Prehistoric Huronia: Relative Chronology Through Ceramic Seriation

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This paper is an attempt to achieve two goals: first to partition the known site data base for Huronia into discrete village relocation sequences and, second, to seriate some of the ceramic assemblages from sites dating from Middle Ontario Iroquois to Historic Huron. Some discussion of future directions of research is also presented.

Introduction

Despite much archaeological research in Huronia, few attempts have been made to establish a detailed relative chronological sequence for the numerous prehistoric village sites that have been excavated. Most researchers have instead relied on comparisons with assemblages from widely distributed components from the north shore of Lake Ontario or further to the west, in order to estimate an approximate date of occupation for Huron components. Because of this, there has been little attempt to describe, let alone explain, variation observed within and between prehistoric "Northern Division" Huron artifact assemblages.

To date, ceramic assemblages from over a hundred sites have been studied by the author in an on-going attempt to examine ceramic variation across southern Ontario. Over five thousand vessels have been "coded". The majority of these assemblages have been from prehistoric Huron components. While this study was originally intended merely as background to the study of New York Iroquoian ceramics in Ontario, it became clear that the number and size of the available collections from Huronia warranted a more systematic and detailed chronological reconstruction.

The first section of this article presents an initial attempt to identify individual community relocation sequences in the late 14th, and the 15th and 16th centuries. This will serve as a basis for assessing the representativeness of seriations generated from available ceramic assemblages. The next section is the chronological analysis itself. In the last section, the relative chronology of **Huronia** constructed here will be discussed and some areas for further research suggested.

Further analyses are being conducted by the author and by others, including many generated through cultural resource management projects and current graduate research. Thus the following cannot be construed as the final word on the prehistoric sequence for Huronia, but is instead offered as a first approximation.

Regional Overview

Due primarily to the work of Ridley between 1963 and 1975, a vast amount of information is available concerning the relative dates of over a hundred sites in Huronia. While many of the samples currently available are too small to permit reliable statistical seriation, they do allow most of these sites to be dated to within a century. Synthesizing this data creates a culture-historical overview which can serve as a base for assessing the seriations generated below. The reconstruction offered here is not intended to be comprehensive since similar overviews, with up-to-date bibliographies, are available elsewhere (i.e., Kapches 1981, Latta 1976, Warrick 1990). The discussion presented here is intended to serve as an initial partition of the site data base into area clusters which may ultimately lead to recognition of successive movements of individual villages and possibly prehistoric tribal groups.

The known distribution of prehistoric sites is presented in Figure 1, which shows registered prehistoric village sites of the Middle and early Late Ontario Iroquoian (Lalonde) periods that have been documented in recent years by archaeologists. Also included are some of the late prehistoric sites although little attempt has been made to include these in the defined village clusters. This decision was made to focus on sites which probably represent the tribal groups present before the late prehistoric and proto-historic abandonment of the Trent valley and the north shore of Lake Ontario. This series of events undoubtedly caused considerable disruption to the settlement patterns of the indigenous groups as they tried to accommodate the large immigrant population.

Figure 1: Middleport, Lalonde and Late Prehistoric Sites in Huronia

1 Methodist Point (BfHa-2)
2 Gwynne (BfHa-1)

A: West Penetang Peninsula Group

3 Davey (BeHa-11)
4 Peacock (BeHa-8)
5 Thunder Bay II (BeHa-15)
6 Dorion (BeHa-10)
7 Desroches (BeHa-7)
8 Beauchamp (BeHa-14)

B: Farlain Lake Group

9 Second Lake II (BfGx-3)
10 Second Lake I (BfGx-1)
11 Farlain Lake II (BeGx-1 1)
12 Pinery (BeGx-12)
13 Farlain Lake (BeGx-5)
14 Deschambault (BeGx-4)
15 Copeland Creek (BeGx-3)
16 Penetang Lake (BeGx-28)

C: East Penetang Group

17 Chew (BeGx-9)
18 Brasseur (BeGx-7)
19 Bennett (BeGx-)
20 H. Wright's (BeGx-29)
21 Fallis (BeGx-34)
22 Rankin (BeGx-)

D: South Penetang Group

23* Webb (BdGx-13) 24 McRae (BdGx-12) 25* Lalonde (BeGx-19)
26 Grozelles (BeGx-18)
27 J. Thompson (BdGw-1 1)

E: West Vasey Ridge Group

28 Hunter's Tay 18a (BdGw-25)
29 Forbes (BdGx-10)
30* Fournier (BeGx-2)
31 * Forget (BeGx-21)
32 Mertz (BeGx-20)

F: East Vasey Ridge Group

33 Angus Rawn)BdGw-6)
34 Hunter's Tay 33 (BeGw-7)
35 Hunter's Medonte 11 (BdGw-10)
36 Devit (BdGw-12)
37 * Sallows (BeGw-4)

G: Mount Saint Louis Middleport Group

38 Gratix (BeGw-6)
39 Laura Potter (BeGw-8)
40 Bidmead (BeGv-4)

H: West Mount Saint Louis Group

41 Boyd (BdGw-26)
42 W. A. Tinney (BdGw-24)
43 Cranston)BdGw-9)
44 Clark (BdGw-8)
45 W. Miller (BdGw-7)

I: East Mount Saint Louis Group

46 P. Nixon (BdGw-19)
47 J. Barr (BdGw-15)
48 Flanagan (BdGw-27)
49 W. Thompson)BdGw-5)

J: Medonte Till Uplands Group

50* Baumann (BdGv-14)
51 Perdue (BdGv-11
52 Schandlen (BdGv-12)

K: East Dry Hills Of Oro Group

53 Broadfoot (BdGv-8)
54 Martin (BdGu-3)
55 Anderson (BdGu- I
56 Johnstone (BdGu-4)

L: Central Dry Hills Of Oro Group

57 Starr)BdGv-9)
58* Copeland (BdGw-30)
59 * Ellesmere-Morrison (BdGw- 1)
60 Bev. Cooke (BdGv-10)
61 McCarthy (BdGv-4)
62 McNiven (BdGv-5)
63* Hunter's Oro 17 (BcGv-2)

M: Hillsdale Ridge Group

64 McGuire (BdGw-21)
65 H. Martin (BdGw-20) 65 Miller (BcGw-6)
66 Cooper (BcGw-14)

N: West Oro Till Plains Group

67 Dunsmore (BcGw-10) 68* Carson (BcGw-9)
69 D. Bell (BcGw-2)
70 Coutts (BcGw-)
71 Rix (BcGv-1)

0: Lover's Creek Group

72 Paisley (BbGw-14)
73 Cleary (BbGw-10)
74 Roof (BbGw-11)

P: Eastern Innisfil Upland Group

75 Webb (BcGv-8)
76 McDonald (BcGv-1 1)
77 Brassington (BbGv-19)
78* Goodeve (BbGv-12)
79 MNR (BcGv-6)
80 Lucas (BbGv-22)
81 Blu Meanie (BbGv-30)

Q: Flos Lowlands Middleport Group

82 Hunter's Flos 9 (BdGx-7)
83 Kenny (BcGx-15)
84 Johnston #2 (BcGx-2)

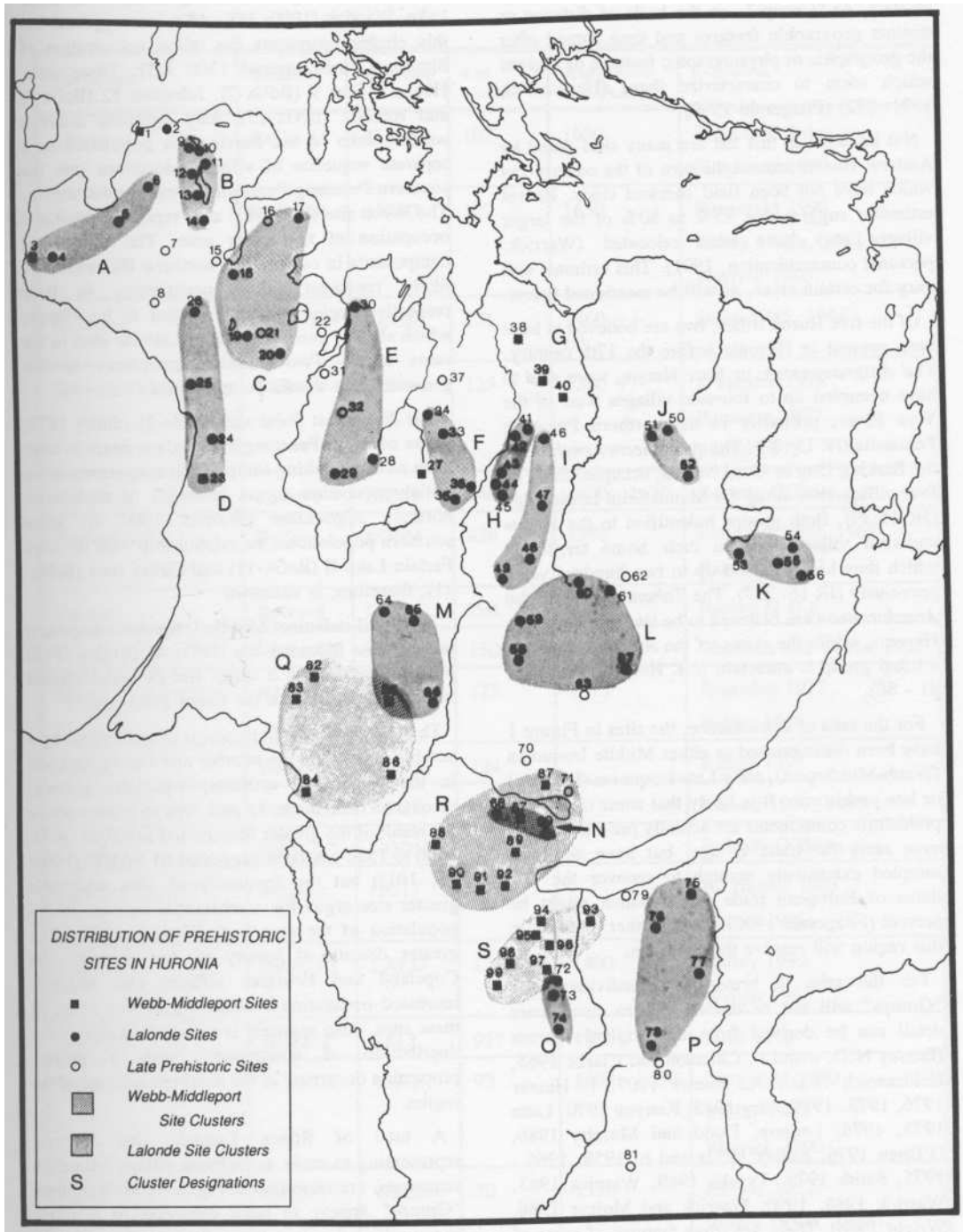
R: North Barrie Middleport Group

86 Irene Davis (BcGw-7)
87 Hunter's Vespra 23 (BcGw-12)
88 Gervais (BcGw-5)
89 Cundles (BcGw-11)
90 Sparrow Farm (BcGw-8)
91 * Beswetherick (BcGw-1)
92 Barrie (BcGw-18)

S: South Barrie Middleport Group

93 Painswick (BcGv-13)
94 Little II (BcGw-28)
95 Little (BcGw-15) 96* Wiacek)BcGw-26)
97 Hubbert (BbGw-9)
98 Dykstra)BbGw-5)
99 Lougheed (BbGw-13)

* Indicates sites employed in the ceramic seriations.


DISTRIBUTION OF PREHISTORIC SITES IN HURONIA
Webb-Middleport Sites
Lalonde Sites
Late Prehistoric Sites
Webb-Middleport Site Clusters
Lalonde Site Clusters
S Cluster Designations

The site data base was partitioned into site clusters, or "Groups", on the basis of distance or distinct geographic features and then named after the geographic or physiographic features or regions which seem to characterize them (Heidenreich 1971: 372) (Fitzgerald 1990).

Not included in this list are many sites noted by Andrew Hunter around the turn of the century but which have not been field checked since. Recent estimates suggest that 75% to 80% of the larger villages may have been relocated (Warrick: personal communication, 1991). This estimate will vary for certain areas, as will be mentioned below.

Of the five Huron tribes, two are believed to have been present in Huronia before the 17th century. The *Attignaouanton*, or Bear Nation, were said to have occupied up to fourteen villages west of the Wye River, primarily in the northern Penetang Peninsula (JR 15: 39). The *Attingneenongnahac*, or the Barking Dog or Cord Nation, occupied three or four village sites along the Mount Saint Louis ridge (JR 15:39). Both groups identified to the Jesuits ancestral village sites in their home territories which they had occupied up to two hundred years previously (JR 16: 227). The *Tahontaenrat* and the *Arendaronnon* are believed to be late immigrants to Huronia, while the status of the *Ataronchronon* as a tribal group is uncertain (c.f. Heidenreich 1971: 81 - 86).

For the sake of convenience, the sites in Figure 1 have been distinguished as either Middle Iroquoian (Webb-Middleport), early Late Iroquoian (Lalonde) or late prehistoric. It is likely that some of the late prehistoric components are actually pre-fur trade or even early fur trade in age, but have not been sampled extensively enough to recover the few items of European trade goods which might be present (Fitzgerald 1990). Only further research in this region will resolve this problem.

For the sake of brevity, the individual site "Groups" will not be discussed here since more detail can be derived from the original sources (Bursey N.D. a and b, Channon and Clarke 1965, Heidenreich N.D., A. Hunter 1907, J. Hunter 1976, 1978, 1989, Jury 1948, Kenyon 1970, Latta 1973, 1976, Lennox, Dodd and Murphy 1986, O'Brien 1976, Ridley 1952a and h, 1958, 1966 - 1975, Smith 1979, Tyyska 1969, Warnica 1963, Warrick 1988, 1990, Warrick and Molnar 1986, Wright 1966). There are some features of some of these Groups, however, which should be noted. Two major groupings of Webb-Middleport villages in Huronia can be discerned from the sites illustrated on Figure 1. A southern cluster of eighteen villages occurs in the Oro Till Plains physiographic region, running south from Little Lake. Warrick (1990: 348 - 353) has suggested that this cluster represents the initial colonization of Simcoe County around 1300 A.D. Three sites, Hunter's Flos 9 (BdGx-7), Johnston #2 (BcGx-2) and Kenney (BcGx-15), may represent either a western lobe of the Barrie area population or a separate sequence of village relocations into the southern Penetang Peninsula physiographic region. The Webb site (BdGx-13) may represent the initial occupation of this latter area. The Middleport components in central and northern Huronia more likely represent initial occupations in their respective regions as most appear to be villages which slightly predate the later Lalonde sites in the same areas. Two possible exceptions to this generalization should be mentioned.

The Methodist Point site (BfHa-2) (Smith 1979) in the northern Penetang Peninsula appears to have been an early fishing camp which may represent an initial occupation or an initiation of trade with northern Algonkians (Warrick 1990) by more southern populations. Its relationship with the later Farlain Lake II (BeGx-11) and Davey sites (BeHa-11), therefore, is unknown.

The small indistinct Middle Iroquoian component noted at the Bidmead site (BeGv-4) (Ridley 1969) probably represents a camp site of undetermined nature associated with the Laura Potter site.

The ensuing Lalonde period is characterized by a notable increase in the number and size of sites and in the density of artifacts, especially pottery, recovered from them. **In** part, this increase may be the result of the greater time period involved (A.D. 1400 to 1550 has been suggested by Wright (1966: 75, 101)) but the frequency of sites and their greater size argue for a substantial increase in the population of the area (c.f. Warrick 1990). The greater density of pottery at, for example, the Copeland and Fournier villages also suggests increased occupation duration for at least some of these sites. Also apparent is a distinct change in the distribution of components with a greater proportion occurring in the northern sections of the region.

A total of fifteen Lalonde site clusters, representing as many as eighteen village relocation sequences, are identified in Figure 1. Most of these "Groups" appear to have consisted of a single community relocating through time. Groups L, P and B may, however, represent two communities, an assumption based on the number of sites registered, the extent of recent survey and the geographic area represented. The Farlain Lake Group (B) is the clearest case of a double sequence

Table 1: Sites Used in Seriations

Site Name	Borden #	Mnemonic	# of Vessels	Approximate Date (A.D.)	References
Alonzo	BeGw-15	ALON	102	1630	Roberta O'Brien p.c. Fitzgerald 1990
Angoutenc	BeGx-24	ANGO	102	1630	Fitzgerald 1990 Ridley 1952a, 1968 Warrick 1990
Baumann	BdGv-14	BAUM	151	1460 +1-60	Stopp 1985, 1986
Beswetherick	BcGw-1	BESW	125	1360 +/-	J. Hunter 1976 Ramsden 1977 Ridley 1973
Bidmead	BeGv-4	BIDM	440	1600 - 1630	Roberta O'Brien p.c.
Bosomworth	BaGv-1	BOSM	428	1550	Emerson 1959, 1968 Ramsden 1977
Carson	BcGw-9	CARS	294	1425	Bursey N.D.a
Copeland	BdGw-30	COPL	1509	1500	Channon and Clarke 1965
Ellesmere-Morrison	BdGw-1	ELLE	123	1475	Ramsden 1977 Ridley 1966
Forget	BeGx-21	FORG	124		Ridley 1973
Fournier	BeGx-2	FOUR	929		Russell 1967, 1968
Goodeve	BdGv-12	GODV	75		Roberta O'Brien p.c.
Hunter's Oro 17	BcGv-2	HO17	122		A. Hunter 1903 Ridley 1966
Lalonde	BeGx-19	LALD	126	1400	Ridley 1952 Wright 1966
Sallows	BeGw-4	SALL	927	1550 - 1580	Bush 1976
Vints	Bella-12	VINT	92	1600 - 1630	Fitzgerald 1990 Ridley 1967 Warrick 1990
Webb	BdGx-13	WEBB	70	1350	Harper 1952 Ridley 1952a, 1973 Wright 1966
Wiacek	BcGw-26	WIAC	94	1350 - 1450	Lennox, Dodd and Murphy 1986

while the other groups require further survey before any conclusions can be reached.

The Gwynne site (BfHa-2) (Kenyon 1970, O'Brien 1976) has been deliberately omitted from the two clusters in the northern Penetang Peninsula because it could be a component of either sequence.

A series of sites on Christian Island may also be related to the northern Penetang Peninsula prehistoric occupations. One of the interior sites produced Lalonde High Collar pottery, but in association with historic trade material (Smith: personal communication, 1989). Similar associations have been noted on definite non-Huron sites such as Michipicoten (Dawson 1979, Wright 1969) as well as on Historic Huron villages such as Ball (Knight: personal communication, 1990). Further research and the publication of extant information is necessary before the relevance of the Christian island sites can be assessed.

In total, at least sixteen village relocation sequences appear to have been present in prehistoric Huronia. Relatively long term *in situ* development seems to be indicated by the Mount Saint Louis Ridge, Penetang Peninsula and possibly at least one of the Vasey Ridge groups, as is suggested by the presence of Middleport-age communities. The larger Webb-Middleport population cluster in the Barrie area would have contributed all or most of the population to the other, slightly later, village sequences.

It is apparent that the relative number of sites in the various regions do not appear to correspond geographically with the number and distribution of villages noted in the historic period. Of the two tribes which are believed to have occupied Huronia in the prehistoric period, the *Attignaouanton* were the largest and occupied the Penetang Peninsula. During the Lalonde period, however, village clusters appear to have been more evenly distributed, occupying the high, well drained ridge areas throughout Huronia. The greatest number of village clusters appears to have been south and east of the Wye River. Clearly, late prehistoric immigrations had a dramatic effect on the "home territories" of many of the Lalonde groups.

At least two alternate reconstructions of the late prehistoric events are possible. First, as groups from other regions moved into the area, all community groups may have moved uniformly to the north and east.

As one possible alternative the author suggests that the Mount Saint Louis Ridge cluster of sites remained *in situ* to develop into the *Attingneenongnahac*. It is probable that one or more of the neighbouring clusters amalgamated with these communities to produce the historically documented population there. The larger *Attignaouanton* population may have been produced from the amalgamation of the Penetang Peninsula groups with other groups in Simcoe County. A large portion of the late prehistoric population in the Barrie area may have moved either into the Penetang Peninsula as other groups moved from south of the Oak Ridges Moraine, or west to provide part of the population of the Petun, as suggested by Warrick (personal communication, 1991). Additional population increase may have occurred through inter-marriage with northern Algonkians. Further survey and excavation is required before the scenarios offered here can be accepted. Specifically, survey around Lake Simcoe and in the Penetang Peninsula may identify either more village groups or indicate that some of the village relocation sequences are actually two or more communities. The author's reconstruction provides some framework within which the seriations presented below can be examined.

Methodology

A large number of ceramic collections are available for study and as many of these as possible were personally examined by the author in order to record attributes of stylistic variation. The program followed for the organization of the ceramic material was that devised by D. G. Smith (1983, 1987, 1991). Rimsherds and fragments were sorted so as to group together all sherds believed to have come from a single vessel. This sorting was made on the basis of physical mends or on the basis of a high degree of similarity in all observable attributes (including many which were not specifically recorded such as shape of the decorating tool). Each vessel was then typed according to either MacNeish's (1952), Wright's (1966: 73) or Ridley's (1952a) typology. The bulk of the analysis involved coding various attributes for each vessel. These included both continuous and discontinuous attributes of size, shape and decoration. Decorative motifs were recorded according to a roughly ordinal taxonomy devised by Smith for this purpose.

Smith (1991) provides a full discussion of this methodology.

The Sites

Over a hundred ceramic assemblages from late prehistoric sites over much of southern Ontario

were examined, most from prehistoric Huron villages. Many of these samples were so small that they cannot be considered statistically reliable. It is acknowledged that while as large a sample of pottery as possible should be obtained from an excavated village (Bellhouse and Finlayson 1979), generally a sample of at least a hundred rims or vessels is considered adequate for seriation purposes (Emerson 1968). In order to use the data available from as many components as possible, however, this rule was not strictly adhered to and samples with as few as seventy sherds were employed in this study. Some published data for sites the author was unable to examine were also included. Decorative motifs were adapted, when possible, from illustrations. Future analysis will include direct analysis of these collections.

Aside from the problem of small sample sizes there is the problem of the representativeness of the available sites of the region as a whole. As can be seen from Figure 1 and the discussion below, a large number of village sites from central and northern Simcoe County have been assigned to the Lalonde or Webb-Middleport periods. Only thirteen of these could be included in this analysis and not all could be used in each type of seriation attempted. A small number of later prehistoric and historic components were included in order to provide comparable samples from the later end of the sequence, i.e. the mid to late 16th and early 17th centuries.

The sites chosen for this analysis are presented in Table 1. Each site is listed with its most commonly employed name, Borden number, and most pertinent references. Also included is a four letter mnemonic code which is used for brevity in the seriation tables and accompanying figures. The sample sizes are primarily those used in the author's examinations of available collections with the exception of those from the Beswetherick, Bosomworth and Sallows sites, for which the published data was used, the Ellesmere-Morrison site which combined Ramsden's (1977) data with a small sample examined by the author, and Wiacek, which was abstracted and modified from the illustrations provided in the site report (Lennox, Dodd and Murphy 1986: 49).

The estimated dates for Alonzo, Angoutenc, Bidmead and Vints were based on the presence of European trade goods and historic documents. Accepted radiocarbon dates were available for Baumann and Beswetherick while those from the Wiacek site have been rejected by the authors (Lennox, Dodd and Murphy 1986: 159 - 160, 163). The other dates listed are those proposed by the authors given as references.

Seriation

In recent years there have been a number of discussions concerning the suitability of seriation with different types of data, the best means of performing seriation, and the most appropriate analytical units to employ in seriation (c.f. Cowgill 1972: 382). In the lower Great Lakes area the main question has been whether to use types or attributes as the primary analytical units in the seriation of ceramics (i.e. Smith 1987). While it is not the purpose of this article to discuss the theoretical or methodological issues of this debate, some form of analytical unit must be chosen for the purposes of seriation. As a compromise, and to maximize the use of the available data, both types, as defined primarily by MacNeish (1952), and attributes were employed in this analysis. More use was made of attributes, however, as they seem to be more chronologically sensitive (Ramsden, 1977; Wright, 1980) and a more consistent, objectively defined format for their use is available (Smith 1987).

The purpose of this seriation is to begin to order the available ceramic assemblages chronologically. Ideally, this purpose can best be served by limiting the samples employed to a series derived from a single community relocating through time. Such a series of samples, however, is not currently available from Simcoe County. At least sixteen communities were present in Huronia in the time period under consideration, ultimately making up the two historically documented tribal groups. The sites assemblages employed in this study may have derived from at least eight of these communities. It is hoped, however, that by restricting the analysis to sites in Simcoe County, we can at least eliminate some of the "contamination" which might be introduced by including more distant components (i.e. Deetz and Dethlefson 1965) The analytical categories employed here have been demonstrated to be widely applicable in Southern Ontario, that is, they vary relatively uniformly through time over a large number of site sequences.

Types: Despite the many criticisms which have been directed towards MacNeish's pottery types (i.e. Pratt 1960) this method of describing and comparing Iroquoian pottery has enjoyed widespread use and acceptance to the present day.

"Perhaps the major appeal of the use of types is simplicity - one name per pot. Reference to ceramic types gives cognoscenti an immediate impression of the ceramics at a site in a way that attributes cannot. The use of ceramic attributes is more unwieldy, requiring numerous observations and precluding easy communication with other archaeologists". (Engelbrecht 1980:27)

To this generalization it can be added that in some respects, MacNeish's pottery types do reflect generalized trends in changing prehistoric decorative habits and appear to be relatively unaffected by variation among individuals or small social groups.

The pottery types employed in this article are essentially those of MacNeish (1952) with the addition of Lalonde High Collar, Middleport High Collar (Ridley 1952a) and Copeland _____ Incised (Wright 1966: 73). Because of some recent analytical results, however, the author's use of these types does not exactly match that suggested by MacNeish. Concave vs. convex interiors appear to be more a product of temporal rather than spatial variation (Ramsden 1977: 139). Type distinctions based on this attribute alone were therefore avoided. For this reason, Huron Incised, Lawson Incised and Lawson Opposed were grouped together. By similar reasoning, and because of the developmental trajectory discussed by Lennox and Kenyon (1984), Pound Necked was grouped with Black Necked since again, the primary criteria for distinction was interior curvature.

In Iroquois Pottery Types, MacNeish recommends that a typical Huron collared vessel be typed as Sidey Notched when the lip of the rim has been stamped (1952: 33). No neck decoration was noted for this type. If neck decoration is present, MacNeish recommends the employment of the Black Necked or Pound Necked type (MacNeish 1952: 14, 36). No mention is made as to whether lip decoration would be allowed within this group. In his discussion of Iroquoian pottery types, Emerson (1968: 36) suggests that preference be given to lip decoration over neck decoration when typing vessels which possess both of these decorative attributes. This decision, however, was based on purely subjective reasoning. The author has adopted the opposite approach when conducting his own examination so there will inevitably be some error introduced from this source.

Finally, when a vessel has oblique lines over horizontal lines on the collar, a choice between the pottery types of Black Necked and Middleport Oblique is possible in some cases, depending on the nature of neck decoration. The author chose the latter type when the neck decoration consisted primarily of horizontals over plain, and the former type in other cases.

The percentage frequencies of the pottery types from the sixteen sites are presented in Table 2. The Brainerd-Robinson coefficients of similarity (Brainerd, 1951) are presented in Table 3 and the relationships inferred from these coefficients are presented in Figure 2. This figure was generated using a slight modification of double-link proximity analysis (Renfrew and Sterud 1969). For example, Webb and Wiacek show their closest connections with each other, as indicated by the double large arrows, while both have their second closest links with Baumann, as indicated by the smaller arrows. Baumann is most closely linked with Lalonde. The site Lalonde is second most closely linked to is Carson.

The seriation presented on Figure 2 appears to match quite well the proposed chronological placements of many of the sites individually. Wiacek and Webb appear at one end of the chain and have both been assigned to the late Middle Ontario Iroquoian period. At the other end of the seriation are the Historic Huron sites and a possible Late Prehistoric site, Hunter's Oro 17.

The overall linkage of the sites appears to support the seriation provided, although a number of possible discrepancies appear. First, Hunter's Oro 17 is most closely linked with the historic Alonzo and Bidmead sites although no trade goods have been associated with this site. Forget also appears late but may be interpreted as late prehistoric or possibly protohistoric. Most notable, however, is the placement of Goodeve and Angoutenc. The former site is most closely linked with Copeland and Sallows which is not unreasonable though slightly higher coefficients would have been preferred. The Angoutenc site, however, is most closely linked with Goodeve, then with Bidmead. In both cases, however, the coefficients are very low. It is suggested that this low level of similarity is a result of a biased sample.

It is also notable that the relative positions of the historic sites appears to follow the relative order suggested by glass trade beads sequences.

Major trends evident on Table 2 include the decrease through time of Middleport Oblique and Black Necked, while Huron Incised and Sidey Notched (with the exception of two sites) appear to steadily increase. Lalonde High Collar appears to increase early, reaching a peak probably by the middle of the sequence, and then decreases to below 20% in the later parts of the sequence.

Attributes: Attribute analysis has been offered as an alternative to type analysis because it may be sensitive to changes not apparent from types, which are subjectively generated attribute clusters. Specifically, since various attributes of the exteriors of decorated (or undecorated) Iroquoian cooking vessels are considered separately, there is no danger of assigning priority to any single attribute based on intuitive grounds. The consideration of

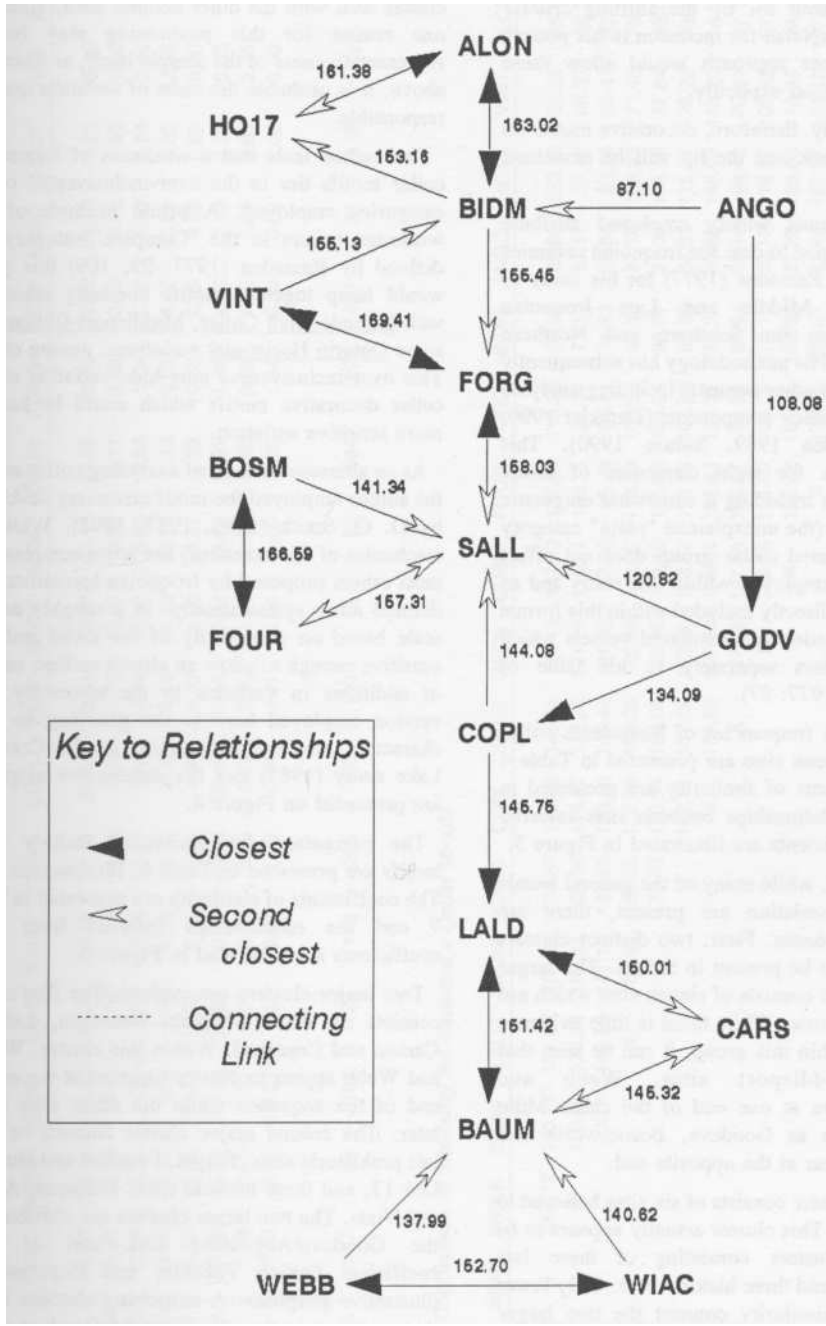
Table 2: Percentage Frequencies of MacNeish's Types

Types	Sites: WEBB	WIAC	BAUM	CARS	LALD	COPL	GODV	BOSM	SALL	FOUR	FORG	BIDM	ANGO	HO17	VINT	ALON
MID.OBL.	25.71	18.89	17.88	10.24	11.90	6.29	2.67	0.00	2.81	6.36	0.00	1.87	0.00	0.00	0.00	0.00
HUR.IN.	10.00	13.33	20.53	12.63	21.43	32.52	25.33	63.27	53.79	55.39	57.72	65.11	22.55	71.31	**54.35**	76.00
BLK.NK.	28.57	31.11	29.80	39.93	20.63	16.09	17.33	22.45	8.23	18.86	2.44	**3.75**	2.94	1.64	0.00	1.00
L.H.C.	2.86	2.22	13.25	23.21	27.78	20.33	**5.33**	12.24	7.68	8.30	1.63	0.00	0.00	0.00	0.00	0.00
SID.NOT.	7.14	7.78	1.99	0.68	3.17	15.03	10.67	0.00	15.58	3.13	28.46	13.58	4.90	6.56	32.61	12.00
SID.CRS.	4.29	0.00	8.61	2.05	2.38	3.97	8.00	0.00	5.41	1.29	1.63	1.17	0.98	4.10	0.00	0.00
COP.IN.	0.00	3.33	0.66	1.71	0.79	1.52	4.00	0.00	0.00	1.83	0.00	0.00	0.00	6.56	0.00	0.00
WAR.HOR.	0.00	0.00	1.99	2.39	1.59	1.66	0.00	0.00	0.76	1.51	2.44	**2.34**	0.00	0.82	1.09	0.00
WAR.CRS.	1.43	1.11	1.99	0.00	0.00	1.46	22.67	1.02	0.11	0.54	0.00	10.30	51.96	0.82	7.61	2.00
NIA.CRS.	1.43	2.22	0.00	2.05	0.00	0.07	0.00	0.00	0.00	1.40	0.81	0.47	2.94	0.00	2.17	4.00
D.HL.N.	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.22	0.00	0.00	0.47	1.96	0.00	1.09	2.00
ONT.HOR.	15.71	4.44	1.99	1.37	6.35	0.73	0.00	1.02	0.87	0.22	0.00	0.47	1.96	1.64	0.00	0.00
SD.CORD	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PD.BLNK.	0.00	5.56	1.32	0.00	0.79	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RIP.PL.	0.00	1.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M.H.C.	0.00	3.33	0.00	1.02	1.59	0.00	1.33	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00	0.00
ONT.OBL.	1.43	1.11	0.00	0.00	0.00	0.00	0.00	0.00	0.54	0.11	0.00	0.00	0.00	0.00	0.00	0.00
ST.LAW.	0.00	0.00	0.00	0.00	0.79	0.00	1.33	0.00	2.38	0.00	4.07	0.00	0.00	4.92	0.00	0.00
SEED IN.	0.00	0.00	0.00	1.37	0.79	0.00	1.33	0.00	1.62	0.54	0.81	0.00	0.00	1.64	0.00	1.00
IRO.LIN.	0.00	2.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
MID.XX	1.43	2.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NY.VAR.	0.00	0.00	0.00	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	6.86	0.00	0.00	1.00
WEST.AL.	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.98	0.00	0.00	0.00
EAST REG	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.96	0.00	1.09	0.00
TOTAL RIMS:	70	90	151	293	126	1510	75	98	924	928	123	427	102	122	92	100

Table 3: Coefficients of Similarity for MacNeish's Types

	WEBB	WIAC	BAUM	CARS	LALD	COPL	GODV	BOSM	SALL	FOUR	FORG	BIDM	ANGO	HO17	VINT	ALON
WEBB	X	152.70	137.99	114.38	114.60	97.16	91.43	74.69	73.68	89.51	47.29	52.60	47.28	49.51	40.00	42.00
WIAC		X	140.62	126.05	117.78	98.43	98.22	80.09	71.77	96.84	51.98	57.56	52.94	54.64	48.79	52.89
BAUM			X	145.32	151.42	133.38	117.00	114.53	96.76	120.50	60.39	67.50	60.77	64.39	51.18	51.01
CARS				X	150.01	124.09	89.51	96.68	74.14	108.05	46.03	47.70	44.02	44.51	33.57	36.08
LALD					X	145.75	112.06	110.66	97.84	125.69	66.94	66.90	60.97	66.93	51.38	52.79
COPL						X	134.09	125.21	144.08	142.94	109.93	113.47	67.65	97.16	100.72	94.48
GODV							X	98.04	120.82	116.85	87.67	106.19	108.08	90.23	87.22	80.00
BOSM								X	141.34	166.59	123.58	137.00	55.06	133.49	110.74	130.57
SALL									X	157.31	158.03	151.43	65.13	143.64	140.91	136.23
FOUR										X	133.46	136.07	63.72	130.78	121.00	123.98
FORG											X	155.45	63.37	146.49	169.41	144.70
BIDM												X	87.10	153.16	155.13	163.02
ANGO													X	65.06	78.82	72.71
HO17														X	125.09	161.38
VINT															X	143.22
ALON																X

Figure 2: Relationships of Sites from MacNeish's Pottery Types



attributes separately allows for the possibility that the various attributes may vary separately, that is, that they may have independent chronological trajectories. While this possibility may have been somewhat accounted for by the shifting criteria employed by MacNeish for inclusion in his pottery types, the attribute approach would allow these trends to be assessed explicitly.

Within this study, therefore, decorative motifs on the collar, the neck and the lip will be examined separately.

Possibly the most widely employed attribute taxonomy developed to date for Iroquoian ceramics has been that of Ramsden (1977) for his study of ceramics from Middle and Late Iroquoian assemblages from the Southern and Northern Division Huron. His methodology has subsequently been employed in other contexts including analyses of Trent River Valley components (Damkjar 1990, Nasmith Ramsden 1989, Sutton 1990). This taxonomy allows for eight categories of collar decorative motifs including a somewhat enigmatic "other" category (the unexplained "plain" category within the decorated collar group does not affect any of the sites employed within this study and so is ignored). Not directly included within this format are completely undecorated collared vessels which Ramsden considers separately in his table of attribute totals (1977: 87).

The percentage frequencies of Ramsden's collar motifs for seventeen sites are presented in Table 4 and the coefficients of similarity are presented in Table 5. The relationships between sites inferred from these coefficients are illustrated in Figure 3.

As can be seen, while many of the general trends of the earlier seriation are present, there are significant differences. First, two distinct clusters of sites appear to be present in the set. The larger of the two groups consists of eleven sites which are primarily prehistoric. While there is little evidence of clustering within this group, it can be seen that the Webb-Middleport sites, Webb and Beswetherick, are at one end of the chain while later sites, such as Goodeve, Bosomworth and Angoutenc, appear at the opposite end.

The second cluster consists of six sites believed to be later in time. This cluster actually appears to be two smaller clusters consisting of three late prehistoric sites and three historic sites. Only lower coefficients of similarity connect the two larger clusters; between Fournier and Hunter's Oro 17 of the later cluster and Copeland of the earlier cluster.

Again, a number of inconsistencies appear in this seriation and these appear in the larger, earlier, cluster. First, Wiacek appears much too late in the sequence, exhibiting little or no clear relationship with the contemporaneous Webb and Beswetherick sites. Secondly, although the Angoutenc site appears late in this sequence, it does not appear to cluster well with the other historic sites. Although one reason for this positioning may be the representativeness of the sample itself, as discussed above, it is probable the units of seriation are also responsible.

The author feels that a weakness of Ramsden's collar motifs lies in the over-inclusiveness of the categories employed. A prime example of this weakness occurs in the 'Complex' category. As defined by Ramsden (1977: 99, 109) this group would lump together motifs normally associated with Lalonde High Collar, Middleport Oblique and some Ontario Horizontal variations, among others. This over-inclusiveness may hide variation among collar decorative motifs which could be keys to more sensitive seriation.

As an alternate method of analyzing collar motifs, the author employed the motif taxonomy developed by D. G. Smith (1983, 1987, 1991). While the mechanics of this taxonomy are more complex than most others proposed by Iroquoian specialists, it is defined more systematically, in a roughly ordinal scale based on complexity of the motif and it is sensitive enough to allow an almost endless amount of additions in varieties to the taxonomy. The version employed here is the grouping to three characters employed by Smith in the Crawford Lake study (1987) and the mnemonics employed are presented on Figure 4.

The percentage frequencies of Smith's collar motifs are presented in Table 6, for fourteen sites. The coefficients of similarity are presented in Table 7 and the relationships inferred from these coefficients are presented in Figure 5.

Two major clusters are evident. The first cluster consists of Webb, Wiacek, Baumann, Lalonde, Carson and Copeland. Within this cluster, Wiacek and Webb appear to cluster together at the earliest end of the sequence while the other sites group later. The second major cluster consists of three late prehistoric sites; Forget, Fournier and Hunter's Oro 17, and three historic sites; Bidmead, Alonzo and Vints. The two larger clusters are connected by the Goodeve/Angoutenc link and a lower coefficient linking Fournier and Copeland for illustrative purposes. A surprising element within this seriation is the placement of Goodeve which appears closer to the earlier Baumann site than to presumed contemporaneous sites like Forget and Fournier.

Although it seriates fewer sites Smith's taxonomy

Table 4: Percentage Frequencies of Ramsden's Collar Motifs

Motifs	WIAC	WEBB	BESW	LALD	BAUM	CARS	COPL	ELLE	GODV	BOSM	FOUR	FORG	BIDM	ANGO	HO17	VINT	ALON
SIMPLE	42.53	27.54	28.39	33.33	39.86	37.41	53.10	28.51	38.67	43.10	75.68	80.33	79.12	29.79	78.81	85.39	92.71
OPPOSED	20.69	13.04	3.31	9.52	5.41	8.39	6.50	11.75	10.67	10.95	6.11	3.28	0.93	3.19	7.63	0.00	0.00
CROSSED	2.30	7.25	0.80	3.17	12.16	5.59	5.80	10.74	12.00	5.68	2.83	1.64	0.46	1.06	4.24	0.00	0.00
HATCHED	3.45	4.35	1.60	2.38	4.05	0.70	3.30	8.84	25.33	30.53	1.13	0.00	13.46	58.51	0.85	12.36	3.13
HORIZON	9.20	13.04	31.70	10.32	8.11	5.94	4.80	4.92	4.00	0.91	2.38	10.66	2.55	4.26	0.85	0.00	0.00
COMPLEX	20.69	33.33	28.39	39.68	30.41	40.56	26.30	31.43	5.33	8.82	10.97	1.64	1.62	3.19	6.78	0.00	1.04
INTER	1.15	1.45	2.51	0.00	0.00	0.00	0.20	0.90	4.00	0.00	0.90	0.82	1.86	0.00	0.85	2.25	3.13
OTHER	0.00	0.00	3.31	1.59	0.00	1.40	0.00	2.91	0.00	0.00	0.00	1.64	0.00	0.00	0.00	0.00	0.00
TOTAL SAMPLE:	87	69	100	126	148	286	100	100	75	99	884	122	431	94	118	89	96

Table 5: Coefficients of Similarity for Ramsden's Collar Motifs

	WIAC	WEBB	BESW	LALD	BAUM	CARS	COPL	ELLE	GODV	BOSM	FOUR	FORG	BIDM	ANGO	HO17	VINT	ALON
WIAC	X	154.72	130.27	154.84	159.63	150.87	160.63	145.04	131.13	137.93	132.64	118.20	105.39	89.88	123.55	94.25	95.69
WEBB		X	152.26	172.53	165.51	163.00	148.87	176.25	121.16	116.51	103.71	91.14	77.80	87.17	97.45	66.67	66.30
BESW			X	148.78	141.19	137.85	130.80	142.44	91.89	87.68	95.76	94.44	74.83	82.86	83.64	64.47	67.08
LALD				X	165.62	185.25	152.98	163.05	115.49	116.30	113.50	103.59	82.57	87.74	105.22	71.43	73.51
BAUM					X	170.92	170.94	168.08	138.92	129.48	125.16	109.06	98.97	91.09	115.96	87.84	88.06
CARS						X	162.61	161.89	122.86	123.67	120.79	102.63	87.36	84.38	115.21	76.22	78.31
COPL							X	150.83	127.60	136.64	153.43	129.31	124.34	89.58	145.02	113.20	114.93
ELLE								X	137.99	127.44	105.67	84.90	87.64	98.10	99.40	76.51	67.17
GODV									X	173.18	114.70	100.09	119.10	133.13	116.81	106.55	91.92
BOSM										X	125.82	101.15	120.98	137.35	126.88	110.93	94.54
FOUR											X	170.86	166.21	81.48	187.87	155.43	157.51
FORG												X	171.01	79.87	174.08	162.30	164.38
BIDM													X	97.63	168.74	186.67	170.28
ANGO														X	77.86	84.29	67.91
HO17															X	161.02	163.10
VINT																X	181.53
ALON																	X

Figure 3: Relationship of Sites by Ramsden's Collar Motifs

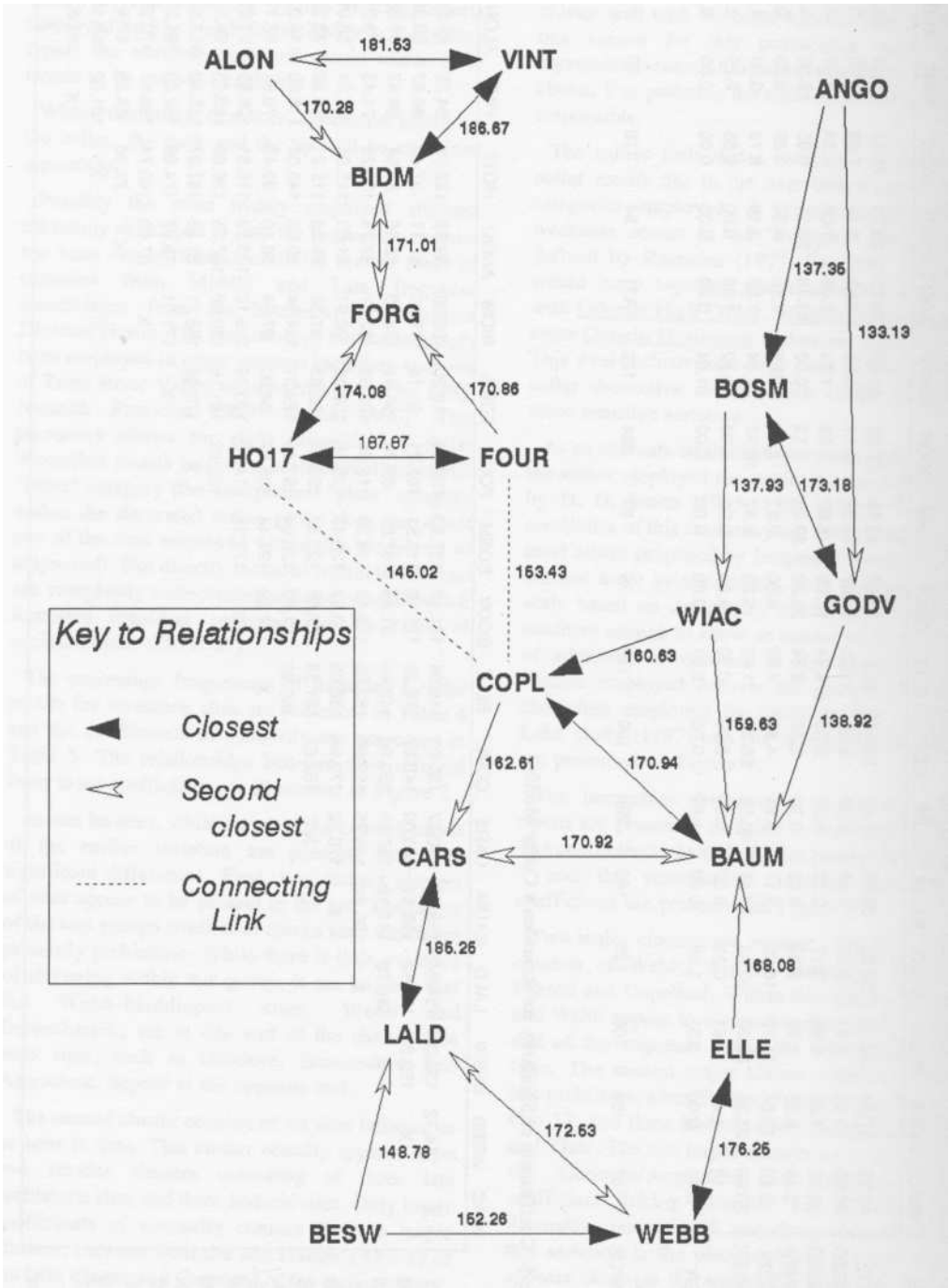


Figure 4: Description of Smiths Mnemonic Codes

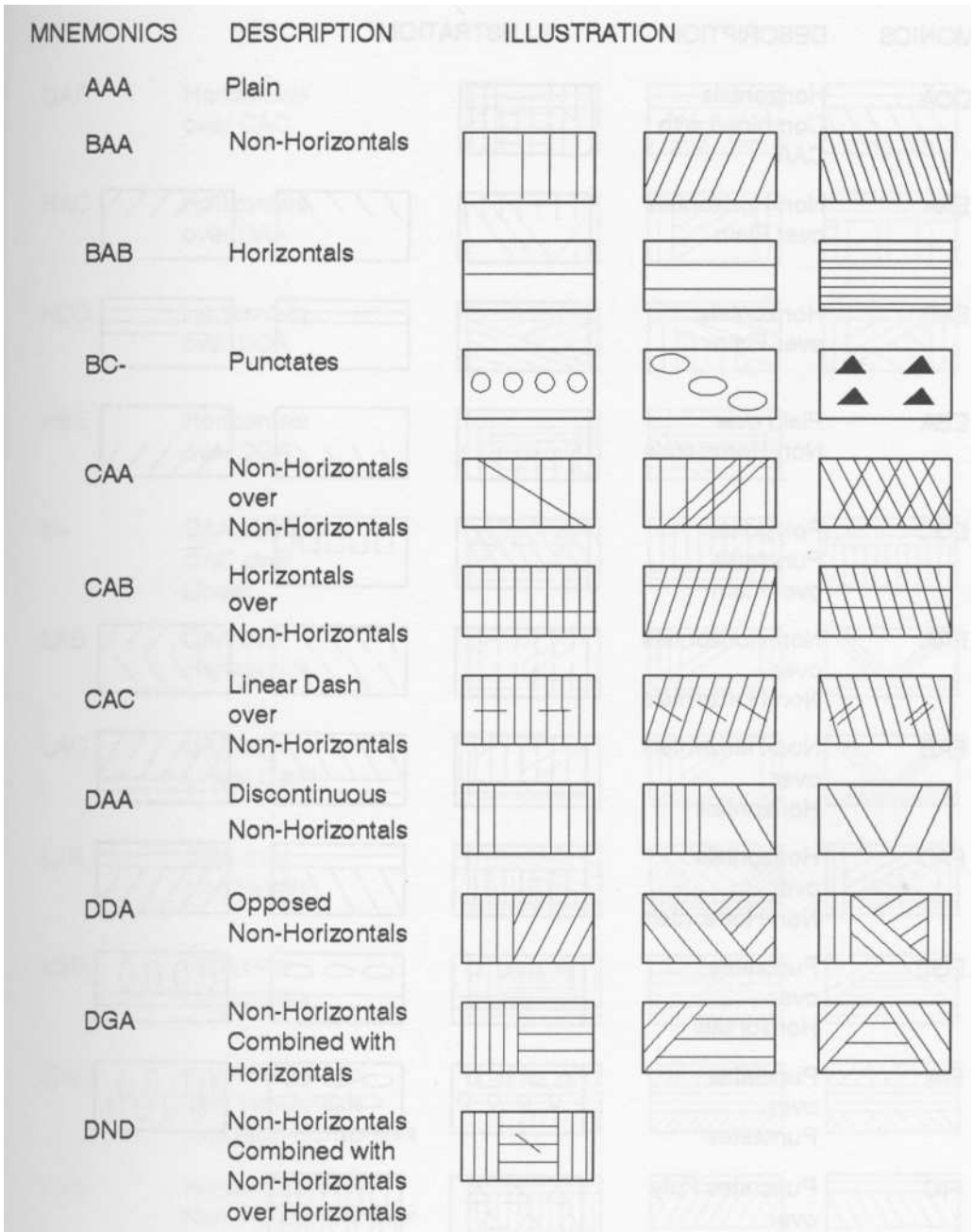


Figure 4: Cont'd.

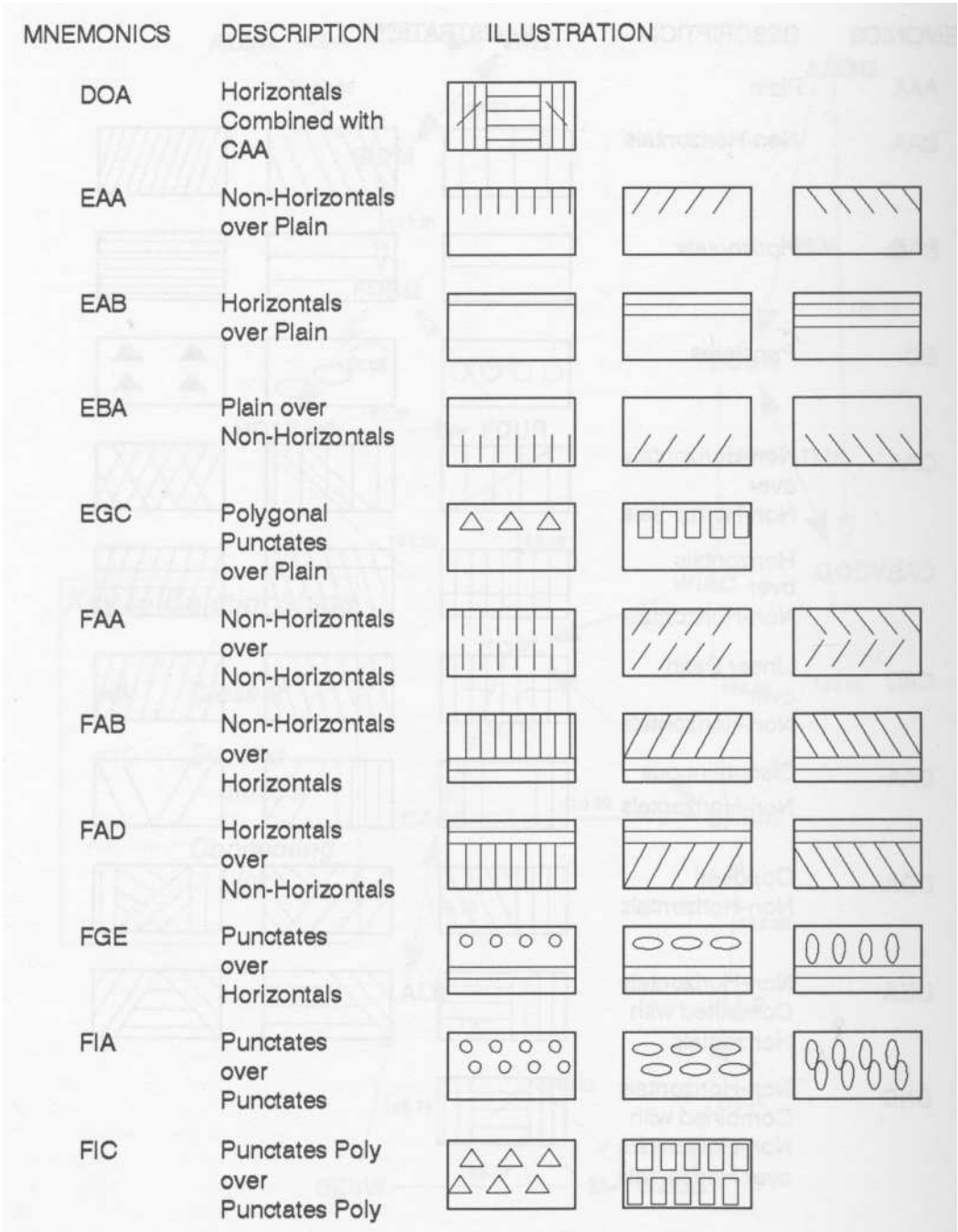


Figure 4: Cont'd.

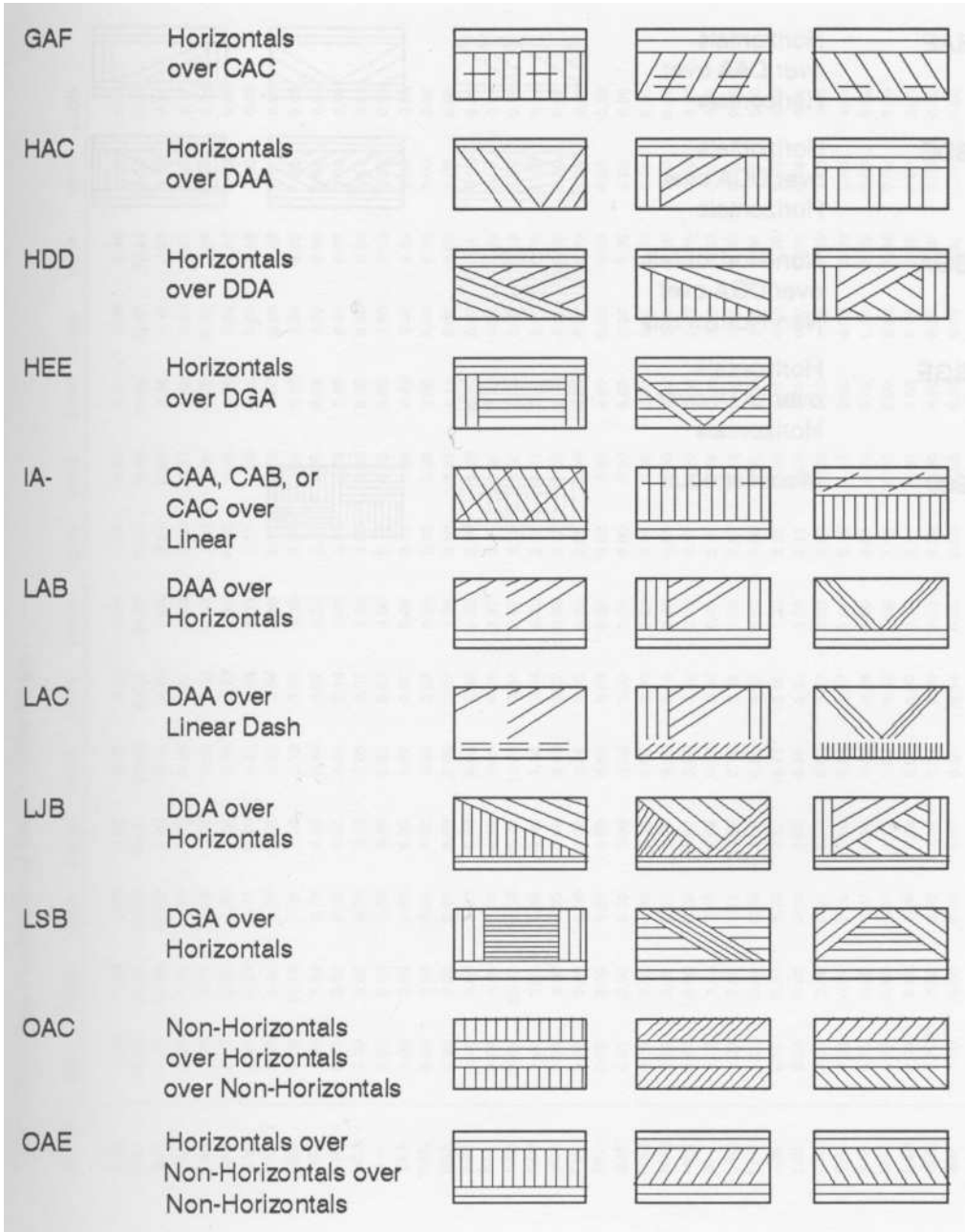


Figure 4: Cont'd.

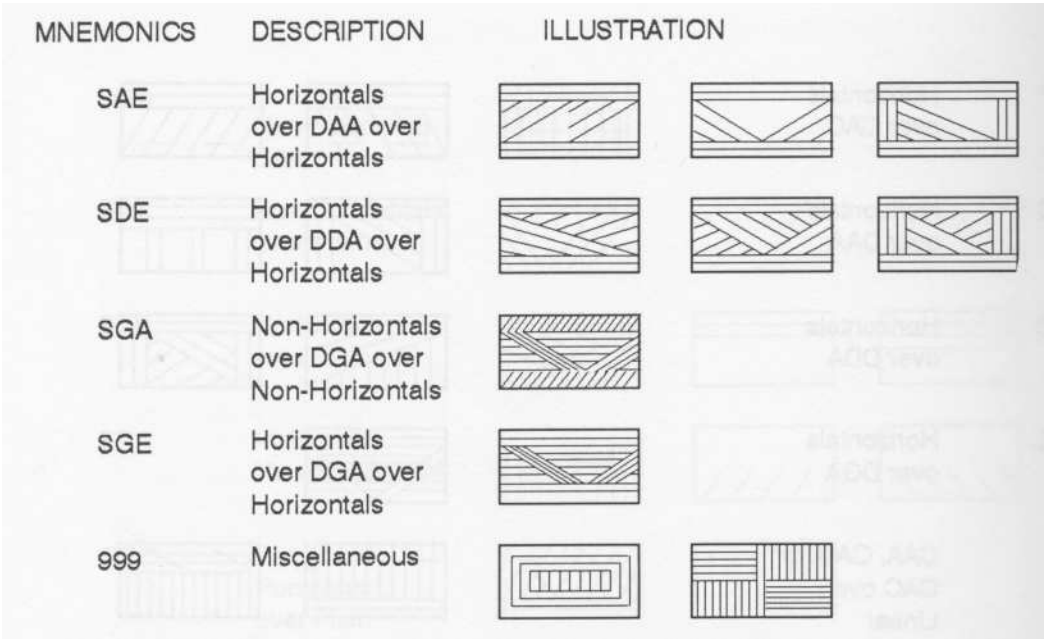
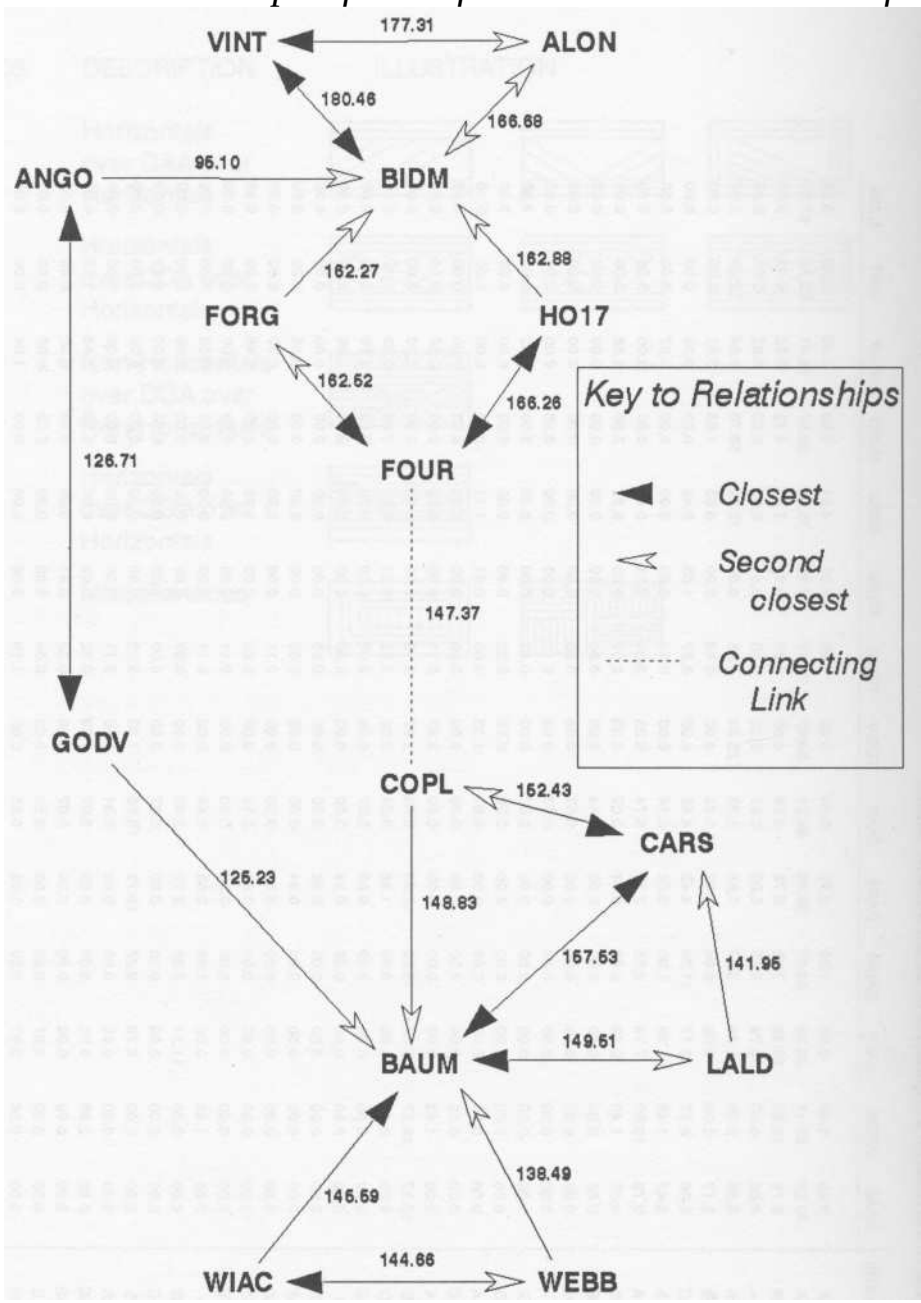


Table 6: Percentage Frequencies of Smith's Collar Motifs

Motifs	WIAC	WEBB	LALD	BAUM	CARS	COPL	GODV	FOUR	FORG	BIDM	ANGO	HO17	VINT	ALON
AAA	5.43	1.43	0.00	1.32	2.72	0.14	0.00	1.40	0.81	4.01	3.09	2.46	2.20	**5.88**
BAA	40.22	27.14	33.33	39.07	36.39	54.21	38.67	72.17	78.86	75.95	28.87	75.41	83.52	87.25
BAB	8.70	12.86	10.32	7.95	5.78	4.89	4.00	2.27	10.57	2.45	4.12	0.82	0.00	0.00
BC-	0.00	0.00	0.79	0.00	0.00	0.07	0.00	0.00	0.81	0.00	0.00	0.82	0.00	0.00
CAA	3.26	2.86	2.38	3.97	0.68	3.33	25.33	1.08	0.00	12.92	56.70	1.64	12.09	2.94
CAB	2.17	0.00	0.00	0.66	1.02	1.43	4.00	0.43	0.00	0.00	1.03	0.82	0.00	0.00
CAC	0.00	8.57	3.17	11.26	4.42	4.48	8.00	2.27	1.63	0.45	0.00	3.28	0.00	0.00
DAA	5.43	1.43	1.59	1.99	0.00	0.14	0.00	0.11	0.00	0.00	0.00	0.82	0.00	0.00
DDA	9.78	10.00	7.14	2.65	2.72	3.74	5.33	3.34	3.25	0.67	0.00	0.00	0.00	0.00
DGA	4.35	1.43	0.79	0.66	5.44	0.07	5.33	2.27	0.00	0.22	3.09	6.56	0.00	0.00
DND	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DOA	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D--	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00
EAA	1.09	0.00	0.00	0.00	0.00	0.07	0.00	0.43	0.00	0.45	0.00	0.82	0.00	0.98
EAB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00	0.00	0.98
EBA	0.00	0.00	0.00	0.00	0.00	0.07	1.33	0.00	0.81	1.11	0.00	0.00	0.00	0.00
EGC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.98**
FAA	0.00	1.43	0.00	0.00	0.00	0.00	2.67	0.11	0.00	0.22	0.00	0.00	0.00	0.00
FAB	19.57	28.57	10.32	15.23	12.93	5.64	2.67	3.13	0.00	1.56	0.00	0.00	0.00	0.00
FAD	0.00	0.00	1.59	0.66	1.36	0.54	0.00	3.02	0.81	0.00	2.06	0.00	1.10	0.00
FGE	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FIA	0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FIC	0.00	0.00	0.00	0.00	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GAF	0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HAC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00
HDD	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.65	0.00	0.00	0.00	2.46	0.00	**0.98**
HEE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00
IA-	0.00	1.43	0.00	1.99	0.68	0.54	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00
LAB	0.00	0.00	11.11	2.65	2.72	2.45	0.00	0.97	0.00	0.00	0.00	0.00	0.00	0.00
LAC	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LJB	0.00	0.00	8.73	9.27	19.73	15.56	1.33	3.02	0.00	0.00	0.00	0.00	0.00	0.00
LSB	0.00	0.00	0.00	0.00	0.00	0.34	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00
OAC	0.00	2.86	0.00	0.00	0.00	0.07	1.33	0.32	0.00	0.00	1.03	2.46	1.10	0.00
OAF	0.00	0.00	0.00	0.00	0.34	0.07	0.00	0.32	0.81	0.00	0.00	0.00	0.00	0.00
SAE	0.00	0.00	3.97	0.66	0.00	0.54	0.00	0.54	0.00	0.00	0.00	0.00	0.00	0.00
SD E	0.00	0.00	3.97	0.00	1.02	0.95	0.00	1.19	0.00	0.00	0.00	1.64	0.00	0.00
SGA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00
SG E	0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
999	0.00	0.00	0.79	0.00	0.34	0.14	0.00	0.00	1.63	0.00	0.00	0.00	0.00	0.00
TOTAL SAMPLE:	92	70	126	151	294	1472	75	927	123	449	97	122	91	102

Figure 5: Relationships of Sites from Smith's Collar Motifs



is preferred over Ramsden's. The use of a greater number of motif groupings appears to remove some of the misplacements seen in Figure 3 because of the over-inclusiveness of the complex category. Stated otherwise, Figure 5 conforms more closely to expected ordering produced through seriations with distant sites performed by other researchers (cited above under the individual site descriptions), with radiocarbon dating and through the presence of historic trade goods.

Another attribute which has demonstrated a high degree of apparent temporal patterning is the presence and nature of neck decoration (Ramsden 1977, Smith 1987).

For this analysis four relatively inclusive neck motif groupings were employed. Other motifs were initially coded but as they typically represented less than 1% of their assemblages they were grouped in this analysis (c.f. Smith 1983). It is acknowledged that there is a resultant danger of problems similar to those encountered with the use of Ramsden's collar motifs but it is anticipated that this danger is slight because of the relative redundancy of the motifs present.

Again, only the major decorative motif is considered. Unlike Ramsden (1977: 115), however, the author did not consider a single horizontal line at the top of the neck to be an element of secondary decoration but rather a variation of the horizontal motif.

The four motif groupings employed in this analysis are: plain, oblique incising, horizontal incising and horizontal over oblique incising.

Bias enters at this stage of analysis because of the size of sherds which are considered to be analyzable. Late Iroquoian rimsherds are generally considered to be analyzable if they include enough of the neck to show the presence and nature of decoration. The full motif on the neck, therefore, does not necessarily have to be complete. Because Iroquoian rimsherds often break just below the base of the collar and because the author had little time to attempt reconstruction, generally less than half of the assemblage coded had more than an inch of the neck preserved. For this reason, motifs which change vertically (such as horizontals over obliques) may be under-represented while the horizontals motif would be correspondingly over-represented.

The percentage frequencies of neck motifs for seventeen sites are presented in Table 8, the coefficients of similarity are presented in Table 9 and the relationships inferred from these coefficients in Figure 6.

Again, the results conform well with those of previous seriations. Three major groupings of sites are present. Webb, Wiacek and Beswetherick cluster quite closely together with connecting links to other sites being quite low. Carson, Ellesmere-Morrison and Baumann appear to represent a second main cluster which again exhibits little connection with other groups. A third cluster appears to contain all later sites: Lalonde, Copeland, Fournier, Goodeve, Bosomworth, Bidmead, Hunter's Oro 17, Angoutenc, Forget, Alonzo and Vints. Within this cluster there appears to be two groupings: one consisting of the first four sites mentioned and a second consisting of the historic sites and Forget and Hunter's Oro 17. The Bosomworth site appears to be an interconnecting link between the late prehistoric group and the historic group. Generally, the seriation generated with the neck decorative motifs corresponds well with the expected sequence.

Two other attributes which have been used to order late prehistoric sites chronologically are lip decoration (Ramsden 1977: 123) and subcollar punctates (Ramsden 1977: 130, 139, O'Brien 1976: 77). In general, lip decoration is expected to increase through time while subcollar punctates are expected to decrease. Table 10 presents the relative frequencies of the two attributes for the seventeen sites for which this information is available, arranged in the approximate chronological order determined through the earlier seriations. It should be noted that, in both cases, frequency was simply presence or absence and variations were ignored. This decision was based on reasoning similar to that used for the grouping of motifs of neck decoration above.

The frequency of lip decoration appears to vary irregularly through time. Since both prehistoric and historic sites have both high frequencies and low frequencies, it can be inferred that the frequency of lip decoration might be more a factor of regional stylistic variation within Huronia than chronological variation alone.

The frequency of subcollar decoration appears to vary more uniformly through time. If the presumed earliest sites in the sequence, Webb, Wiacek and Beswetherick, are kept at one end of the sequence, then the frequency of this attribute appears to increase from the late 14th century, reach a peak at the Fournier site, which may be late 15th century or early 16th century, and subsequently decline into the historic period. It would appear that subcollar decoration is a better attribute for determining chronological ordering than lip decoration.

Table 7: Coefficients of Similarity for Smith's Collar Motifs

	WIAC	WEBB	LALD	BAUM	CARS	COPL	GODV	FOUR	FORG	BIDM	ANGO	HO17	VINT	ALON
WIAC	X	144.66	128.50	145.59	133.19	119.16	120.90	109.35	105.96	105.66	86.93	103.88	91.35	99.15
WEBB		X	125.40	138.49	114.42	99.40	108.38	85.41	86.81	73.99	76.02	78.03	65.05	62.86
LALD			X	149.51	141.95	133.55	106.03	107.24	101.86	82.12	75.50	86.03	73.63	71.43
BAUM				X	157.53	148.83	125.23	116.57	105.54	99.43	80.55	96.56	90.07	86.68
CARS					X	152.43	117.14	116.72	97.66	90.28	83.73	101.83	80.74	79.59
COPL						X	119.69	147.37	130.00	126.01	76.33	124.80	116.58	114.99
GODV							X	109.50	96.72	116.53	126.71	103.78	103.71	83.22
FOUR								X	162.52	160.70	77.39	166.26	152.14	152.10
FORG									X	162.27	69.23	158.96	160.98	159.35
BIDM										X	95.10	162.88	180.46	166.68
ANGO											X	77.45	90.56	69.80
HO17												X	160.69	162.62
VINT													X	177.31
ALON														X

Table 8: Percentage Frequencies of Neck Decorative Motifs

Motifs	WIAC	WEBB	BESW	BAUM	LALD	COPL	ELLE	GODV	BOSM	CARS	FOUR	FORG	BIDM	ANGO	HO17	VINT	ALON
PLAIN	43.33	42.03	39.29	62.25	74.60	78.08	55.46	76.00	86.92	54.05	79.19	95.97	94.34	97.06	98.36	100.00	99.02
OBLIQUES	6.67	4.35	6.43	10.60	0.79	8.21	15.97	16.00	8.18	13.85	8.64	0.81	4.30	1.96	1.64	0.00	0.98
HORIZ	48.89	46.38	48.57	23.84	19.05	8.61	20.17	6.67	2.57	22.64	11.31	3.23	0.45	0.00	0.00	0.00	0.00
HOR>OBL	1.11	7.25	5.71	3.31	5.56	5.10	8.40	1.33	2.34	9.46	0.85	0.00	0.90	0.98	0.00	0.00	0.00

Figure 6: Relationships of Sites from Neck Decorative Motifs

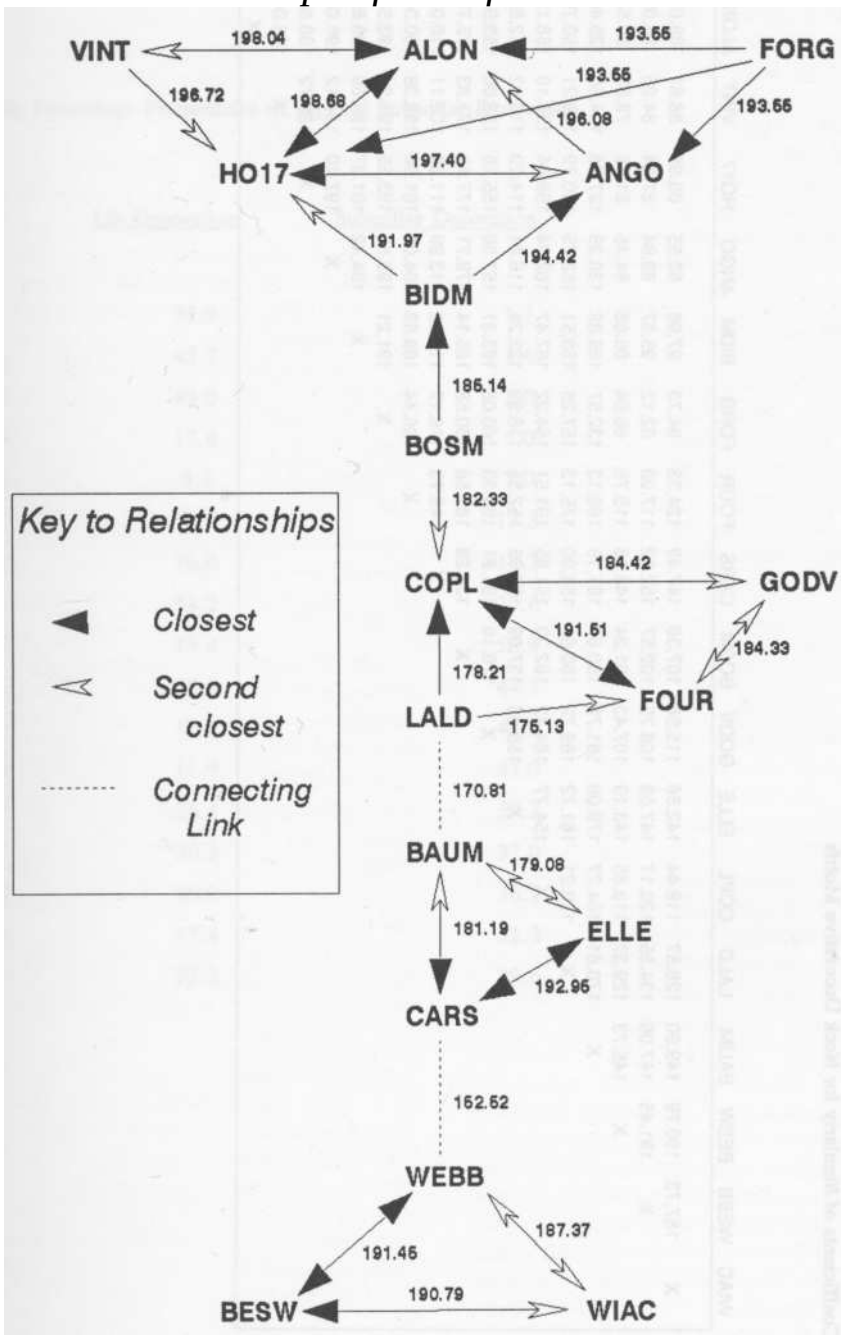


Table 9: Coefficients of Similarly for Neck Decorative Motifs

	WIAC	**WEBB**	BESW	BAUM	LALD	COPL	ELLE	GODV	BOSM	CARS	FOUR	FORG	BIDM	ANGO	HO17	VINT	ALON
WIAC	X	187.73	190.79	149.90	128.57	119.44	142.56	115.56	107.36	147.49	124.33	94.73	97.98	92.55	89.95	86.67	88.63
WEBB		X	191.45	147.06	134.85	120.17	147.58	108.75	102.57	152.52	117.09	92.12	95.37	89.94	87.34	84.06	86.02
BESW			X	145.73	129.37	118.85	143.19	107.43	101.24	148.13	115.76	86.64	89.88	84.45	81.85	78.57	80.53
BAUM				X	170.81	164.77	179.08	161.70	150.67	181.19	166.13	132.57	135.82	130.39	127.78	124.50	126.46
LALD					X	178.21	161.72	166.79	160.61	158.90	175.13	157.25	153.51	152.75	150.79	149.21	150.79
COPL						X	154.77	184.42	182.33	151.95	191.51	164.22	167.47	162.04	159.44	156.16	158.12
ELLE							X	158.86	137.09	192.95	152.55	118.99	122.24	116.81	114.20	110.92	112.89
GODV								X	176.16	151.81	184.33	160.06	163.31	157.88	155.28	152.00	153.96
BOSM									X	134.28	181.58	180.58	185.14	179.71	177.11	173.83	175.79
CARS										X	149.73	116.17	119.42	113.99	111.39	108.11	110.07
FOUR											X	166.44	169.59	164.01	161.66	158.38	160.34
FORG												X	191.21	193.55	193.55	191.94	193.55
BIDM													X	194.42	191.97	188.69	190.65
ANGO														X	197.40	194.12	196.08
HO17															X	196.72	198.68
VINT																X	198.04
ALON																	

Table 10: Percentage Frequencies of Lip and Subcollar Decoration

Sites	Lip Decoration	Subcollar Decoration
VINT	35.9	1.1
BIDM	45.7	1.6
ALON	49.0	2.0
ANGO	17.6	5.0
BOSM	3.2	7.0
HO17	10.7	12.3
GODV	16.0	17.3
FORG	53.2	25.6
FOUR	19.4	58.9
COPL	22.3	44.3
LALD	17.5	45.2
BAUM	11.9	45.0
ELLE	26.4	39.2
CARS	30.5	37.0
WEBB	10.0	36.2
WIAC	17.4	32.2
BESW	23.2	29.6

Discussion

The foregoing analysis was intended to introduce the ceramic assemblages of a number of sites in Huronia and to attempt to begin placing them within a regional chronological sequence. While many of the sites have been discussed in greater detail elsewhere and have been placed chronologically through comparison with sites in other regions, little attempt has been made to summarize the data within Huronia or to provide a comprehensive time-frame. The seriations provided here are intended to fulfil this purpose and provide a base upon which further research can build.

Within this analysis, a number of different analytical units have been employed to generate the seriations; MacNeish's pottery types and five different decorative attributes. These were chosen because of their applicability to the problem of chronology, as demonstrated by others. Little attempt has been made to "rate" these units, or the seriations they generated. Some of the seriations such as that based on lip decoration, appear less suitable than others for the definition of chronological trends.

In this final section the relative chronological positions of the sites examined will be discussed and compared to the relative dates provided elsewhere.

The Beswetherick site has provided the earliest radiocarbon date of any of the sites employed in this analysis, ca. A.D. 1360. This date appears to be within the Webb-Middleport or Middle Ontario Iroquoian time period. Seriations were only obtainable using Ramsden's collar motifs and neck motifs, both of which place the Beswetherick site at the end of the chains opposite the sites which have produced 17th century European goods. This end of the chain can therefore safely be considered the earliest end of the sequence. The seriation generated from subcollar decoration would also be consistent with this placement.

The Webb site is considered the type site of the Middleport horizon in Huronia (Wright 1966). As such, it is generally considered to date to the latter half of the 14th century. All seriations employed in this analysis place the site at the same end of the sequence as the Beswetherick site or at the earliest end of the chain inferrable when the appropriate data from the Beswetherick site was unavailable. Specifically, it always seriated before the Baumann site which has a radiocarbon date very early in the 15th century. A late 14th century date can therefore be supported.

The Wiacek site provided two radiocarbon dates but these were rejected by the investigators in favour of a late 14th or early 15th century date (Lennox, Dodd and Murphy 1986). Three of the four seriations generated above place the Wiacek site at the early end of the sequence along with Webb and Beswetherick. The seriation using Ramsden's collar motifs, placed the site much later. It can be suggested that this discrepancy is a result of the use of Ramsden's motifs. The subcollar secondary decoration data would support the placement of this site at the early end of the sequence.

The next oldest unchallenged date from the sites employed in this analysis came from the Baumann site: A.D. 1410 (corrected). The seriations based on MacNeish's types and Smith's collar motifs, place this site just after the Middleport sites while the others place the site slightly later. The subcollar decoration data would support this placement. The dating of this site would tend to confirm the placement of the preceding three sites in the late 14th century.

The Carson site also appears to have been occupied about this time. All seriations indicated a date similar to that of Baumann: early in the 15th century.

Only two seriations were possible for the Ellesmere-Morrison site, that for neck motifs and Ramsden's collar motifs. Both suggest a chronological placement similar to that of the Carson and Baumann sites.

The Lalonde site is also believed to have been occupied at this time based on inferences generated through the regional settlement pattern and comparisons with sites from other areas. Three of the seriations suggest a date early in the 15th century while the fourth, based on neck motifs, suggests a slightly later date. It is possible, therefore, that the Lalonde site dates nearer to the mid 15th century.

The Copeland site was estimated to date to around A.D. 1500. All seriations place the Copeland site later than the sites already mentioned which would support this contention although a slightly earlier date is possible. The Fournier site generally seriated later than the Copeland site although this relationship was reversed when both primary and secondary neck motifs were used. A date early in the 16th century is thus suggested.

Only one seriation was obtainable for the Sallows site, that generated with MacNeish's pottery types. This seriation placed the Sallows site at approximately the same time period as the Fournier site.

Four seriations were available for the Bosomworth site, including that based on secondary neck decoration. All placed this site very late among the sites lacking historic goods. It is possible, therefore, that this site would date to the mid 16th century, possibly even within the pre Fur Trade period (Fitzgerald 1990).

Although all seriations included the Goodeve site, the small size of the sample apparently hampered its interpretive value as both this site and the Angoutenc site were plagued with significantly low coefficients of similarity with other sites. In general, however, the site appears to be most closely linked to the sites inferred to have been occupied in the early to mid 16th century.

The Forget site and Hunter's Oro 17 site generally appear relatively close together in most seriations. In both cases these sites appear either among the historic sites or just prior to them. It is therefore suggested that these sites would have been occupied in the mid to late 16th century and further investigations of either these sites or their associated burials might produce early European material.

An unexpected result of this analysis was the conformity of the historic sites to the relative chronology suggested from European goods. The Bidmead site has been assigned to Glass Bead period 2, as has the Vints site, while Alonzo and Angoutenc are slightly later, in the Glass Bead period 2/3 transition. In the seriations Bidmead has consistently dated earlier than the Alonzo site, although the relative positions of the Vints and Angoutenc sites are less clear. While it is possible that the relatively early placement of the Bidmead site may partially be the result of the suspected Middleport presence at the site, it does not appear to have significantly altered the position of the site. It is anticipated that the use of more extensive collections from historic period sites may support the use of ceramic decorative attributes as an alternate means of providing relative dates during the 17th century.

Conclusions

The foregoing analysis of Huron site clusters and ceramic assemblages has been offered as an initial attempt to generate a detailed view of the culture history of prehistoric Huronia. The known distribution of Middle and Late Ontario Iroquois village sites was partitioned into clusters which may represent the sequential relocations of individual or paired communities through time. A number of ceramic collections which were available for study were then seriated to provide a means of suggesting relative dates for some of these components.

First, it should be reiterated that the chronological scheme suggested in this analysis has been based on subjective grounds. The early and late ends of the sequences are securely dated through radiocarbon dates, external comparisons (for the Middleport sites), and the presence of historic goods for the later sites. The relative positions of the middle sites within the sequences, however, are less secure. Dates assigned to these sites have been based on assumptions of relatively gradual and even changes in the frequencies of ceramic attributes and an assumption that the sites employed in this study evenly represent all time stages of the intervening century and a half. Obviously more assemblages from components from the late 15th through 16th centuries, securely dated by radiocarbon and settlement relocation data, would allow greater confidence in the inferences generated here. Ideally, if one of the site relocation sequences proposed above could be explored in greater detail, a sequence of ceramic stylistic variation through time could be constructed and used as a basis of comparison with other clusters.

A second area for further research involves the exploration of the meaning of ceramic stylistic variation itself. Documenting changes in frequencies of decorative attributes is only the first step in the study of culture-history, which provides a framework for identifying changes and then attempting to explain them. If, for example, changes in the use of different decorative attributes, or any other socio- or ideotechnic artifact system (Binford 1962), can be correlated with events in the culture-history of the Lalonde people, we can begin to address how changes transform a society and are transformed within it.

Related to this program is the need, again at the artifact level, to attempt to correlate different, apparently complementary, forms of stylistic expression. Within Iroquoian ceramic assemblages, variation within some decorative motifs form the basis of chronological (and other) seriations. While these observations have been used to formulate etic constructs, such as MacNeish's or Ridley's pottery types, no attempt has been made to test these assumptions in order to determine whether emit correlations exist (c.f. Dunnell 1986, Spaulding 1982). Whether or not attributes such as collar and neck decoration are actually non-randomly associated would be of great assistance in resolving whether types or attributes are the optimal analytical units to employ in seriation.

Finally, identifying social units which can then be

explored through time offers an opportunity to examine variation of a variety of phenomena across Huronia with greater definition. Differences in population sizes, social organization, the partition of the landscape, responses to the later immigrations, variation in trade intensity and direction, and even warfare, are but some of the problems which can be approached through greater resolution of the prehistoric cultural landscape. Hopefully, even the job of attempting to save individual sites can be enhanced when villages threatened by development can be referred to a specific "tribal" identity, and not as just another Lalonde site.

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It goes without saying, the author takes full responsibility for any errors or misinterpretations but, with further guidance, hopes to continue studies of prehistoric Huronia into the future.

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Figures and Tables

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