tried to explain the form or

nature of this interaction. Soon after Wright's diffusion theory appeared, it was questioned by Weber (1970; 1971), who could find no support for it based on her analysis of Iroquoian pipes.

Evidence presented in Chapter 5 indicates the in situ development of the "Middleport pipe complex" in at least three areas of Ontario, beginning in at least two of them in the latter portion of the Glen Meyer period. This casts doubt on Wright's diffusion theory since it provides the local "missing antecedents" for this pipe complex. It also demonstates that the concurrent development of similar pipe styles and motifs throughout the Iroquoian culture area must have been greatly assisted by widespread intersocietal contact.

Following the arguments presented earlier, there would have been less intersocietal contact in the Middle and Late Ontario Iroquoian Stages if the main reason for such contact in the Early Ontario Iroquoian Stage, intermarriage, had been eliminated by having more than one clan living within single villages. Yet it is also proposed that inter-community and inter-regional contact continued throughout the remainder of the Iroquoian sequence in Ontario and New York State and this requires an explanation. It could be that intermarriage continued even if there were several clans living in most communities. It is also possible that political, military, or other social factors contributed to contact after A.D. 1300.

The "warfare-torture-sacrifice-cannibalism complex" of the Iroquoians was "probably a major factor in the formation of large villages, tribal units, and ultimately the several historic confederacies" (Tuck 1978b:330). This argument was based in part on Tuck's (1971) analysis of the sequence resulting in the historic Onondaga, which involved the fusion

of two communities apparently for defensive reasons. Engelbrecht (1978) also claimed that the Iroquois League formed in part as a result of increased interaction related to warfare.

Interaction arising from warfare may be either peaceful or hostile, depending on the parties involved. The effects of hostile interaction have already been discussed. Cooperation against a common enemy may have involved strengthening existing social and political ties, establishing new alliances, and planning cooperative strategies. These and other factors, which need not have been mutually exclusive, would have required intervillage contact and provided increased opportunities for the exchange of ideas. Such meetings need not have been prompted by warfare alone, but warfare was probably an important factor promoting them.

I contend that the widespread stylistic similarity of ceramic pipes could be interpreted as the result of interaction between villages. That interaction could have arisen for several reasons, one of which may have been related to the apparent increase in warfare circa A.D. 1300-1400. This warfare would have created opportunities for contact, both hostile and friendly. If friendly, it may have involved groups of men who, as makers of war, political authorities, and supposedly the only pipe-smokers, met periodically to plan warfare, create new alliances, renew old ones, and conduct other war-related business.

Iroquoian society was organized so that only men held public "office" and handled relations with other groups (Fenton 1978:314-315). It is further believed that only men made and smoked pipes (Woolfrey et al. 1976:9). It is known that, at least in the historic era, the ritual of pipe-smoking (passing a lit pipe) was standard procedure at public

meetings. External relations probably involved meetings of men who smoked during the course of such meetings. This would create an ideal situation for the tranfer of both pipes and ideas about pipes and smoking, between groups at both the intra- and the inter-societal levels. One cannot rule out the symbolic/ideological aspects of pipes and pipe-smoking either, and the tranfer of ideas between groups may have been, as far as pipes were concerned, related to beliefs as much as to the "aesthetic" qualities of pipe motifs and styles. Neither can one rule out the possibility that some women accompanied the men when they travelled to attend meetings or to trade, hunt, fish, or conduct war. It is also possible that men obtained ideas about ceramic vessel decoration while away from home and subsequently conveyed these ideas to the women.

This aspect of Iroquoian research is far from being resolved, and other possibilities must be considered. For example, the pipe complex and other traits may have spread as a direct result of warfare between contemporaneous groups of Iroquoians. We do not have tangible evidence for this, but such a proposal could also be used to explain in part the spread of ceramic vessel traits through the capture of enemy (Iroquoian) women. Warfare among various Middle and Late Stage Ontario Iroquoians may have arisen for a number of reasons, including the possibility that as the custom of intermarriage that had been practiced during the Early Ontario Iroquoian Stage broke down there would have been a concomitant breakdown of ties of alliance between neighbouring communities. There may also have been increased competition over local resources as villages grew in size. The latter explanations are more tenable when one considers that neighbouring Iroquoian communities often were located some distance apart. This may have been a function of ecological adaptation, but it also could

have resulted from a conscious effort to maintain what may have been considered a "politically safe" distance from ones neighbours.

C. Summary

Intersocietal contact is here proposed to have taken place at significant levels throughout all of Iroquoian prehistory and the whole Iroquoian culture area. This approach differs from simply noting the supposed results of diffusion by proposing the mechanisms by which opportunities for contact and the spread of ideas were created.

There is evidence for the in situ development of certain pipe styles within southern Ontario during the latter part of the Early Ontario Iroquoian Stage. This casts doubt on Wright's (1966) theory that an elaborate pipe complex diffused as a complete unit from New York State. Current research coupled with the ideas of intersocietal contact suggest that some pipes developed locally within southern Ontario and spread, in a reciprocal manner, into New York State.

We cannot resolve at this time whether this contact was always peaceful, resulted from warfare, or both. Even if much of it resulted from warfare, there may have been some peaceful contact in the sense of various groups uniting against a common enemy. If mainly hostile, we need to resolve whether neighbours were fighting neighbours or communities in one area united to oppose a more distant Iroquoian group. If neighbours were fighting neighbours, we also need to learn how patterns of alliances may have changed over time, since it is known that in historic or late prehistoric times neighbours who had been enemies formed confederacies or tribal clusters.

8. BURIAL PRACTICES

Data on Iroquoian burial practices have been described as "elusive, and poorly known", "inconclusive" (Noble 1975a:47), and "sadly lacking" (Wright 1978:28). While these quotes refer specifically to Glen Meyer period burials, they may be applied to the entire Iroquoian sequence in southwestern Ontario. This situation has arisen for a variety of reasons, including the uncontrolled looting of many ossuaries and cemeteries in the early years of European settlement (see Ridley 1961) and the more recent tensions created by Native peoples' claims that archaeologists are disturbing the remains of their ancestors. Nevertheless, Iroquoian interments have been excavated in recent years with the consent of local band councils and some limited data are available from burials excavated, systematically or not, over the past decades. This information, together with scattered reports of burials within or near Iroquoian sites, provides a framework for analyzing how Iroquoian burial practices changed over time.

A. Glen Meyer Period

The existing data for the Princess Point and Glen Meyer periods suggest that most burials were primary and flexed in form. This was the case at the Surma site in Fort Erie, assigned to the Princess Point period by Stothers (1977:75) but to Glen Meyer by Noble (1975a:47). Regardless of its correct chronological placement, Surma revealed several single primary burials, all in flexed positions. These burials were accompanied by a wide variety of grave goods, including projectile points, beaver incisor tools, conch shell beads, a steatite pipe, slate pendants, a slate gorget, and some ceramics (Emerson and Noble 1966:79-84; Stothers

1977:75). A similar form of burial occurred at the Princess Point component on the nearby Orchid site (ibid., 75; Molto 1983:97-98).

Approximately 30 burials, primary and flexed in position, are reported from a ridge adjacent to the Porteous site, a Glen Meyer period village near Brantford, but these lacked any grave goods (Stothers 1977:76-77). It is therefore uncertain whether these burials can be equated with the Porteous village (Johnston 1979:98).

Stothers (1977:74-75) hints that some Princess Point burials may have been in mounds, such as those reported from the Yellow Point Mound near St. Catherines (Boyle 1902). If this is true, it suggests a possible holdover from Middle Woodland Hopewellian mortuary ceremonialism, comparable to similar early Late Woodland mound burials in Pennsylvannia (Stothers 1977:75). Such mounds apparently did not persist into the Glen Meyer period.

An excellent example of a single primary flexed interment from the Glen Meyer period has been documented in the Warbler Woods area of Byron, southwest of London. This was the burial of a single individual (age 12 or 13, probably female) in a primary flexed position. This grave occurred on a high sand knoll just north of the Willcock hamlet and east of the Dunn village and is associated with those sites on the basis of some Glen Meyer period ceramic sherds found near it (Spence 1982). Another Glen Meyer burial was found on Site AfHi-78 several years ago. It was an elderly female, suffering from dental loss and severe arthritis. Unfortunately, this burial was uncovered by a bulldozer and the bones were salvaged by a local amateur. The only additional information is that the burial pit also contained a single ceramic vessel and a deer bone fragment

(Pearce et al. 1980:31-32).

Given the large amount of archaeological research conducted in southwestern Ontario within the past few years, and especially the salvage excavations of Early Ontario Iroquoian villages such as Calvert and Force (Fox 1982c) where large areas surrounding these villages have subsequently been cleared for development, it is curious that so few burials have been found. Perhaps interment was not practiced in this area at this time. Certainly, some alternative must be considered, especially since there is evidence that some Glen Meyer period villages were occupied for long periods of time (30 or more years). Current evidence suggests that all (or even some) of the dead from these lengthy village occupations were not interred within or adjacent to those villages. Currently data are insufficient to indicate where they may have been interred, if at all.

It is significant that burial practices were markedly different in southeastern Ontario during this period. In that area, several examples of small "proto-ossuary" (Johnston 1979:97) pits containing multiple secondary bundle burials have been excavated. These include ones from the Miller, Richardson, and Serpent Mounds sites. While the size of these pits was generally quite small (one to two metres in diameter), the number of individuals placed within them varied. For example, the three dated Pickering period burial pits at the Serpent Mounds site contained totals of 15, 29, and 25 individuals (Johnston 1979:92); the one at the Richardson village had only five (Pearce 1977:25); and ones at Miller had three, four, and 13 (Kenyon 1968:21-23).

It must be noted, however, that other forms of burial also occurred on these sites; these included single primary flexed and single secondary

bundle types. Examples of each were encountered at the Bennett site, where 13 graves contained 15 individuals (mainly single primary flexed)(Wright and Anderson 1969:131), and at Richardson, where one pit contained the partially articulated remains of a single individual in a secondary bundle (Pearce 1977:25).

The existence of multiple interments in single pits, or "proto-ossuaries", is not limited to the Pickering period in southeastern Ontario; it is known to occur contemporaneously in New York State (Ritchie and Funk 1973:157), Michigan, and Ohio (McKenzie and Blank 1976:305). This form of burial therefore occurs on three sides of southwestern Ontario circa A.D. 800-1200, but was not practiced, to my knowledge, by the inhabitants of that area.

The Early Ontario Iroquoian Stage burials, while apparently different in nature, were similar in that few grave goods were included (except for the Surma example described above). This coincides with practices in neighbouring New York State, where grave goods were also absent or rare. For example, in reference to the entire Owasco sequence, Ritchie and Funk (1973:166) state that "grave goods are rarely found with the burials, consisting, when present, of an occasional pottery vessel with a child, or a pipe with an adult". Tuck also noted the virtual absence of grave goods in the sequence leading to the historic Onondaga (1971:101, 150). In New York State, from the middle Owasco (Canandaigua Phase) through to the historic Iroquois period the normal burial pattern consisted of primary extended and flexed interments within defined cemeteries (Ritchie and Funk 1973:220, 360, 366-367).

Two secondary burial pits from the late Glen Meyer period Reid site (circa A.D. 1300) on the Norfolk sand plain only serve to complicate what is known about burial practices at this time. One pit was a "proto-ossuary" type containing seven individuals (3 adult females, 2 adult males, and 2 infants). The other pit contained two bundle burials, one an adult male. Neither pit contained grave goods (M. Wright 1978:28). Although it could be suggested that the Reid site burials were similar to contemporaneous ones in southeastern Ontario, it is significant that no other "Pickering" traits were found at Reid (M. Wright 1978:31). Interpretation of these pits is hampered by the presence of a Middleport period house, which cuts across the palisade and intersects one of the Glen Meyer period houses. Wright's report (ibid.) does not indicate whether the burial pits were associated with the earlier or later component.

B. Middleport Period

During the Middleport period in at least some parts of Ontario, there appears to have been a rapid transition to a single predominant mode of burial: the true Iroquoian ossuary.

Data exist for at least six Middleport period ossuaries. A seventh ossuary discussed below may or may not be assigned to this period. Three of these occur in southwestern Ontario, while four are in southeastern Ontario. One of the former was located on the Middleport type site and was excavated by Sir Frances Knowles and F. W. Waugh in 1912 (Wintemberg 1948:38). It was about three metres in diameter and although Wintemberg (ibid.) stated that it contained only a couple of individuals (one of whom was partially burnt or cremated), Knowles (1937) and Molto (1983)

report on over 25 skulls from this ossuary. A handful of grave goods was included in this burial pit (Wintemberg 1948:38-39).

The Orchid site in Fort Erie contained, in addition to the single, primary flexed graves attributed to the Princess Point component noted above, a Middleport period ossuary. This was excavated by Dr. Marian White in 1964 (Molto 1983:98) and contained at least 350 individuals (Melbye 1967).

There was a reported ossuary near the Nodwell site. It was quite small and contained only six individuals: an infant interred inside a ceramic vessel, an adult male, and four other infants less than six years of age. The latter five individuals were disarticulated secondary interments (Kapches 1976:33).

More detailed data are available for two Middleport period ossuaries in southeastern Ontario, near Toronto. The Fairty Ossuary, presumed to be associated with the nearby Robb village, contained 512 individuals in a mass of incomplete secondary interments (Anderson 1963:28). The Tabor Hill Ossuaries, presumed to be associated with the nearby Thompson village, consisted of two distinct pits containing a total of 523 individuals (Emerson 1956b:184-185; Churcher and Kenyon 1960). These pits measured respectively over four metres and three metres in diameter, with a few bundle burials and cremations mixed amidst the mass of disarticulated secondary burials. There were no grave goods (Emerson 1956b:183-184).

Another ossuary has not been excavated, but it was discovered in a plowed field during the archaeological survey of properties designated for the New Toronto International Airport. It is presumed to be associated

with a nearby Middleport period village (Finlayson and Poulton 1979:28).

The Garland ossuary was located along Duffins Creek north of Pickering. It was over three metres in diameter and contained a reported 198 individuals in a mass, with some secondary bundle burials recognized (Webb 1969). This pit was excavated by Father Arnold Megan, students from St. Michael's College in Toronto, and the Ontario Archaeological Society (Molto 1983:92). Megan told David Stothers (n.d.) that, in addition to human bones, the pit contained three drilled shell beads, squash, maize (corn), and beaver skin or fur. Although described as a Middleport period ossuary, a historic bead, reportedly found within one of the skulls, may place this ossuary in the protohistoric or historic period (Molto 1983:92-93).

The osteological analysis of skeletons from some of these ossuaries is contained in Molto (1983).

If one excludes Orchid, the two smallest "ossuaries" reported above are located in southwestern Ontario, while the larger, true ossuaries are in southeastern Ontario. The Nodwell example closely resembles a southeastern Ontario "proto-ossuary" of the preceding time period, while the Middleport site example was quite small and seemingly contained the same number of individuals as one of the "proto-ossuaries" at the Serpent Mounds site. Perhaps this distinction is not coincidental. Together with the Glen Meyer burials discussed above, this suggests persistent differences in burial practices between these two parts of southern Ontario, despite other evidence of burial customs that evolved on a pan-Iroquoian basis and suggestions of specific influences between the two parts of southern Ontario. The true Iroquoian ossuary appears to have

evolved from and replaced "proto-ossuaries" only in southeastern Ontario. This led to its subsequent use by the historic Huron and Petun, while peoples in southwestern Ontario opted for an alternative form of burial. The latter included continued use of the earlier "proto-ossuary" in at least some areas, as known from Nodwell and perhaps the Middleport site. The historic Neutral used small, multiple ossuaries, but they also buried people individually in cemeteries, a feature not commonly found in southeastern Ontario.

C. Prehistoric Neutral Period

Data for prehistoric Neutral burial practices are very poor, but it is known that small ossuaries were used in some areas.

The Glen Williams site, north of Georgetown, contained two ossuary pits, with bundle and primary extended burials located between and around them (Hartney 1978).

A prehistoric Neutral period ossuary in Beverly Township, northwest of Hamilton, was excavated by Boyle (1897a:46) and contained at least 20 to 30 individuals in a pit over three metres in diameter. In addition to secondary interments, there were primary flexed burials placed on the bottom of the pit. Grave goods included a shell cup, bear teeth, and ceramics (ibid.; Stothers n.d.). This ossuary is unusual because its size shows affinities to the earlier "proto-ossuaries" while its two types of burial patterns and grave goods are more similar to practices common to the historic period.

A number of sites of the prehistoric Neutral period have been excavated in varying detail, including Lawson (Wintemberg 1939; Pearce

1980a), Southwold (Smith 1977), Moyer (Wagner et al. 1973), and Pipeline (Busby 1979), but none is known to have an ossuary associated with it. Some single and multiple burials have been found within the Lawson village. Wintemberg excavated a pit containing portions of a child and two adults. The child may have been in a flexed position, but was incomplete and the burial may have been secondary. Both adults were also incomplete (Wintemberg 1939:57). Other burials were found on the Lawson site prior to Wintemberg's excavations and these appear also to have been incomplete and secondary; one pit supposedly contained parts of four individuals, including at least one adult female (ibid.). Despite these few burials, one is led to the conclusion that most of the dead from these villages were placed in as yet undiscovered ossuaries or were interred (?) in some other manner away from the village. Alternatively, they may not have been interred but been subjected to some other form of ritual treatment. Given that the Museum of Indian Archaeology has systematically surveyed over 400 ha of land surrounding the Lawson site and discovered several cabin sites but no ossuary, one must seriously consider the option that this form of burial was not practiced during the Late Ontario Iroquoian Stage in at least the London area.

D. Summary

The available data suggest that while "proto-ossuaries", consisting of small pits containing multiple secondary bundle burials, existed among contemporaneous groups in southeastern Ontario, parts of New York State, and Michigan-Ohio, they were uncommon in southwestern Ontario during the Early Ontario Iroquoian Stage. Instead, most people in that area appear to have preferred the primary flexed mode of burial in individual graves,

although this statement is based on very sparse data and is contradicted by the single known "proto-ossuary" at the Reid site.

It is known that the individual primary flexed and primary extended forms of burial continued throughout the Iroquoian sequence, but examples of these are confined to a few per site at most, usually within the village and sometimes within longhouses (Kapches 1976). There are not enough of these to indicate that this was the only form of burial practiced during the Middle and Late Ontario Iroquoian Stages.

Even though bodies were placed in a communal pit in some areas in prehistoric times, in most instances they were not accompanied by grave goods. Neither do grave goods occur with the few examples of primary flexed and extended interments found within late prehistoric Iroquoian sites (Kapches 1976:36). It was not until after European contact that we find ossuaries with "false bottoms", complex layering, and rich grave goods (Ridley 1961). The practice of ossuary burial existed only among some Ontario Iroquoian groups after A.D. 1300 and it did not become as elaborate and consequentially may not have acquired the same ritualistic or ceremonial status as the ossuary burial of the historic period. Moreover, these ossuaries contained fewer burials than did Huron ones and the examples cited above appear to have been associated with a single community (see below). Hence, although communal burial existed in some areas, there is lack of evidence for major ceremonies symbolically reinforcing the ties among adjacent communities, in the manner that the "Feast of the Dead" did among the Huron in historical times.

William Noble once claimed that since ossuaries contained up to 500 individuals, a collective interment involving two or more villages was

indicated (1969:22-23). Thus ossuary burial was interpreted as an integrative mechanism, a method of forming and securing social bonds among neighboring communities. This argument can be negated using a standard calculation of normal death rates. These rates suggest a norm of 2.8 deaths per 100 per annum (Churcher and Kenyon 1960:259-263), or 560 per 1000 during the 20 year duration of a village. Thus, an ossuary of 500 individuals could conceivably be associated with a single village of 1000 people occupied for 20 years. Even if one uses a death rate of 4.0 per 100 per annum, as Pendergast (1984) did for the larger and more populous Roebuck site, one ossuary could be associated with a single village.

The negative evidence available for burials of all time periods in southwestern Ontario, despite intensive surveys and excavations in some areas, may be more real than accidental. It is possible that, in this area of the province, the dead were placed on scaffolds and not subsequently interred. The lack of known burials on most sites in southwestern Ontario at least suggests that the Iroquoians there might have had alternative practices to secondary interment in ossuaries or burial in cemeteries. The few instances of primary and/or secondary interment found within some villages, such as Lawson, shed little light on what the normal burial practice may have been. These are isolated cases and cannot be considered representative of the way all of the dead from a village were treated.

9. IDEOLOGY

This aspect of prehistory has generally been regarded as the most difficult one for archaeologists to study (Hawkes 1954), but recently there has been renewed interest in finding ways to do so (see Binford 1962; Renfrew 1973; Hodder 1982). Discussions of ideology tend, however, to remain piecemeal rather than holistic in nature and there appears to be little hope of circumventing this limitation. Because of the nature of the evidence, the comparisons of this sort presented here also tend to be more wide-ranging.

Renfrew has stated that ideology consists of "all those activities, notably religion, art, language, and science, by which man expresses his knowledge, feelings, or beliefs about his relationship with the world" (Renfrew and Cooke 1979:329). Rappaport (cited in Drennan 1976) and Drennan (1976) have presented convincing arguments that ideology and religious systems serve to sanctify social and political conventions and messages. If one accepts these views and treats culture as an information system (Gardin 1980), ideology can be interpreted as being culturally determined and essential for maintaining the way of life of a society. Therefore any major changes in sociocultural behaviour must first become ideologically acceptable and ideology may discourage such changes. Hodder (1982, 1984) has demonstrated that, at least among modern pastoral tribal societies in Africa, ideological beliefs result in distinctive distributions of material culture and have a profound effect on group behaviour.

Childe (1951:176) believed that "a new device, however efficient from our standpoint, can be adopted by a society only if it satisfies a

socially approved want and fits in to the whole cultural pattern". The underlying premise of adapation (adoption and diffusion) is that it passes through a series of more or less universal stages, namely: (a) innovation by variation, invention, or cultural borrowing; (b) social acceptance; (c) selective elimination of existing traits; and (d) integration (Murdock 1956:249). This view was expressed in a modified form by David Clarke (1968:97) when he wrote that diffusion has three phases: presentation, acceptance, and integration (frequently integration with modification). These discussions assume that considerable decision-making takes place in accepting and using new traits and ideas as well as in the continued use of existing ones. It is also clear that these decisions are based on individual social and cultural perspectives.

Ideology is thus dynamic, changing over time as other social and cultural variables change. There has been limited discussion of the ideology of the Ontario Iroquoians, although Wintemberg (1924, 1939, 1948) and Noble (1979) have both made significant contributions with their interpretations of specific items of material culture, such as art and effigy pipes. Clearly more research is required.

The realm of ideology is broad and its influences on a sociocultural system may be great. There are certain artifacts, contexts in which artifacts are found, and other types of archaeological evidence which provide information about particular aspects of ideology. The following discussion will examine some of these aspects under the following headings: (a) religion, incorporating religious beliefs, curing societies, shamans, etc.; (b) art, including decorative art, effigy art, personal adornment, and the role of art in symbolizing in-group identity and unity; and (c) games and feasts.

In this discussion, each of these levels is treated separately, but it will become apparent that evidence cited for one level is not relevant only for that level. For example, effigy art may be indicative of shamanism, but it can also be interpreted as decorative art, symbolically, or as tokens of personal or group identity. Also in this discussion, the stage or period format is abandoned in favour of considering continuities and similarities throughout each of the three Ontario Iroquoian stages.

A. Religion

The information presented in the Burial Practices section makes it clear that all Ontario Iroquoians believed in some form of life after death. Some Early Ontario Iroquoian Stage burials were accompanied by grave goods, including both utilitarian items and objects of personal adornment, but apparently not foodstuffs. Faunal remains of any kind are non-existent or very rare in known Glen Meyer period burials, and those that occurred with the Pickering period burials at the Serpent Mounds site (Golden Eagle talon, dog mandible)(Johnston 1979:93) can be interpreted as ceremonial offerings of some sort, not foodstuffs.

Objects of possible religious or ritualistic use include a human effigy amulet or charm from the Early Ontario Iroquoian Dewaele site (Noble 1979:69), other non-pipe effigies (ibid.), and bone tubes. For example, there was a stone human face maskette from the Nodwell site. It had a blowing or sucking mouth and has been interpreted as being used "for curing purposes" (Wright 1974a:153). The recovery of bone tubes from sites such as Uren (Wintemberg 1928:41), Middleport (Wintemberg 1948:27), and Lawson (Wintemberg 1939:36-37) suggests the presence already at this time of shamans who could cure sickness by blowing or sucking, a practice

attested for the historic Huron (Tooker 1964:117) as well as many other groups throughout the world (see Driver 1961:496, 503, 510). In post-Middleport times the Blow-Face effigy pipe, similar to the Nodwell maskette, became an established type throughout the Iroquoian culture area. This effigy form has been interpreted as a "representation of shamanistic activities" (Noble 1979:83) or as being linked with "magico-religious functions" (ibid., 86). The Blow-Face effigy is also linked to certain historic Iroquoian masks associated with ceremonies and ritual dances (ibid., 84). The human effigy pipes from Lawson described in Chapter 5 share a number of specific attributes with the Blow-Face (or pinch-face) effigies discussed by Mathews (1976). These include placement of the right hand on the right side of the face, "pierced" ears, and a possible "Horn of Power" on the head.

Other objects may also have had ritual functions. For example, it is believed that some of the many fossils found on most Iroquoian sites were picked up as curios (Wintemberg 1939:35; Wright 1974a:205). Presumably they were conserved as objects endowed with supernatural power, although their precise significance within the ideological realm is unknown.

A further example of Iroquoian ritual or religious beliefs came from the Middle Ontario Savage site near Chatham. This site yielded several ceramic human figurines, including a complete specimen 4.5 cm high that was moulded from a single piece of clay, with round head, tool-impressed eyes, and incisions for a mouth (Murphy 1983:7). Other figurines were represented by broken specimens, including three other heads, and all were interpreted as having been used in "some type of ritual/magic" activity (ibid., 13).

Another example of ritual included the deliberate placement of three partially-articulated beaver feet within a small pit in House 8 at the Lawson site, although the meaning of this remains unknown. It is known that certain other animals received differential treatment. This included the burial of dogs at sites such as Nodwell, where at least one dog is believed to have been ritually interred (Wright 1974a:284; Stewart 1974:117). Wright (1974a:290) also believed the Nodwell people practiced a taboo against burning fish bone. Such taboos were observed by the historic Huron (Wrong 1939:188).

The bear bones recovered from some Late Ontario Iroquoian sites in southwestern Ontario provide another example of religious or ritualistic beliefs. At the Lawson site all mammalian long bones except bear (and human) were split to extract marrow. This practice was also observed at Clearville, the only prehistoric Neutral period site for which there is a detailed faunal analysis. At that site, all 16 long bones identified as black bear were complete and these were the only complete long bones (other than human ones) in the assemblage. This was interpreted as indicative of a ceremonial status for the bear (Burns, in Pearce et al. 1980:121). Although bear bones were not broken to extract marrow, they were occasionally made into artifacts. For example, a bone tube was made from the left femur of a bear at Lawson (Wintemberg 1939:36).

The existence of a "bear cult" throughout the Northern Hemisphere was proposed by Irving Hallowell (1926). Citing this reference, Ritchie (1950) argued for a form of bear cult among the prehistoric Seneca. The long bones at a site he excavated were unmodified apart from some superficial cut marks, and he suggested that since these long bones were not split to extract marrow the bear was accorded special treatment. Of

interest was the fact that one bear skull at this site was intact except for the superior canines, which had been removed to be employed as "decorative elements", presumably pendants (ibid., 247). The antiquity of this practice can be traced, in New York State, at least back to the Owasco period (Ritchie 1947). Yet it is not known if the intact long bones on many sites represent special respect for the bear or whether the Iroquoians simply did not savour the taste of bear marrow.

It is known that the historic Huron regarded the bear as a special animal and sometimes captured cubs to raise for two or three years within the village before killing them (Biggar 1922-1928:130; Tooker 1964:66). It is not known if the historic Neutral, or the prehistoric Iroquoians in southwestern Ontario, did likewise.

B. Art

Effigy art during the Glen Meyer period was quite rare; yet it foreshadowed later Iroquoian styles and concepts. The introduction of effigy art can be extended at least as far back as the Princess Point period, since a fish effigy was recovered from the Princess Point site (Noble 1979:69). The depiction of birds appears during the Glen Meyer period, as evidenced by a stylized effigy pipe from the King's Forest Park site in Hamilton (Fox 1967:21, 23). The introduction of human effigies also dates to this period, the earliest known example coming from Dewaele. This item was an amulet or charm (Noble 1979:69).

Conventionalized human faces occurred on some ceramic vessels in the form of three punctates on a castellation. These appear on Glen Meyer period sites (Wright 1966:159) and persist through the Middleport

(Wintemberg 1928:47, 79; 1948:37) and later prehistoric Neutral periods (Lawson site, personal observation). Still, most graphic art on Iroquoian ceramic vessels and pipes remained geometrical in nature.

Effigy art on pipes was limited during the Middleport period. Only a few examples of such pipes are known from the Uren, Middleport, and Nodwell sites. One specimen from Uren was questionably interpreted as a botryoidal (alligator) form (Wintemberg 1928:48, 97) and Nodwell yielded an arm fragment from an unspecified form of ceramic effigy as well as a human effigy on a stone pipe fragment (Wright 1974a:153-154, 213, 276). The Middleport period type site had human and lizard effigies (Wintemberg 1948:37, 77). Some of the Middleport period sites in the Markham area recently investigated by Kapches (1981), including Milroy and New, contained one or two human effigy pipes. Pipe fragments found on the adjacent Edwards and Drumholm sites were discussed in Chapter 5; they were too fragmentary to know what type of effigy they may have come from, but are similar to an animal effigy from a contemporaneous site in the Milton area.

Effigy art on pipes became more elaborate during the prehistoric Neutral period. At Lawson, numerous examples of human effigies are known. These ranged from simple forms with just two eyes, a nose, and a mouth to very complex specimens, such as the full crouched figure with eyes, eyelids, nose, mouth, lips, hands, fingers, feet, toes, and pierced ears. This site also had reptilian or lizard forms wound around pipe stems, one of which appeared on a human effigy pipe. A combination of anthropomorphic and zoomorphic forms on a juvenile clay pipe is known from the Clearville site. It had a human face on one side of the bowl while the other side had a deer head (Pearce et al. 1980:13).

Effigy art on pipes of this period also included non-human and non-animal forms. For instance, an example of what is believed to be a squash or gourd effigy pipe is known from Clearville (personal observation, collection housed at the Museum of Indian Archaeology).

Effigy art existed on artifacts other than pipes. Clearville also had a human skull gorget with an incised human stick figure and geometrical forms; the latter consisted of a series of lines arranged in a "sunburst" formation (personal observation, collection housed at the Museum of Indian Archaeology). The Lawson site produced castellations from ceramic vessels that had peculiar designs which may have had some symbolic meaning, including crosses and arrows (see Wintemberg 1939:71, 73).

Items used for personal adornment by all Iroquoians included bone and shell beads, native copper beads, and stone and bone pendants. These are often the only items of this sort on Early Ontario Iroquoian sites (Wright 1966:183, 185), while several other items were used in later times. In southwestern Ontario, beads were made, in the Middle and Late Ontario Iroquoian Stages, from shell, bone, and clay in both tubular and discoidal form (Wintemberg 1948:21; Wright 1974a:252, 276). Pendants were made from stone, teeth (including bear and other canines), and turtle shell (Wintemberg 1928:34-35; 1948:21-22; Wright 1974a:258). Decorated braclets made from antler or shell are known from the Uren (Wintemberg 1928:22) and Nodwell (Wright 1974a:248; Stewart 1974:108) sites. Antler combs, sometimes decorated with incised geometrical lines and human skull gorgets are also known (Wintemberg 1928:33, 38; 1939:36). The Lawson site had discoidal and tubular bone, shell, and ceramic beads; stone, bone, and tooth pendants; an incised bone braclet; antler combs; and

human skull gorgets (Wintemberg 1939:32-35, 87, 97; Pearce 1980a:25-27). Ethnographic studies by George Hamell suggest that at least some of the raw materials from which these ornaments were made, in particular native copper and marine shell, had supernatural significance among the Iroquoian peoples. The same is probably true for the bear teeth and human skull gorgets.

Some historic Neutral men practiced the art of tattooing (JR 21:197) and Wintemberg (1939:33, 56) believed that at least two human effigy pipes from Lawson had lines meant to represent tattoos.

C. Games and Feasts

Games and feasts often were associated with rituals among historic Iroquoian societies. They frequently accompanied specific activities such as prisoner torture and sacrifice and the interment of the dead (Tooker 1964). A similar function appears likely during the prehistoric period.

Items interpreted as being used for leisure time activities include gaming discs and cup-and-pin-game variety perforated deer phalanges (Guilday 1963). Both of these occur on Early Ontario Iroquoian sites within the study area (Williamson 1981:41 and personal communication), negating Wright's (1966:53) claim that they were exclusively a "Pickering" trait. They persisted throughout the Iroquoian sequence in southwestern Ontario and among other Iroquoian groups. Several examples of each have been found at Lawson, including some stone gaming discs.

The Middleport and prehistoric Neutral periods saw the use of additional leisure time items. For example, bone whistles or flutes are known from the Uren and Middleport sites (Wintemberg 1928:36; 1948:22)

and turtle shell rattles from the Uren (Wintemberg 1928:38) and Lawson sites. These items were probably used mainly in ritual contexts as in the historic period.

Evidence for feasts is more tenuous. Yet there are features on some Middleport and prehistoric Neutral period sites called "earth ovens" which may have been ceremonial roasting pits. One was found at Edwards (Pearce 1983a:8) and another at Lawson (personal observation) within the sequence under study, and several more have been excavated at the Crawford Lake site near Milton (Finlayson and Matson 1974). All of these pits were quite large. They were sometimes 2 to 3 metres in length and 90 to 100 cm deep, often rectangular or square in plan view, and had a bathtub profile (deeper at one end). They contained ash, charcoal, fired soil, fire-cracked rock, and large quantities of bone, both calcined and non-calcined. The one from Edwards had lots of bone (692 fragments) and fire-cracked rocks (over 50) in a matrix of ash and fired soil, but it also contained 108 ceramic vessel fragments, 2 pipe fragments, 109 pieces of chipping debitage, lithic (5 scrapers, 2 wedges, and 17 utilized flakes) and bone (2 awls) tools, and carbonized plant remains (Pearce 1983a:8). The example from Lawson has not been excavated in its entirety (a test trench cut through one end), but its plan view has been exposed. It was rectangular (3 m by 2 m) and 90 cm deep. Dense concentrations of bone, including fish bone, fish scales, and some fragmented human remains, were found while clearing off the plan view, at the interface between the topsoil and subsoil. William Finlayson, who excavated several similar features at the Crawford Lake site near Milton, believes that they were roasting pits (personal communication).

Pits with a similar size, shape, profile, and content found on the early Oak Hill period Kelso site in New York State were interpreted by Tuck (1971:73) as bear roasting pits, or pits used in connection with some form of bear ceremonialism. The Kelso examples were further described and illustrated by Ritchie and Funk (1973:262-265). Tuck excavated similar pits at the Chance period Bloody Hill site (1971:113), which also contained several human bones. Additional examples occurred at the Owasco period Roundtop site (Ritchie and Funk 1973:181-184).

D. Summary

Throughout the Iroquoian sequence there is little evidence for major changes in the material culture associated with religious beliefs, a curious anomaly since other topics discussed in this chapter witnessed rapid and radical changes circa A.D. 1200-1300. This statement must be qualified, however, by pointing out that some lines of evidence, particularly burial practices, are too incomplete to reveal reliably if there were significant changes over time. A possible exception to the lack of change concerns certain new items apparently introduced during the Middle Ontario Iroquoian Stage, such as effigy art, skull gorgets, bone tubes, and flutes. Some of these, in particular certain types of effigy art, were, however, foreshadowed in the Early Ontario Iroquoian Stage. The items just listed therefore may reflect an elaboration of fundamental beliefs already held in earlier periods.

Archaeological data suggest that some conventions remained constant throughout the Iroquoian sequence under study as well as in other Iroquoian sequences. Traits found on early, middle, and late sites in the London area and elsewhere in southern Ontario include: single burials

within villages; effigy art; conventionalized human faces on ceramic vessels; the use of beads, pendants, bracelets, and combs for personal adornment; the use of cup-and-pin game deer phalanges and gaming discs for leisure time activities; and the collection of fossils as "curios".

Fenton (1978) and Trigger (1969) have emphasized the integrative role of ideology within the Iroquoian sociocultural system. For example, Trigger (ibid., 90) noted that the historic Huron had a term, "onderha", which

> was used to refer to the dances, customs, and ceremonies that bound a people together and promoted friendships, solidarity, and goodwill among individuals regardless of their clan or lineage affiliations.

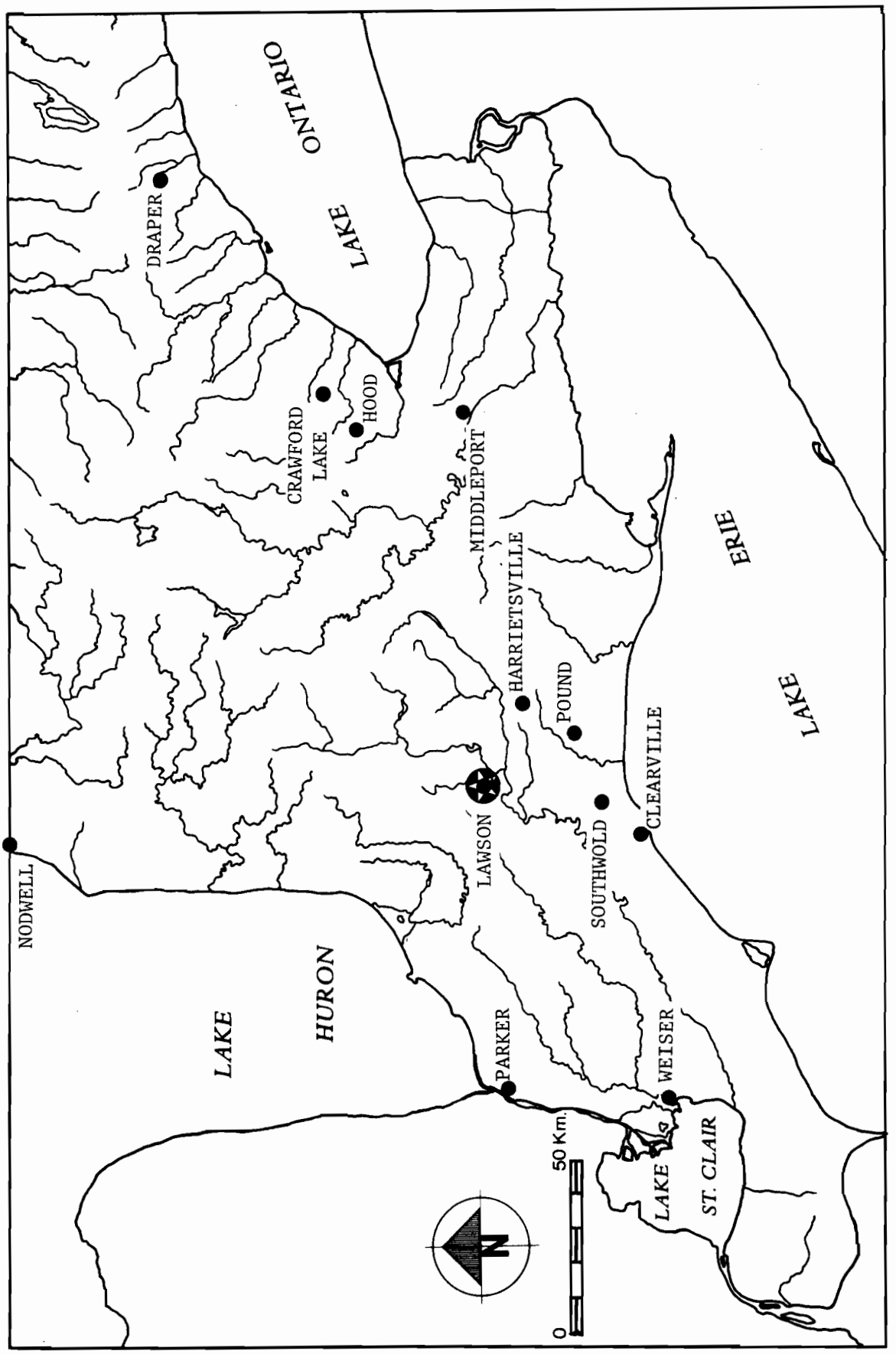
Fenton also regarded ceremonies as important integrative mechanisms: "the ceremonies provide a regular way to give order to their lives. Through ceremonies they strengthen one another by reciprocal and cooperative acts, which serve to keep the culture alive" (1978:319).

Some ceremonies and rituals acted as mechanisms to promote continuity, others were "metaphors of union, increase, and continuity of life" (ibid., 316). These included, in historic times, condolence ceremonies, curing societies, medicine societies, and the Feast of the Dead (ibid., 316-318; Trigger 1969). Games, feasts, dreams, shamans, and art all played a role as integrative mechanisms (Trigger 1969:90-120), at least among the historic Huron but probably among all Iroquoians in the historic and late prehistoric periods. At least one archaeologist has suggested that these mechanisms, which cross-cut kinship lines, were established by A.D. 1400, when scattered villages and communities were amalgamating to form larger ones (Tuck 1971:213). He reviewed the

archaeological evidence for the existence of ceremonialism in prehistoric times among the Onondaga, such as deer bone bangles, turtle shell rattles, and human face motifs on ceramic vessels. He believed that these indicated the presence of certain rituals and ceremonies that in historic times had a pan-Iroquoian distribution. For example, the recovery of material from the Owasco (Castle Creek phase) Cabin site led him to postulate that dreaming rituals (from a cache of juvenile vessels and a miniature pipe) and masking (from human effigies in the form of maskettes and pipes) existed at that time (ibid., 8-9, 40-41). In particular, he thought the human effigy maskettes suggested that curing societies, including the "False Face Society", already existed in Owasco times (ibid.). His evidence for bear ceremonialism, or at least for the roasting of bears in a feast, from the Kelso and Bloody Hill sites in the Onondaga sequence, was reviewed above.

There are a number of significant parallels between the Iroquoian sequence studied here and Tuck's Onondaga sequence, as well as with Iroquoian sequences elsewhere. These again manifest the concept of a pan-Iroquoian interaction sphere. They include human effigies (as maskettes, on pipes, and as conventionalized faces on ceramic vessels), blowing or sucking tubes, Blow-Face effigies, bear ceremonialism, the use of large "earth ovens" as roasting pits for feasts, deer phalanges modified for use as beads and for the cup-and-pin game, gaming discs, turtle shell rattles, bone and antler combs, and the collection of fossils. All of these suggest a certain continuity in beliefs, at least from A.D. 1300-1400 into the historic era, as well as sharing of these beliefs on a pan-Iroquoian scale. No matter how different each regional sequence was or how hostile some neighbouring groups may have been,

intersocietal contact and a common outlook seem to have integrated them. This resulted in a large number of shared traits and characteristics which embraced the entire spectrum of Iroquoian behaviour, from material culture through sociopolitical organization to ideology. Therefore material culture, social, political, and ideological traits promoted and resulted in intersocietal contact on a pan-Iroquoian scale.



MAP 9: LOCATION OF SOMES SITES

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CHAPTER 7

SUMMARY AND CONCLUSIONS

THE SOCIETAL APPROACH

This thesis has applied a societal approach to the study of one prehistoric local sequence of Iroquoian components in the London area. Rather than treating these archaeological sites as representative of a particular "culture", they have been interpreted as the foci of settlement used by a particular group of people who eventually constituted a single community. The archaeological village is equated with the sociologically-defined community, as the maximal unit of yearly settlement occupied by a group of habitually interacting individuals. These settlements, and their spatial location relative to one another, are viewed as dynamic. These communities changed over time as they underwent sociocultural evolution and as their inhabitants experienced contact with other groups, which in turn promoted internal sociocultural change.

The existing culture historical framework for the Ontario Iroquoians was used (with refinements) to identify the various stages or periods that the local sequence passed through. Yet these traditional cultural labels were not used to identify the people in that sequence, since they obscure significant variation and to the extent that they are arbitrary may distort an understanding of the actual processes of sociocultural change.

It has been argued that past "cultural" views tend to treat prehistoric Iroquoian archaeological sites as static entities, studied in isolation. They have encouraged an emphasis on explaining cultural change

in terms of exogenous factors such as migration, conquest, and diffusion. They have also encouraged a proclivity for emphasizing cultural differences between regions but at the same time ignoring local differences.

The societal approach, by contrast, allows the recognition of endogenous change and thereby facilitates the explanation of change in terms of endogenous factors. It recognizes the importance of past developments within each local sequence. It also allows the prehistorian to realize that groups of individuals interacted within sites, localities, areas, and regions. The obvious benefit of all of this lies in seeing social interaction as a major factor contributing to sociocultural development. While considerable work remains to be done along these lines, the approach taken here has allowed a "fresh" look at Iroquoian prehistory.

B. THE LONDON AREA SEQUENCE

The sequence under study is believed to have commenced in the Early Ontario Iroquoian Stage as three spatially-separated communities living in the Mount Brydges, Byron, and Arkona areas. The nature and development of these communities prior to A.D. 1000 remains a topic for future research. It was proposed that at least the former two communities, and perhaps the latter one, each consisting of a series of sequential villages and associated hamlets and camps, merged to form a single large community on Oxbow Creek circa A.D. 1245-1315, based on the recalibrated radiocarbon dates for the Edwards site (A.D. 1280 +/- 35 years). Once on Oxbow Creek, this community occupied three sequential villages then moved, in a generally eastward direction along the north side of the Thames River,

until it reached the Lawson site, circa A.D. 1500.

All of the Early Ontario Iroquoian sites in the study area were located on sandy soil, and there are no known later sites on these soils. Instead, the later Middle and Late Ontario Iroquoian Stage sites in this sequence, and indeed in most other places in southwestern Ontario, were on loam or clay soils. These heavier soils have a better carrying capacity for the cultivation of corn, beans, and squash. It is argued that the Early Ontario Iroquoian communities in the study area relied more heavily on acorns and deer for their subsistence needs than on corn horticulture. The evidence supporting this conclusion includes a positive correlation of certain special purpose sites with large stands of oak trees.

There was, it is proposed, interaction between the three Early Ontario Iroquoian Stage communities discussed here, and perhaps other neighbouring ones, brought about by a variety of factors, including the need to obtain spouses from outside one's own community. There were also periodic trips by the Mount Brydges and Bryon communities to the shores of Lake Huron, in the vicinity of Arkona, to obtain Kettle Point chert and to fish. These trips probably involved some form of interaction between the two former communities and the Arkona one.

Radiocarbon dates for the latest site in the Mount Brydges cluster (Roeland) and the earliest site on Oxbow Creek (Edwards) coincide to support the proposed movement from Roeland to Edwards. There is a strong probability, however, that this was not a direct movement, but rather involved an intermediate step. This is suggested by the presence of two sites, one (Willcock) in the Byron cluster and the other (Crawford) in the Arkona cluster which, on the basis of ceramics, are placed chronologically

later than Roeland and earlier than Edwards. These intermediate sites (Willcock and Crawford) are pivotal to the sequence as they contained a host of new traits introduced to the sequence, including push-pulled and incised horizontal collar motifs. The Willcock site reflects the transitions in material culture evident at this time, exemplified by the nature of the collared and collarless vessels and the motifs and techniques employed to decorate those vessels. This site also contained a number of transitional ceramic pipes. These demonstrate the in situ development of certain pipe styles and motifs, a development also occurring elsewhere in Ontario at the same time. They negate Wright's theory of the mass diffusion of pipes from New York State. Wright's Pickering conquest of Glen Meyer is also called into question, since some of the items that he used to support this theory, such as gaming discs and cup-and-pin game deer phalanges, are now known to occur on Early Ontario Iroquoian sites in southwestern Ontario. The proposed local sequence here, and other regional sequences elsewhere, can be viewed as evolving through time with intersocietal contact stimulating endogenous change. There is no need to see change in southwestern Ontario Iroquoian communities between A.D. 1200 and 1300 as being influenced by a foreign conquest.

The proposed amalgamation of the three Early Ontario Iroquoian communities in the study area, their shift from sandy to loam or clay soils, and a long series of concomitant changes in most facets of the sociocultural system, occurred in the late thirteenth century, based on the radiocarbon dates from Edwards. No "prime mover" theory is proposed; instead it is proposed that several social and political factors came into play simultaneously to cause such a shift and amalgamation.

Throughout this thesis I have touched upon some of these factors although I have perhaps not dealt in adequate detail with all of them. These factors are further complicated by the complexity of their nature and interconnections, and it is possible to engage in circular arguments. I maintain, however, that even though communities during the Early Ontario Iroquoian Stage were spatially isolated, at least some of them were in direct contact. This contact arose from the need to obtain spouses from outside the single clans that probably occupied the villages of that period. Warfare does not seem to have played a significant role in promoting intersocietal contact at this time. There were no doubt other factors contributing to intersocietal contact at this time, but these remain to be further explored through future research.

With the amalgamation of two or three communities to initiate the Middle Ontario Iroquoian Stage, the need to obtain spousal partners from outside one's own village was theoretically eliminated, since these larger communities each contained more than one clan. Yet some intermarriage between villages may have continued to promote intersocietal contact.

A number of indices signal a dramatic increase in warfare during the Middle and Late Ontario Iroquoian Stages. This state of hostility may have ensued between neighbouring Iroquoian communities, between Iroquoian communities farther removed from each other, and/or between Iroquoians and the Algonkians living in extreme southwestern Ontario and Michigan-Ohio. Current archaeological data favour the latter choice of belligerents, who were fighting each other into the historic period. Yet one cannot rule out the possibility that Iroquoians were fighting other Iroquoians in prehistoric times. Regardless of the enemy, warfare promoted intersocietal contact either by uniting groups against a common enemy or

by captives introducing new traits to villages. Extensive travel by men, and sometimes by women, to conduct war, trade, hunt, fish, and acquire raw materials such as chert, further served to promote intersocietal contact. While most of these activities occurred during the Early Ontario Iroquoian Stage, they appear to have taken place on an increased scale during later periods.

Warfare may have played the major role in encouraging the small scattered Early Ontario Iroquoian communities to unite at the end of that period. Yet this amalgamation also may have been prompted by social factors, such as the desire to eliminate the need to travel to another community to obtain spouses. The larger communities of the Middle Ontario Iroquoian Stage would have required a reliable and expandable food source. This would have made it necessary to rely more heavily on horticulture and hence may have been a major factor in the decision to shift onto soils that could better support this demand. We can conclude that these possibilities were not mutually exclusive and that future research will assist in the resolution of the factors involved in this shift and amalgamation. Regardless of the reasons, it is a known fact that the Middle Ontario Iroquoian villages were larger than in the previous period. I have proposed that, for the London area sequence, this came about through the amalgamation of previously scattered communities.

Once the merged communities were on Oxbow Creek, numerous innovations were required. These included new settlement pattern configurations (longer houses, organized planning of villages and structures, and new defensive measures); the probable establishment of lineages and clans as village segments; the creation of village councils presided over by chiefs; possibly some ideological innovations (as suggested by the use of

bone tubes, whistles or flutes, effigy pipes, and roasting pits); as well as other changes in material culture and in the overall sociocultural system.

This pattern of change is in accordance with the views of Spaulding, Childe, and Redfield (cited in Chapter 3) who have argued that, in the normal course, long periods of relative cultural stability were followed by short periods of rapid change. Rapid change was the order of the day through the period of the Edwards, Drumholm, and Alway sites. Although we know little about the next sites in the sequence (the Dolway place sites), there would appear to have been another long period of relative stability extending through to and including the occupation of the Lawson site. These trends are evident from the coefficient of similarity charts in Chapter 5.

Many of the dramatic changes that occurred at this time can be explained as the results of the "throwing together" of two or three communities that had previously lived apart. The creation of a far larger and more heterogeneous community resulted in a major sociocultural upheaval that took some time to sort out. Considerable borrowing among each of the groups involved, as well as from neighbouring groups, must have provided ideas that helped to resolve the problems created by the amalgamation. Such processes can be used to explain the differences in material culture between Edwards and the earlier Early Ontario Iroquoian Stages sites, and between Edwards and the later Drumholm site, even though these sites were inhabited by the same people.

Despite such changes, there was also a considerable amount of continuity. Specific ceramic traits demonstrate a link between the sites

on Oxbow Creek and the earlier sites in the Mount Brydges, Bryon, and Arkona clusters. If these links did not exist, most of the data reflecting change could be used to argue that there was no historical link between the earlier and later sites. Yet, these links do exist and validate the proposed sequence. They included not only material culture but also sociopolitical and ideological traits as well as the patterned spatial distribution of components.

OTHER COMMUNITY SEQUENCES

The local sequence presented here represents just one of several known in southwestern Ontario. The following discussion will not attempt to define all of these sequences but will be limited to outlining briefly those nearest to the one we have been considering.

Just east of London, in the village of Dorchester, is a pocket of sandy soil comprising the northwestern limit of the Norfolk sand plain. One Glen Meyer period village, Calvert, has been discovered there, and was salvage excavated in 1981-82 (Fox 1982c). Other sites of this period are known to occur within a 2 km radius of Calvert. Five to seven kilometres south of Calvert, on loam or clay soils in the vicinity of Lake Whittaker, a number of later Iroquoian components have been found. It is believed that these formed a community sequence related to Calvert. The later sites include Dyjack, Pine Tree, Messenger, Gravel Pit (Pearce 1979c), and Harrietsville (Keron 1983). Dyjack and Messenger are large villages, with Messenger being a Middleport period component seriating, on the basis of ceramic traits, later than the Drumholm site in the London area sequence (Smith 1983). Harrietsville is very similar to Lawson in that it has earthworks and Parker Festooned pottery, but little else is known about it

as it has seen only limited test excavations (Keron 1983).

The Lake Whittaker community occupied the headwaters of Kettle Creek, with Messenger and Harrietsville being about 22 km southeast of the Lawson site and 33 km northeast of Southwold (discussed below).

At least one other community existed on the lower reaches of Kettle Creek and the adjacent Talbot Creek, some 33 km southwest of the Lake Whittaker community and 30 km due south of the Lawson site. This community ended its occupation of lower Kettle/Talbot Creek at the Southwold Earthworks site (Smith 1977) or the nearby Nott site (Smith 1978, 1983). An extensive survey in the vicinity of Southwold resulted in the discovery of several earlier Iroquoian components, some of which form a local sequence leading to Southwold and Nott. These include, from latest to earliest, Palmer, Pederson, P. Brown I, and others (Smith 1978). Based on Smith's (1983) ceramic seriation, Southwold is later than Lawson and Nott is earlier than both, based on an ordering of five sites in southwestern Ontario as: Drumholm, Messenger, Nott, Lawson, and Southwold.

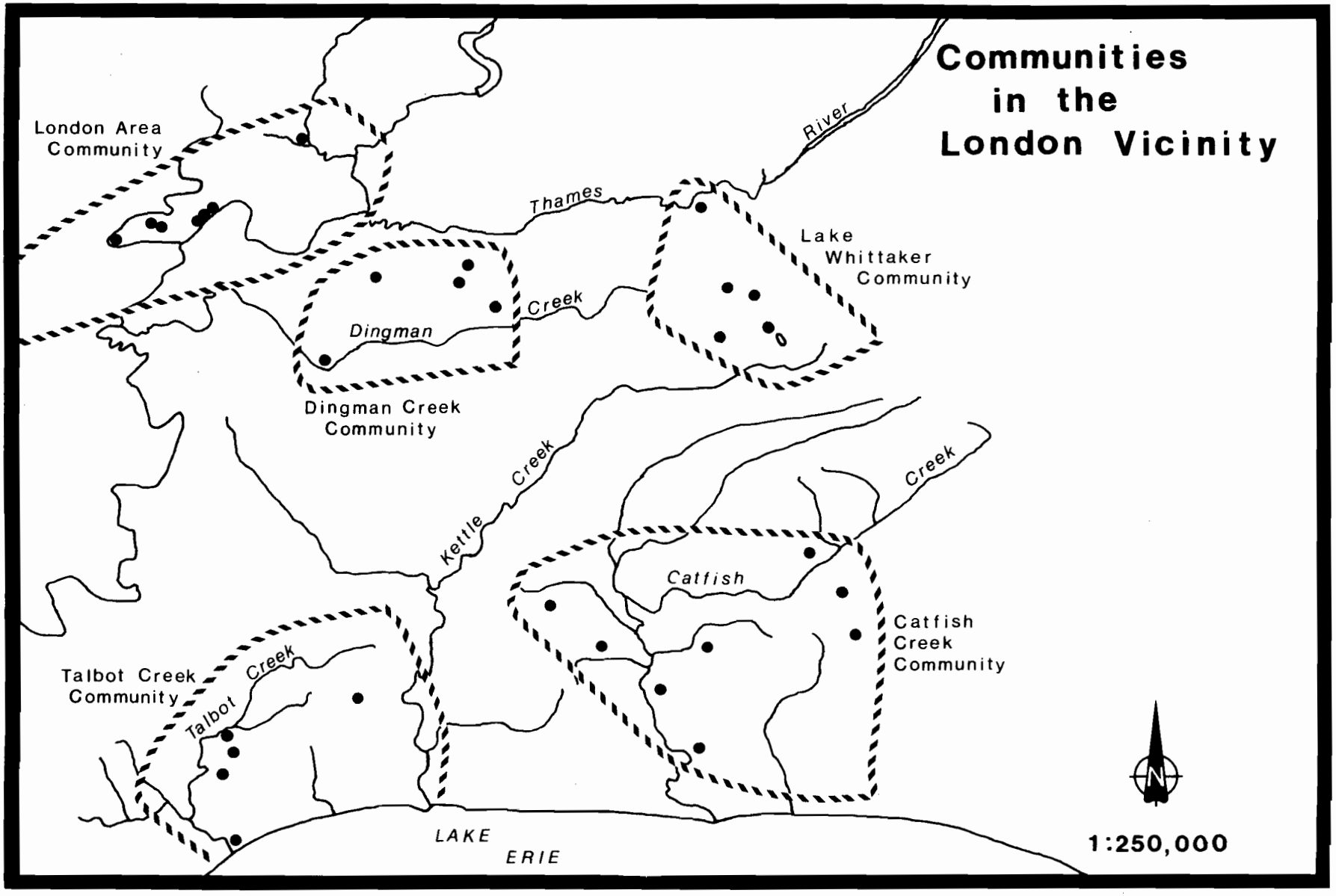
Just east of Kettle/Talbot Creek on Catfish Creek there are a number of Iroquoian sites. These include Pound (Wright 1966; Fox 1976), which was earthworked and is, in many respects, similar to Lawson, Southwold, and Harrietsville. It may represent the latest site in a sequence including the Downpour (Wright 1966) site and several still earlier ones recently discovered by extensive surveys (McWilliams 1977, 1978; Poulton 1980). The latter sites included 16 Early Iroquoian, 19 Middle Iroquoian, and 6 Late Iroquoian ones. Combined, these sites included 26 interior villages, 4 lakeshore chert acquisition/fishing camps, and 14 interior

camps or hamlets (Poulton 1980:10). The large number of villages in this area may indicate multiple communities on Catfish Creek. Most of these sites (of all three periods) are distributed over a relatively large section of Elgin County, including Yarmouth, Malahide, and Bayham Townships and lie on several tributaries and branches of Catfish Creek or along small creeks and streams adjacent to it (ibid., 26, 38). Future research may demonstrate several communites, each on a different branch or creek but all within the Catfish Creek drainage.

Finally, there is a string of late Iroquoian sites along Dingman Creek just south of London. Most of these have been discovered within the past five years. One is the Pond Mills site, a Middle or Late Iroquoian hamlet or small village (Pearce et al. 1980; Poulton n.d.). A major Late Iroquoian village, 1.2 to 1.6 ha in extent, is located 2 km northeast of Pond Mills. It is called the Brian site and has only been surface collected (Poulton 1982c), but is probably associated with Pond Mills. About 3.5 km south-southeast of Brian is the Laidlaw site, a 0.8 to 1.2 ha Late Iroquoian village. Brian, Laidlaw, and Pond Mills lie 13 to 14 km southeast of Lawson. Due west of the former three sites, and 10 km due south of Lawson, is the Pincombe village. It is assigned to the Late Iroquoian Stage and covers 1.2 ha (Timmins 1983). Pincombe had at least three hamlets associated with it; these are being excavated by the Museum of Indian Archaeology during the summer of 1984. Further west in the Dingman Creek drainage near Lambeth are several small, ceramic-producing sites whose chronological placement remains uncertain, but is definitely within the Middle to Late Iroquoian Stages (Keron 1981, 1982), and one 1.2 to 1.6 ha Late Iroquoian village, Thomas Powerline. The latter may have been the main village to some of the smaller ceramic sites nearby.

None of the sites on Dingman Creek, other than Pond Mills and Laidlaw, has been excavated or even investigated in detail. Pond Mills was test excavated; Laidlaw had a short test trench cut through a creek-side midden (by the Museum of Indian Archaeology); while all the others have been only surface-collected. Little can be said about these sites. It is not known if they represent one or more communities. Nor is it known which direction this community or communities were travelling if these sites represent another sequence(s) of village movement. One curious observation is that most of these sites appear to fall in the Late Iroquoian Stage, with no definite Middle Iroquoian site known in this group. Because all of the local sequences known to date are separated from the nearest neighbouring local sequence by distances greater than 10 km and since the sites along Dingman Creek lie more than 10 km from the Lawson site, I believe the villages and hamlets along Dingman Creek represent a sequence distinct from the one leading up to Lawson. The sites along Dingman Creek require more detailed investigation to confirm this proposition.

There are several unconfirmed reports of additional late Iroquoian sites in the Dingman Creek drainage and the area south of the Thames River in south London. Some of these reports were made by Wintemberg (1939:2, footnote 1; and site files at the Archaeological Survey of Canada). A number of these sites, such as the one he reported at the corner of Edward and Tecumseh Streets in London, are now destroyed, while others await re-discovery and confirmation. It is not known whether these sites were related to the sequence on Dingman Creek, to the sequence leading up to the Lawson site, or form yet another local sequence.



MAP 10: IROQUOIAN COMMUNITIES IN THE LONDON VICINITY

It is proposed that at least part of one of these communities eventually joined the Lawson community to form the expansion area of nine longhouses there. It is by no means certain, however, whether the Lawson site expansion represents the amalgamation of the entire population from one of these other sequences. Nor is it known how these communities were socially and politically related prior to the time of the Lawson site.

"CULTURAL" CLASSIFICATION AND FUTURE DIRECTIONS

In Chaper 3, I reviewed the concept of culture and noted that archaeological cultures were and continue to be defined on the basis of material culture patterning. Iroquoian sites have been attributed to a single culture if they share a significant number of traits, particularly as manifested in terms of rim sherds, pipes, and projectile points, with other Iroquoian sites already assigned to that culture. Using these criteria, sites need not be excavated in detail to determine settlement patterns, subsistence practices, or other aspects; they need only to be excavated to produce artifacts to allow a classification. Yet when a number of sites of one "culture" are excavated in detail it is discovered that they share more than artifactual similarities, since their settlement patterns, subsistence practices, and other aspects are frequently the same.

In the normal course of events, the "culture" continues to expand in terms of spatial distribution as "similar" components are discovered farther afield While a small number of large "cultures" may, for taxonomic convenience, be preferable to a large number of small ones (such as "phases"), there are problems with such large units. One of these problems relates to a holistic interpretation, which implies that traits

observed in one area necessarily apply uniformly to the entire region occupied by that "culture". This approach tends to downplay localized developments. In this way a number of subtle but nevertheless important differences between sites may be overlooked in order to retain a site within that "culture".

This thesis has employed a "societal" approach based on the concept of community and the spatial patterning of the known components of a community to define a local sequence. The societal approach emphasizes social structural similarities rather than "cultural" differences. This differs from past approaches by treating what were previously called "cultures" solely as time periods or stages. I contend that classifications into a Glen Meyer, Middleport, and prehistoric Neutral "culture" are purely arbitrary. This is partly because in terms of many significant aspects of sociocultural development Glen Meyer components are not greatly different from Pickering or Owasco ones; Middleport ones are not that different from Oak Hill ones; and prehistoric Neutral ones are not that different from prehistoric Huron-Petun, Erie, Chance, or other prehistoric ones. All of the above "cultural" taxons are useful in that they chart major periods or stages of sociocultural development in particular areas. They indicate specific time periods. Yet on a pan-Iroquoian scale the transitions from Glen Meyer to Middleport or from Owasco to Oak Hill were little different from the transition from Pickering to Middleport. Nor were there great differences in later transitions from Middleport to prehistoric Neutral, from Middleport to prehistoric Huron, or from Oak Hill to Chance. While the precise reasons for and processes involved with these transitions were probably different for each local sequence, the end product was very similar.

The obvious conclusion from this argument is that there were only three major prehistoric Iroquoian periods, which we may call Early, Middle, and Late Prehistoric Iroquoian. The parallels between the representative groups in southwestern and southeastern Ontario and in New York State were great enough, in terms of material culture, subsistence/settlement patterns, socio-political organization, and ideology, to allow this classification. Ultimately this parallelism stems from the fact that all were Iroquoians who communicated and interacted with one another, even if at times some of them also fought with each other.

Yet for decades archaeologists have agreed that there were significant differences between southwestern and southeastern Ontario and between those areas and New York State. Furthermore, regional divisions have been noted within New York State, such as the eastern and western groups during the Oak Hill period (Lenig 1965). In Ontario at least, the two principle divisions are extended as far back as Archaic times (Wright 1962) and continued through the Middle Woodland period with Saugeen in the southwestern region and Point Peninsula in the southeastern one. A long history of division can therefore be demonstrated between these two regions. I will not here attempt an explanation for this, but it is out of respect for these traditional divisions that I have opted to retain the names of Glen Meyer, Middleport, and prehistoric Neutral to describe temporal stages of Iroquoian prehistory in southwestern Ontario. I am prepared to allow that there were some differences between southwestern Ontario and the adjoining regions of southeastern Ontario and New York State. Yet I also believe that these differences had more to do with specific groups and their particular adaptations to each region (extending

back to Archaic times) than they had to do with differences in principles of social organization and with archaeologist's conception of a "culture".

This choice of names for temporal periods creates an apparent contradiction to my previous statement that there was no such thing as a Glen Meyer, Middleport, or prehistoric Neutral "culture". It also leads to the conclusion that Glen Meyer was different from Pickering and that prehistoric Neutral was different from prehistoric Huron-Petun. I maintain, however, that these differences were not primarily societal. I would also argue that the distinction between groups during the Early Iroquoian Stage in southwestern and southeastern Ontario is almost certainly not a simple matter of a dividing line between them. Rather, there was probably a continuum from west to east with the current labels of Glen Meyer and Pickering representing the extreme ends. This not only implies that groups living near the so-called boundary between these two groups could be half Glen Meyer and half Pickering, but also demonstrates the arbitrariness of the cultural paradigm as applied to Iroquoian prehistory. It also overlooks the cultural specificity of each local sequence.

Local sequences within a large region such as southwestern Ontario were similar at a societal level, but each was unique for the reasons cited above. Local groups adapted to specific micro-environmental niches, to particular events, and to other groups. The differences between local sequences were created as communities in each sequence responded in their own particular (but Iroquoian) way to local conditions, local changes, local events, and the other communities with whom they interacted.

The approach taken here rejects the holistic view that change in one area necessarily applied to all contemporaneous communities in that area, region, or indeed, the whole Iroquoian area. For example, Wright (1966) proposed that the transformation from the Early to Middle Ontario Iroquoian Stages was caused by a Pickering conquest of Glen Meyer. In this way the entire Glen Meyer "culture" was changed and Glen Meyer components everywhere in southwestern Ontario supposedly were transformed. Some of the evidence Wright used to support this claim has since been negated, since traits that he believed to be solely Pickering are now being found on some Glen Meyer sites (i.e., gaming discs and cup-and-pin type deer phalanges). I could find no evidence for a Pickering influence of any form on the sites that composed the local sequence studied here and have presented an alternative explanation for this transition in terms of social interaction and community fusion.

A second example of the rejection of a holistic view concerns Middleport pipes. Wright (ibid.) proposed that an elaborate pipe complex diffused from New York State into southern Ontario around A.D. 1350, with all Middleport communities apparently adopting it within a relatively short span of fifty years. I have reviewed the evidence from the local sequence presented here as well as from two other areas that demonstrates that this pipe complex developed locally in several areas as early as the thirteenth century (Willcock site, dated circa A.D. 1250). While diffusion played a role in the subsequent spread of these pipes throughout southern Ontario, it did not introduce them as a complete unit from New York State. I have also presented some ideas on how and why these pipes may have diffused.

The societal approach allows prehistorians to study individual local sequences and to attempt explanations for the processes of changes observed in such sequences. It is recognized that the reasons why and the manner in which two or more communities amalgamated at the Edwards site need not have been the same as in other local sequences where communities joined together. In addition, the reasons for and processes by which the Lawson site expanded through the incorporation of a population segment from elsewhere need not have been the same as those for other Iroquoian villages that expanded.

The ramifications of this novel approach cannot be fully understood at this time. There are, however, several implications arising from my analysis of one local sequence. One of these is that criteria other than strictly artifactual data can be used to demarcate a transition from Glen Meyer to Middleport, at least within the local sequence presented here. These include observations such as the locations of sites in relation to soil type (i.e., all Glen Meyer period sites are on sandy soil while later sites are on loam or clay) and village size (i.e., all Glen Meyer villages are less than 2 ha in area while many later ones are larger). Other criteria require the detailed excavation of village sites to allow recognition of longhouse size, orientation, and spacing; internal village organization; possible "chiefs'" houses; and a series of inferred socio-political and ideological aspects of the community. Still other criteria require quantification to determine that there were major changes. One of these relates to the overall importance of corn as a percentage of the total diet and the quantities of other cultigens that were grown. Also related to this change is the precise nature of the special-purpose sites associated with villages and the determination of

whether they were used solely as centres for the exploitation and processing of naturally-occurring foods or also served as locations for horticultural cabins.

Even in terms of artifacts, a major transition can be measured. This relates to the rates of change and innovation in specific traits and in the entire sociocultural assemblage. Although I did not attempt to quantify these rates in detail in this thesis, the coefficient of similarity charts in Chapter 5 indicate a major break between each of the sites of Roeland, Willcock, and Edwards. These show that major and rapid changes were taking place at this time.

This, however, brings us to a second major implication of my analysis. There is no evidence of a major transformation between the Middleport and prehistoric Neutral periods. Rather, there was a continuum of slower, more gradual change. This creates a problem for the "cultural" classification of sites occurring in the middle of this continuum. In the past, the distinction was made on the basis of the percentage of certain pottery types or the combined frequency of three or four types, but as more sites are excavated this is becoming increasingly harder to do. Additional research is required before this dilemma can be solved, but it is clear that if there were differences between these two periods, they were not as abrupt or as rapid as those which marked the transition from Glen Meyer to Middleport.

A third implication concerns previous attempts to equate "cultures" with a social reality, such as a tribe. I have clearly rejected this approach in favour of defining communities. I make no claim that each distinct prehistoric community was part of a larger tribal entity, even

though in terms of sociocultural development these communities had individually reached the tribal level. In historic times tribes existed as distinct socio-political groups of communities that were aligned with other tribes to form confederacies or even more extensive alliances. In prehistoric times there may have been developments linking communities that led up to this, but these remain to be demonstrated. There is no evidence that the community which composed the local sequence that ended at the Lawson site was a "tribe" in the sense that it was aligned with another community for political reasons.

A fourth implication relates to the title of this thesis: mapping Middleport. All local sequences should, by definition, contain Middleport period components as well as earlier and later ones. Because Early Ontario Iroquoian communities that had previously been scattered over wide areas united to form larger Middleport ones, the key to defining a local sequence is to locate Middleport villages and then discover what occurred before and after them. A current gap in our knowledge is knowing where all of the Middleport villages were located. If we knew where these were, we would be able to identify the changes that had occurred during the transition from the Early to Middle and from the Middle to Late Iroquoian Stages and discover how these changes varied in different areas. We would also have a better understanding of why some areas were abandoned and perhaps in due course be able to offer more concrete explanations for the eventual abandonment of the entire region of southwestern Ontario west of the Grand River. It is apparent, however, that we require the delineation of numerous local sequences to build a corpus of comparative data. It would be advantageous to study local sequences in adjacent areas to see how neighbouring communities interacted and adapted to similar situations.

I have maintained throughout this thesis that social interaction, whether peaceful or hostile, played a major role in the sociocultural development of local sequences. Clearly, we need to delineate other local sequences to learn with what other groups each community in such local sequences was interacting and compare their similarities and differences. Only once this kind of study has been repeated in many instances will we be able to understand Iroquoian prehistory in detail. It is my contention that we should build this understanding by analyzing local sequences rather than larger "cultural" units.

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Abbreviations used in this list are as follows:

AARO= Annual Archaeological Report, issued as the Annual Report of the Canadian Institute or as an Appendix to the Report of the Minister of Education, Ontario between 1887 and 1928.
Arch Notes= Publication of the Ontario Archaeological Society, Toronto.
KEWA= Publication of the London Chapter, Ontario Archaeological Society.
MCC= Ontario Ministry of Citizenship and Culture (Heritage Branch).
MIA= Museum of Indian Archaeol[illegible] 'London), An Affiliate of the University of Western Ontario.
NMC= National Museums of Canada, Ottawa.
NMM= National Museum of Man, National Museums of Canada, Ottawa.

Several papers contained in two edited volumes were cited. These were condensed as "In D. Brose (ed.)", referring to David Brose (ed.) 1976 The Late Prehistory of the Lake Erie Drainage Basin: A 1972 Symposium Revised and "In B.G. Trigger (ed.)", referring to Bruce G. Trigger (ed.) 1978 Handbook of North American Indians, Volume 15: Northeast.

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