

DUTCH GLASS BEADS IN THE NORTHEAST:
AN ONTARIO PERSPECTIVE

IAN KENYON

(ONTARIO MINISTRY OF CITIZENSHIP AND CULTURE)

WILLIAM FITZGERALD

(MCGILL UNIVERSITY)

Paper prepared for session on Dutch Glass Beads,
Annual Meeting of the Society for Historical Archaeology,
Williamsburg, Virginia, Jan., 1984.

INTRODUCTION

In this paper we are concerned with the extent to which Dutch glass beads are represented on sites occupied by two Ontario Iroquois tribes, the Neutrals and Huron, who were dispersed by the Five Nations Iroquois of New York c.1650. There are two possible approaches to this problem. The first is to take the lists of beads recorded for the Dutch glass factories (Karklins, 1974) and compare them to the findings from the Ontario sites. But such a comparison is hampered by the lack of samples from factory sites of other European manufacturers of glass beads. This absence is particularly critical for understanding glass bead assemblages from Ontario, since it is historically known that the French were the principal although not the sole suppliers of trade goods to the Ontario Iroquois. The second approach, and the one adopted here, is to combine historical and archaeological data for the Northeast in order reconstruct sets of bead types circulating in the trading networks in which the Dutch, French and other European groups were involved.

To this end, we will first summarize the historical data pertaining to the various trade networks linking the Ontario and New York Iroquois to sources of European goods. Then we will analyze the glass bead assemblages from 20 Iroquoian sites from the Northeast, in an attempt to quantitatively define the relationship of glass bead types to these historically known trade routes.

TRADE ROUTES TO THE ONTARIO IROQUOIS

During the historic period of southern Ontario (ca. 1609/1615 - 1651), historical documentation indicates that there were three principal riverine trading networks which could have brought European and foreign aboriginal commodities into Ontario: 1. the French-oriented St. Lawrence/Saguenay/Ottawa/French route which would have involved, at various times, the Montagnais, Algonkin, Huron and Neutral; 2. the Dutch/Swedish, and perhaps Spanish and English, oriented Susquehanna route which would have been comprised of the Susquehanna, perhaps the Delaware, the Wenro, Neutral and Huron; 3. the Dutch-oriented Hudson route involving the Mahican, Five Nations Iroquois and Neutral. A brief review of the historical evidence for each of these networks indicates that the Ontario Iroquois were obtaining their European goods, to varying extents, from all three trade networks.

ST. LAWRENCE/SAGUENAY/OTTAWA/FRENCH ROUTE

There is abundant historical evidence indicating the antiquity of the St. Lawrence network. In 1534 and 1535 Jacques Cartier intensively explored the St. Lawrence River, reaching Hochelaga on Montreal Island by October 1535. By this time the Stadaconans (at Quebec) were quite familiar with the St. Lawrence, travelling downriver to fish and hunt on the Gaspé Peninsula and along the

northern shore, possibly as far as Labrador (Trigger, 1976:182,184). Also, both the Hochelagans and Stadaconans possessed knowledge of the native copper trade route to the northwest through central Quebec from the Saguenay and, perhaps, along the Ottawa River (Trigger, 1976:184; 1979:214; Quinn, 1977:180-181). By 1550 the Basque were trading for fur at Tadoussac (Trigger, 1979: 209), and after 1581, professional traders from France became fixtures on the St. Lawrence, trading places being established at Tadoussac, Trois Rivières, Quebec and Montreal (Biggar, 1901; Trigger, 1979: 210-214).

In 1603 Samuel de Champlain and Francois Grave du Pont proceeded along the St. Lawrence River to Montreal Island. They collected detailed geographical information from the Montagnais with whom they were travelling and also from an Algonkin group they encountered along the way (Biggar, 1922-1936 1:153-155), suggesting that these tribes were trading with lower Great Lakes peoples by at least 1603, possibly being stimulated by the fur trade (Trigger, 1976:233). As late as 1626, Ottawa valley Algonkins were hunting for beaver in Neutral territory (Daillon, 1866 3:803), likely in exchange for European goods (Trigger, 1976: 350).

In 1609 the Huron descended to the St. Lawrence for the first time (not to trade, see Trigger, 1976:215), and in 1615/1616 Champlain ventured into Huron, Petun and Cheveux Releve territory in Southern Ontario. During this excursion, Etienne Brule, Champlain's interpreter, may have passed through the country of the Neutral in route to the Susquehanna.

In the protohistoric era, there were three potential routes of the St. Lawrence network along which French-supplied European goods might have reached Southern Ontario: 1. down the St. Lawrence and directly into Lake Ontario; 2. via the Ottawa River and French Rivers into Georgian Bay; 3. up the Saguenay, through central Quebec and to the French River, and then into Georgian Bay. The first two routes were susceptible to attack by the Iroquois, initially because of their desire to secure a source of European goods, and later to raid Algonkin and Huron fur brigades. Both Trigger (1979:215) and Bradley (1979:365) agree that the first route was unlikely of any consequence, pointing to the paucity of European goods on St. Lawrence Iroquoian sites. This paucity of goods, however, may well suggest that the St. Lawrence Iroquoians were dispersed prior to the development of the beaver trade (Jamieson, 1983). It is not that they were being bypassed, instead it is probable that, aside from the 1535 Cartier incident, European goods were just not being traded inland in any substantial quantity before c.1581.

From perhaps as early as the 1480's (Quinn, 1965), Europeans were present along the north Atlantic coast, in the Gulf of St. Lawrence, and along the St. Lawrence River. Before 1581, exploring and fishing were the exclusive

preoccupations of the Basques (French and Spanish), Portuguese, Norman and Breton French, and English. The French became the controlling group on the St. Lawrence following the development of the fur trade sometime after 1581, with a brief English and Scottish interlude between 1629 and 1632.

For the Ontario Iroquois this St. Lawrence route was the principal source of trade goods, but it was not the only one.

THE SUSQUEHANNA ROUTE

Interaction between Ontario Iroquoian groups and the peoples along the Susquehanna network can be inferred historically as early as 1615/1616. At this time Brule travelled with a group of Huron to the Susquehanna, near Chesapeake Bay, to establish a military alliance offered by the Susquehanna against the Onondaga (Biggar, 1922-1936 3:53-54). While historical accounts of Neutral alliances or connections with the Susquehanna do not appear until 1652, when an alliance had been formed between the dispersed Neutral and the Susquehanna (Thwaites, 1896-1901 37:97), the sudden appearance of large quantities of marine shell items on Neutral and Huron sites of the late protohistoric period may have been a result of the development, or at least the intensification, of the Susquehanna-Wenro-Neutral-Huron trading network.

As marine shell is especially scarce on prehistoric and early protohistoric Southern Ontario sites (Kenyon, 1972), it once again may be suggested that the apparently sudden development of trade in this commodity may be related to the late 16th century European interest in beaver felt. In return for marine shell, it is not unlikely that southern Ontario groups supplied the Susquehanna, or other native middlemen to the south, with furs and, perhaps, French-derived goods.

In 1626, a group of Wenro traders were present among the Neutrals (Daillon, 1866:803), and in 1653 Bressani stated that these Wenro had "formerly traded with the English, Dutch and other heretical (i.e. Protestant) Europeans" (Thwaites, 1896:1901 39:141). Among these "heretical" Europeans may well have been the Swedes who, aided by some expatriate New Hollanders, established a trading post, Fort Christina, on the Delaware River in 1638. The founding of Fort Christina, stocked largely with Dutch goods (Johnson, 1911), may have even further intensified the Wenro-Susquehanna trade route. For the Wenro would then become integral intermediaries transporting furs from the Neutral to the Susquehanna and ultimately to the traders at Fort Christina, a network that might have siphoned off furs that the Neutral could potentially have traded to the Seneca or other Iroquois groups. It is not unlikely that the Seneca dispersed the Wenro in 1638, perhaps at the urging of the Dutch at New Amsterdam, not only to procure additional hunting territory

(Trigger, 1976:623), but also as an attempt to disrupt this network. Fort Christina's affect on the New Netherland's trade was such that in 1639 by Governor Willem Kieft estimated that 30,000 guilders had been lost to the Swedish competition (Trelease, 1960:109).

The European discovery of Chesapeake Bay may have been as early as 1521/1522 by the Spaniard Lucas Vasquez de Ayllon (Sauer, 1971: 70). In 1546 a French vessel was trading for furs and skins in the bay, and it appears that there was a French presence in the area north of the Spanish settlements into the 1600's (Quinn, 1977:533). Englishmen in a French fleet had taken shelter in the bay in 1560/1561 and traded for furs. Spanish Jesuits had unsuccessfully attempted to establish a mission in 1570/1571 on the York River; ultimately being killed by the natives in retribution for earlier Spanish slaving ventures (Sauer, 1971:221). Into the 17th century these contacts continued. John Smith ventured into the bay in 1608 from the English Jamestown colony and found that the Susquehanna were already in possession of European goods, possibly obtained from the French (Biggar 1922-1936 1:143-144; Ceci, 1977:160,171; Quinn, 1977:486; Brasser, 1978:81; Jennings, 1978:364).

Even before the establishment of New Amsterdam in 1626, the Susquehanna may have had an arrangement with the Delawares to permit access to the Dutch settlements along the New York coast, and later to the Swedish settlements on the Delaware River (Jennings, 1978:365). The English contact of 1608 provided the motivation for the establishment of English trading posts on Kent Island and Palmer's Island in Chesapeake Bay in 1630/1631 (Jennings, 1978:364). After the establishment of the Swedish colony on the Delaware River in 1638, the Susquehanna became the major ally and trading partner of the Dutch-supplied Swedes (Hunt, 149:36-37; Trelease, 1960:109; Trigger, 1976:725,792).

The Susquehanna and the Wenro were likely major suppliers of not only marine shell items to the Ontario Iroquois in return for furs (and perhaps prior to the late 1620's, French goods) but conceivably also European goods from the Dutch/Swedes, and possibly the English.

THE HUDSON ROUTE

While Henry Hudson is credited with the 1609 discovery of the river named after him, historical and cartographical accounts suggest that the Spanish, French, English, and Dutch possessed knowledge of the river's location and of its importance as a native trade route between the St. Lawrence and the Atlantic coast perhaps as early as 1540, and definitely by 1589 (Ceci, 1977: 154-171).

It was not, however, until the publicized fur trade investigations of Hudson and the establishment of the New Netherland Company trading post at Fort Nassau along the upper reaches of the Hudson River in 1614 that this area

became a major marketplace for Dutch commodities. The charter of the New Netherland Company expired in 1618 with private merchants continuing the trade until 1624 when Fort Orange (1624-1676) was established by the Dutch West Indies Company near the site of the by then defunct Fort Nassau (Trelease, 1960:32-35).

By 1628, the Mohawk had gained control of the territory surrounding Fort Orange from the Mahican, thus monopolizing the westward distribution of Dutch goods to the western Iroquois tribes (Fenton and Tooker, 1978:468). The Mohawk's hegemony also blocked the access to Fort Orange by the northern Algonkian and the Huron, who formerly had frequented the Hudson to barter for Dutch goods and especially marine shell items. With the establishment of a nearby source of Dutch goods in 1614, and in particular after the Iroquois gained exclusivity to this source in 1628 changes in the European assemblages of the Iroquois should be expected. Prior to this, the French appear to have been the predominant supplier from the St. Lawrence to Chesapeake Bay, as suggested by the homogeneity of glass bead assemblages on all early Iroquoian sites. With the coming of the Dutch to the Hudson in the 1610's and the Mohawk victory of 1628, distinct trading zones developed. No longer could the northern Algonkians have access to Fort Orange; they would be dependent upon the French for an assured supply of European goods. The Mohawk had their supplier in the Dutch, and the Algonkin and Ontario Iroquois had theirs in the French. However, the Neutral, because of their relationship with the Iroquois were likely receiving some Dutch items, although the relative quantity of Dutch vs. French goods on Neutral sites can not be predicted from the available historical documentation.

Neutrals were present in the Onondaga village attacked by the Huron and Champlain in 1615 (Trigger, 1976:319). As late as 1647, Seneca were reported in Neutral territory (Thwaites, 1896-1901 33:95,97), indicating the persistence of the Neutrals' "Neutrality", about which Champlain had written some 30 years earlier. Iroquois enmity developed towards the Neutral after 1647; however, before this, the alliance which existed between the Neutral and the Iroquois provided an avenue of trade for the Neutral from which they may have obtained Dutch goods indirectly from Mohawk distributors, presumably in return for furs. And at an earlier time, before the Iroquois possessed their own direct source of European goods from the Dutch, it is not inconceivable that they obtained French-supplied items from the Neutral, possibly in exchange for marine shell goods.

SITE SELECTION

In this analysis 20 sites are used: 10 from Ontario and 10 from New York and Pennsylvania. This 50/50 representation of the two geographical areas is quite deliberate. We wished to select sites from the two areas that would fall approximately within the same broad time

range -- a time range defined so as to include at least some portion of the era when French and Dutch competition was at its maximum. The late end is easy enough to define -- the early 1650's, the time of the Ontario Iroquois' dispersal. A demonstrably late Ontario site is the fortified Jesuit mission of Ste Marie among the Hurons, 1639-1649 (Kidd, 1949). Ste Marie should also serve as a sampling of French-trade items. For New York, the Onondaga Lot 18 site, dated by Bradley (1976) to 1650-55, approximates the terminal date for the Ontario Iroquois. As a Dutch counterpart to Ste Marie is Fort Orange, founded in 1624. We have been rather selective in the ethnic groups used in this analysis. Aside from Fort Orange, all of the 6 New York Iroquois sites are either Onondaga or Oneida. Sites of these tribes were chosen for two reasons: 1. owing to the work of Pratt, Bradley and others, good-quality published material is available on glass beads; 2. these tribes were located relatively close, within 200km, to the Dutch trading posts on the Hudson River. In addition, there are 3 Susquehanna sites, all reported by Barry Kent. In Ontario, 5 western Neutral and 4 Huron sites are included in the analysis, as well as Ste Marie.

Defining the earlier end of the time range to be included in the analysis is more problematic, since the calendrical dates of many early sites is a source of some disagreement among archaeologists working in Ontario and New York. Here we will backtrack a bit and outline the glass bead sequence of the Ontario Iroquois. We are in agreement that the Ontario sequence can be divided into three general periods, each characterized by a distinctive set of glass beads.

The first period is represented by only three Ontario sites (Kleinburg, Snider and Carton). Found at this time is a fairly wide assortment of beads, perhaps the most notable being a so-called frit-cored bead coated with dark blue glass and decorated with white appliques. There is a strong similarity between the bead collections from these Period 1 Ontario sites and the Adams site in Wray's Seneca sequence. These early Ontario and New York assemblages do not correspond closely to those reported for the 16th century Spanish Southeast, suggesting, although hardly demonstrating, that the Northeastern beads derived largely from the European trade in the St. Lawrence River.

The second Ontario period is represented by at least 18 sites. Period 2 is characterized by a somewhat monotonous assemblage, dominated by tubular and oval beads of white and dark blue glass. In the Seneca sequence, the Cameron site is a good match for the Ontario sites. As with the Period 1 beads, we suspect that the Period 2 beads also principally derived from the St. Lawrence trade.

The third and last Ontario period can be sharply differentiated from the previous one. Typical of these latest sites, of which over 36 are known, are light blue and red beads of round and tubular shapes. It is also at

this time that there are fewer resemblances to the Seneca sequence, which provides such good counterparts to the earlier two Ontario glass bead periods.

In the subsequent analysis, then, only these later, Period 3, Ontario sites are used. Sites with a preponderance of Period 1 and 2 bead types are excluded. Among the 5 Neutral sites, we have included Daniels, which of all of the Ontario sites has the best documented "transitional" assemblage, displaying about 10-15% of the Period 2 style beads. Similarly for New York and Pennsylvania, only sites which clearly post-date the early "white-and-blue" horizon, typified by the Seneca Cameron site, are included. The earliest of the New York sites studied here are the Oneida Cameron and the Onondaga Pompey Center sites, which are very similar to the Dutch Hollow site of the Seneca sequence -- the village which immediately succeeds in time the Seneca Cameron site.

BEAD TYPES

The exercise of compiling the beads from the 20 sites resulted in the identification of about 300 varieties, the majority of which consisted of styles found on only one site and represented by one or two beads. All bead varieties unique to one site were eliminated from the subsequent analysis. For not a single site, however, did this data "censoring" result in more than a few percent of the beads being dropped from the analysis. As well, certain of the Kidd's varieties were lumped together. This lumping was done for two reasons: first, to reduce the number of varieties used in the analysis to a more manageable number; second, to minimize observer error.

This last point needs further discussion. Not all of the Kidd's varieties are equally discrete -- as frequent users of the Kidds' typological system well know. Certain varieties are distinguished by ambiguous and intergrading attributes, about which different observers may well make different judgments. There are certain unresolved difficulties in analysing bead colour. Karklins (1982) suggests some stringent and sensible guidelines for the examination of bead colour: But how many analysts faithfully follow these guidelines? Colours may not only intergrade, but also even with a single specimen the apparent colour may vary depending on the whether it is examined with reflected or transmitted light, and whether the bead is dry or moistened. In particular, blues are difficult to judge consistently. The precise tint of translucent cores is even more problematic especially with tubular beads. For these reasons, in the following analysis the precise tints of cores have been ignored; and colours reduced to primaries (e.g. all rounded blue beads are combined regardless of whether they are "robin's egg blue", "brite navy", "shadow blue" and so forth). This is not to suggest that these colour differences are unimportant but merely to recognize the problem of observer error. Another

Problematic distinction is that between circular and round, easy enough to define objectively with vernier caliper measurements, but, once again: Do all analysts use the same criterion of "roundness"? So, we have also lumped round and circular beads. As well, beads of similar structure and colour but with varying numbers of stripes have also been combined. These agglomerations of the Kidds' bead varieties will be referred to below as "types", without any suggestion that these "types" have any formal status beyond the confines of this study.

Below we will compare sites based on the relative frequency of bead types, and for the sake of analysis we will accept the bead samples as being "representative" of the sites. This is of course an unwarranted assumption. It is well known that different collecting procedures will result in different recovery rates for beads. Large, brightly coloured beads are more visible than drab-coloured small ones. Owing to this potential for bias, it is unwise to rely heavily on the findings from any one site, consequently in the following analysis we will not be overly concerned with the placement or relationships of any given site, but rather with the general pattern.

ANALYSIS

The elimination of unique beads from the study and the lumping together of similar varieties reduces the number of bead types to only 60 from the original c.300. But this still leaves a 20 site by 60 variable matrix containing some 1200 numbers: a large enough set of data to require quantitative methods of data reduction and pattern recognition. Here we will principally rely on hierarchical agglomerative cluster analysis (see, for example, Everitt, 1974).

A hierarchical cluster analysis of the 20 sites reveals 5 distinct groupings or clusters, labelled here, not quite arbitrarily, as ONT1, ONT2, NY1, NY2, NY3 (Fig. 2). Seven separate cluster analyses, using various combinations of distance measures and clustering methods, yielded the same five groupings. The seven cluster analyses varied only in their specific arrangement of sites within clusters and the connections between clusters at high distance levels.

Of particular interest with the cluster analysis is the placement of the various ethnic groups. Ontario sites cluster only with other Ontario sites, not with those in New York and Pennsylvania. There are two such clusters of Ontario sites (ONT1, ONT2 in fig. 2), both containing a mixture of Huron and Neutral samples. That is, there seems to be no major difference between the Huron and Neutral glass bead assemblages. The two groupings of Ontario sites almost certainly represent two periods. One group (ONT2) consists of sites known or suspected to have been occupied in the 1640's, notably the French mission site of Ste. Marie (1639-49), as well as the Train site, thought to be Huron village of Teanaustaye destroyed in 1648. The two

Neutral sites in the ONT2 cluster, Hamilton and Hood, are also believed to date to the 1640's. The presence of Jesuit rings at Hood has led Lennox (1978) to suggest that it was one of the villages visited by Brebeuf and Chaumonot during their missionary activities among the Neutrals in 1640-41. The other grouping of Ontario sites seemingly consists of pre-1640 components. Included here is the Ossossone Ossuary, which Kidd (1953) has argued represents the 1636 Feast of the Dead ceremony witnessed by Brebeuf. It is reassuring to find that the Neutral Daniels site, which contains a notable sprinkling of the early white ovoid beads, clusters with the ONT1 group.

The New York and Pennsylvania sites form three clusters (NY1, NY2, NY3 in fig. 2): the Oneida, Onondaga and Susquehanna sites are intermixed; the Dutch post of Fort Orange sits squarely in the NY2 cluster, with 3 Oneida and 2 Susquehanna sites. The three New York/Pennsylvania clusters certainly represent broad chronological groupings. The earliest consists of the Cameron and Pompey Center sites, the former dated by Pratt (1976) to 1570-1595 and the latter by Bradley (1977) to 1600-20, although, as we will suggest later, these dates may be somewhat too early. The middle cluster (NY2) includes Fort Orange, founded in 1624, and Thurston, which Pratt (1961, 1976) has identified as an Oneida village visited by a Dutch expedition in 1634: an identification nicely supported by presence of a Prince of Orange box, conveniently dated 1634. The latest cluster (NY3) contains the Onondaga Lot 18 site, dated by Bradley (1976) to 1650-55.

Another way of looking at the 20 site by 60 variable data matrix is to cluster the bead types rather than to cluster the sites. A hierarchical cluster analysis of the 60 bead types reveals 7 main groupings, arbitrarily labelled here, for the sake of reference only, "A" through "G" (fig. 3). Here we should point out that for some of the minor bead types -- those with a few percent sprinkled on only two or three sites -- can not be considered as being reliably assigned to type clusters. A much larger number of sites would have to be included in the analysis to place these minor types with any confidence. But once again in this paper it is the broad pattern with which we are concerned.

What then is the relationship between the 5 site groupings and the 7 bead type groups extracted from the cluster analyses? Fig. 4 displays the percentages of the 7 bead type clusters on the 20 sites. The sites are placed so that the three New York/Pennsylvania site clusters are on the left of the chart and the two Ontario site clusters are on the right. The New York and Ontario blocks are arranged so that within each the sites are in their approximate chronological order, the earliest sites towards the left and the later sites towards the right. More specifically, each of the two major spatial blocks of sites was permuted until what appeared to be a best fit linear

order or seriation was found.

With one exception, each of the 7 bead type clusters is largely to confined to either Ontario or New York/Pennsylvania, and each characteristic of a particular period within these areas. These type clusters will be discussed in turn.

Cluster A consists of 12 types. The most common is a red round to circular bead with a core (IVa2). Also important are facettted star beads (IIIk3); square, blue compound tubes (IIId1); a similar compound tube (IIId'3), only twisted and with a red core; turquoise blue tubes (Ia12); and red round beads with three blue on white stripes (IIbb1). These are largely restricted to the Ontario sites, constituting over 50% of the beads on the earlier sites (ONT1 cluster) declining somewhat in frequency on the later Ontario sites (15%-30%). There is a sprinkling of the A-cluster beads on all of the New York/Pennsylvania sites, particularly the two earliest ones, Cameron and Pompey Center. Nonetheless, no Ontario site has a percentage of less than 15% and no New York or Pennsylvania site has a percentage greater than 15%.

Cluster B consists of only two types: solid red tubes (Ia1) and solid red round beads (IIa1). High frequencies of these two types, 35% to 70%, are characteristic of the latest Ontario sites, especially those known to date to the 1640's. Percentages of less than 10% are found on the earlier Ontario sites. This type cluster is not well-represented in New York, with the exception of the late Lot 18 site, whose 15.5% is much lower than that seen on near contemporaneous Ontario sites.

Cluster C's principal type is the round, solid-bodied blue bead (IIa40). It is found in about equal abundance in Ontario, New York and Pennsylvania. Nor is it restricted to any particular time, although it tends to peak in the middle period of both sequences. In general the blue round beads have a wide distribution in time and space; they are seen on the very earliest Ontario and New York sites to have glass beads -- Adams, Carton, Kleinburg -- and also they have a wide distribution in the Southeastern United States, unlike many of the other bead types discussed here.

Cluster D consists of 16 types, of which 15 are round polychrome beads. Prominent in this cluster are rounded chevron or star beads of two different types (IVk3, IVn4) and round beads with a blue-white-blue compound body and with various numbers and arrangements of white stripes (IVb30, IVb32, IVb33). A sprinkling of these polychrome beads are found on almost all sites included in the study; however, they occur in abundance only on the two earliest New York sites considered here, Cameron and Pompey Center. At these sites the D-type cluster constitutes over 40% of the beads; no Ontario site has more than 10%. Charles Wray (1973) has appropriately labelled this type cluster the "polychrome bead era", and it is represented in his Seneca sequence by the Factory Hollow and Dutch Hollow sites.

Cluster E contains 7 types, only two of which are common: round black beads (IIa6) and round cored blue beads (IVa19). As a cluster these beads are characteristic of the middle period New York/ Pennsylvania (NY2) sites. The black round beads, present on all of the New York and Pennsylvania sites regardless of age, are totally absent from the Ontario sites. The cored blue beads are found in abundance on only one Ontario site, Daniels.

Cluster F has 7 types. The most common is a cored, white round to circular bead (IVa13). Also fairly common on some sites are round turquoise-bodied beads with 3 or 4 white stripes (IIb56) and solid red beads with white stripes (IIb2). This cluster is found on middle period New York/ Pennsylvania sites in percentages usually greater than 20%. It is the most common type cluster at Fort Orange at 35%. The percentages on the 10 Ontario sites never exceed 3%. In Wray's Seneca sequence the cluster E & F beads dominate the Warren site assemblage.

Cluster G consists of 11 types, 9 of which are tubular. Prominent here are cored red tubes (IIIa2), compound dark blue tubes (IIIa12), and solid dark blue tubes (Ia19). Such tubular beads are characteristic of the New York/ Pennsylvania sites dating to c.1650: at the Onondaga Lot 18 site 64% of the beads can be assigned to the G-type cluster. In the Seneca sequence the red and blue tubes dominate at the Power House and Steele sites; and at Fort Orange 33% percent are G cluster. In contrast, the Ontario sites, even those datable to the 1640's, have 7% or less of the G cluster beads.

Although the linkages between the New York and Ontario sites are fairly low, there are some systematic connections, as shown in fig. 5. Here early sites clusters are placed at the bottom and late clusters at the top, with Ontario on the left and New York/ Pennsylvania on the right. For each site a matrix of Brainerd-Robinson similarity coefficients was scanned and the highest similarity with a site in the other spatial block depicted with an arrow. For example, the Hood site of the Ontario sequence has similarity coefficients ranging between 12.9 and 50.8 to the 10 New York and Pennsylvania sites (in comparison its coefficients with the other 9 Ontario sites ranges from 45 to 132.7). Hood's highest similarity to a site not in Ontario is the 50.8 coefficient with the Onondaga Lot 18 site. This is shown in fig. 5 by an arrow pointing from Hood to the Lot 18 site.

In this figure, there are three networks of linkages between Ontario and New York. The latest network evidently consists of sites occupied in the 1640's and early 1650's: this includes Ste Marie, Hood and Lot 18. The middle cluster seemingly represents sites of the 1630's. Included here are the Ossossane Ossuary of 1636 and Thurston occupied in the year 1634. The Train site, destroyed in 1648, also links with this group. The earliest network consists of 4 Ontario sites and 4 New York sites. None of

these sites can be precisely dated by independent historical evidence, but the figure does suggest a broad contemporaneity among the sites in this network. That this network predates some demonstrable mid-1630's sites implies a pre-1630's date.

CONCLUSIONS

Clearly there are substantial differences between the New York/ Pennsylvania and Ontario glass bead sequences, differences that start at some early date and persist until c.1650, when the Ontario Iroquois were dispersed.

An inescapable conclusion is that this is a reflection of the different types and frequencies of beads circulating in the Dutch and French trading spheres. There seems little question that this should be the case for the 1630-50 sites, but when do these differences begin? Such relatively early New York sites as Cameron and Pompey Center are as clearly differentiated from the Ontario sites as the later ones. Certain key bead types on such sites as Cameron (Oneida), Pompey Center, and Dutch Hollow include those known to have been made by the Dutch (although of course these types may have been made in other bead manufacturing centres as well). The rounded star beads, found in such abundance on these early New York sites, are reported by Karklins for a number of Dutch bead factories (Karklins, 1974:78-79; also the Asd/K910 site in Amsterdam reported in this session). Another common grouping of types on these early sites are rounded blue-white-blue beads with white stripes (e.g. IVb30,34,35) also found in the Dutch factory collections (Karklins, 1974:77; also Asd/K910). Indeed, this style of bead is perhaps so characteristic of the Dutch industry, that it is very one being made by the Dutch bead workers in Jacob Van Loo's 17th century painting (Kidd, 1979:101).

The historical record suggests a broad range of time at which significant quantities of Dutch trade material could have reached the Five Nations Iroquois of New York: 1. the closing decades of the 16th century, when the Dutch merchants began to turn towards the New World as a source of trade (Bradley, 1979:371-372); 2. the 1609-1617 period when the Dutch not only visited the Hudson but established a trading post about 50km from the Mohawk; 3. after 1628, at which time the Mohawks secured direct access to Fort Orange. The pre-1600 era can be excluded for two reasons: the Dutch glass bead industry started in 1597 (Karklins, 1974:64) and there is little historical evidence for intensive trade between the Five Nations and the Dutch traders of this period. One notable characteristic of the early New York "polychrome bead era" sites is that not only do they display manifest differences with the Ontario sites of the French-trade sphere but also they have a much greater abundance of trade goods than earlier sites. For the Onondaga sequence, "...European goods are suddenly present in quantity (Bradley, 1977:1)" at the Pompey Center

site. For Dutch Hollow and Factory Hollow of the Seneca sequence, "...varieties and quantities of glass beads increased tremendously, indicating direct trade between the Seneca and the European (Wray, 1973:17)". These observations suggest that the "polychrome bead" sites date to the period of direct Dutch contact in the Hudson, which started with Fort Nassau in 1614, and continued with Fort Orange in 1624. Such sites as Cameron and Pompey Center most certainly predate the Mohawk victory of 1628, since these sites have glass bead assemblages showing relatively low similarity coefficients with Fort Orange.

Turning back to Ontario, the answer to the problem posed at the outset of the paper -- to what extent are Dutch-trade beads found on Huron and Neutral sites? -- would seem to be: not very many. For the Huron and Neutral sites studied here, the French trade was overwhelmingly predominant. Yet to some extent this may be an artifact of our selection of sites. Historically we have seen that the Neutrals were involved in trading networks other than that of the French -- Dutch/Iroquois and Susquehanna/Dutch/Swede connections are clearly indicated. The Neutrals were not a single, unified tribe but rather a confederacy of separate groups, who may have participated at different rates in the three major trade networks. In the present study, only western Neutral sites were examined. Yet it is the eastern Neutrals that were most likely to have been intensively linked in trade with the Seneca and Susquehanna. In Ontario these eastern Neutral sites are for the most part poorly known, but the one well-documented component, the Grimsby cemetery (W. Kenyon, 1982; Kenyon and Fox, 1982), displays a greater frequency of New York-related types than do any of the 5 western Neutral sites analysed here.



Figure 1. Tribal and Site Locations

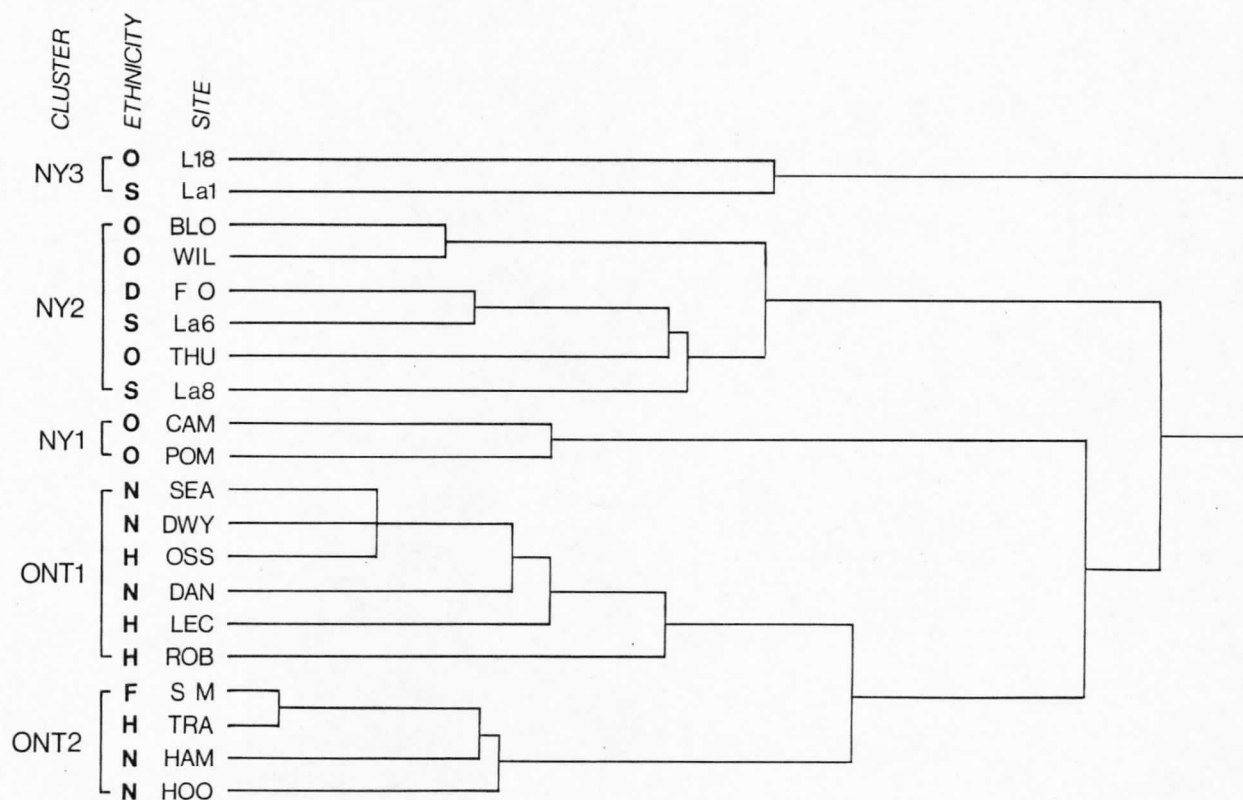


Figure 2. Cluster Analysis of Sites.
(city-block distances and group average
clustering.) Ethnic groups: O, Oneida/
Onondaga; N, Neutral; H, Huron;
F, French/Huron; D, Dutch; S, Susquehanna.

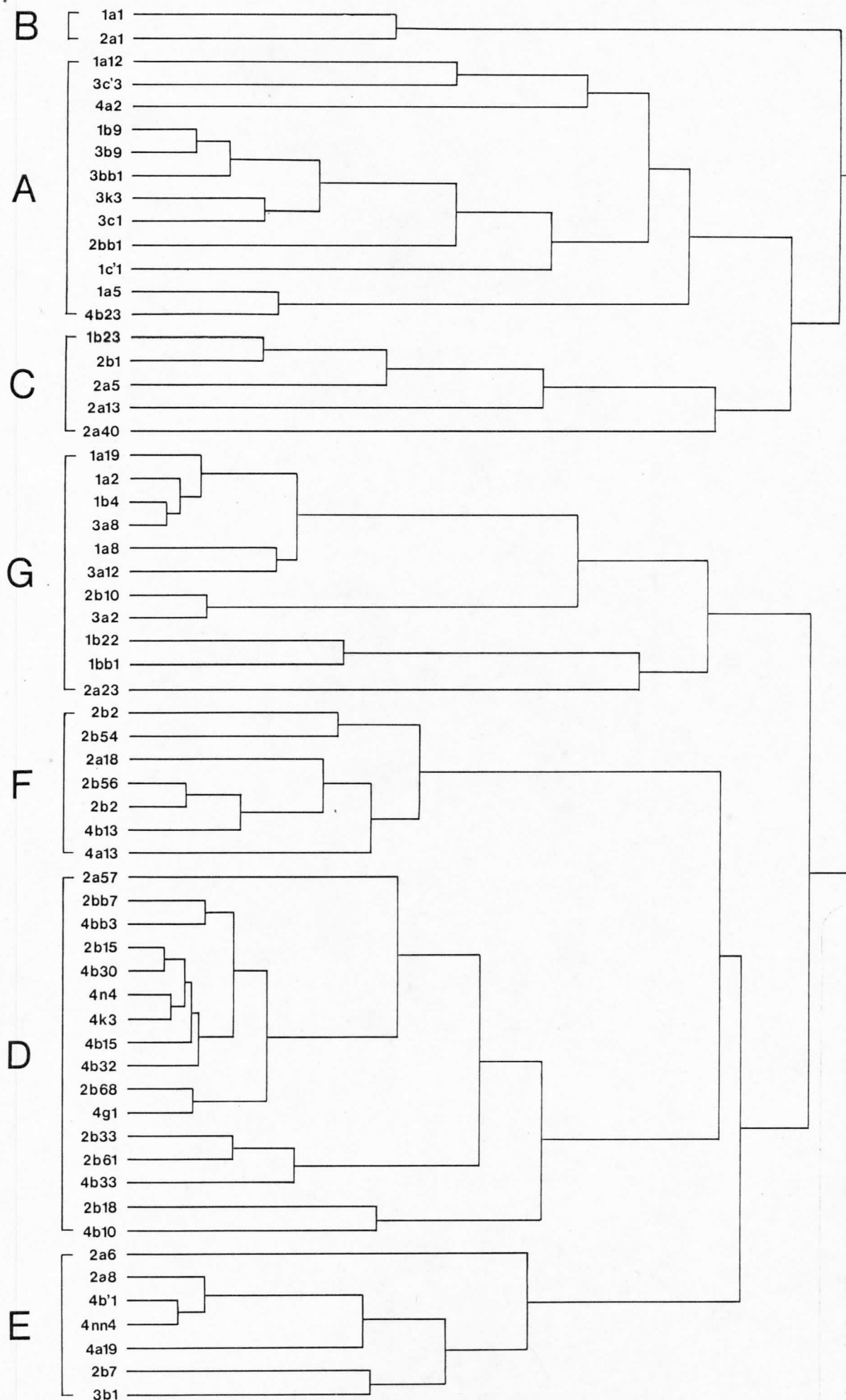


Figure 3. Cluster Analysis of Bead Types. (Correlation coefficient distance measure and group average clustering). As explained in text the Kidds' varieties have been combined to form "types". In this figure the Kidds' variety number of only the major variety in each "type" is given.

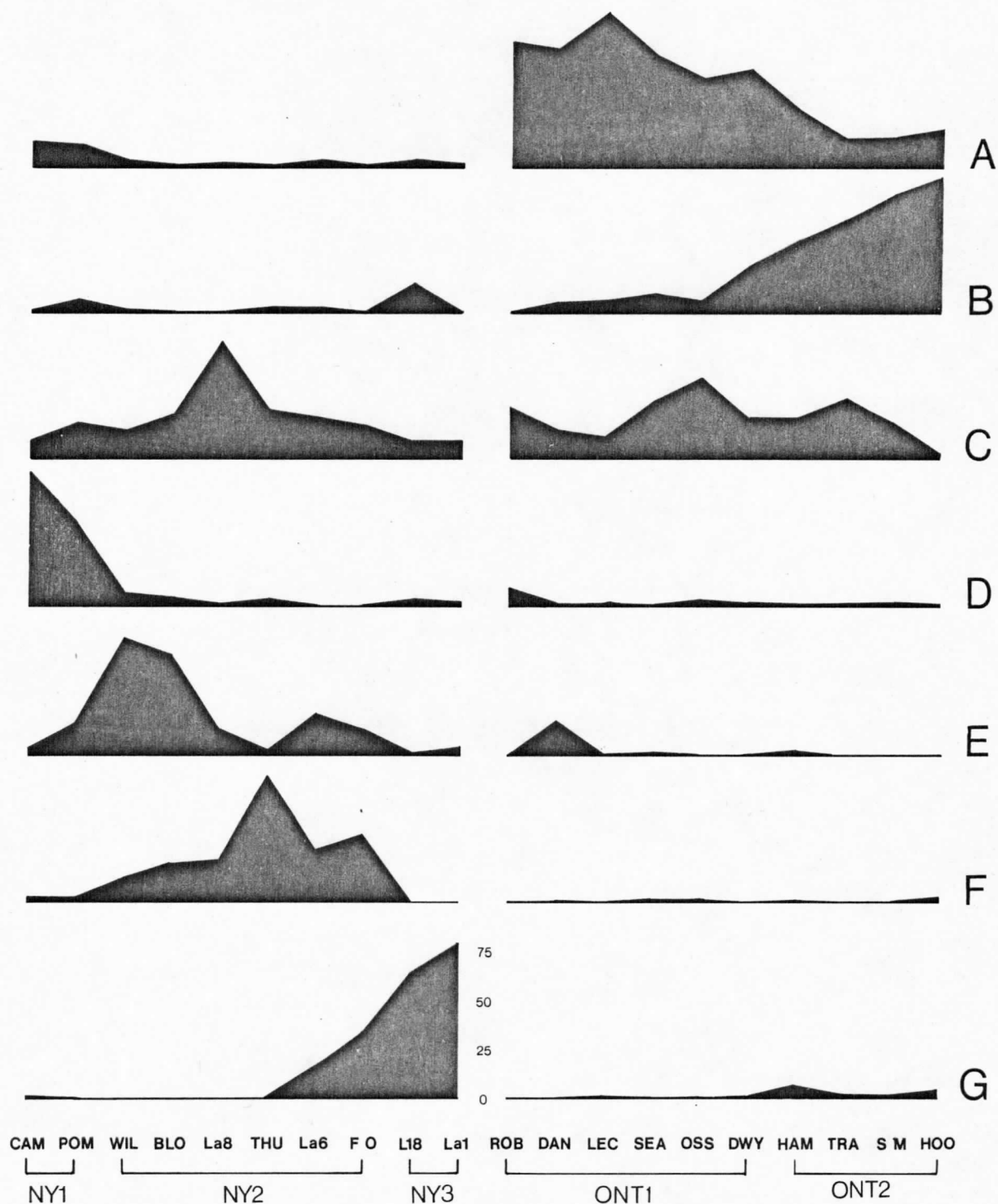
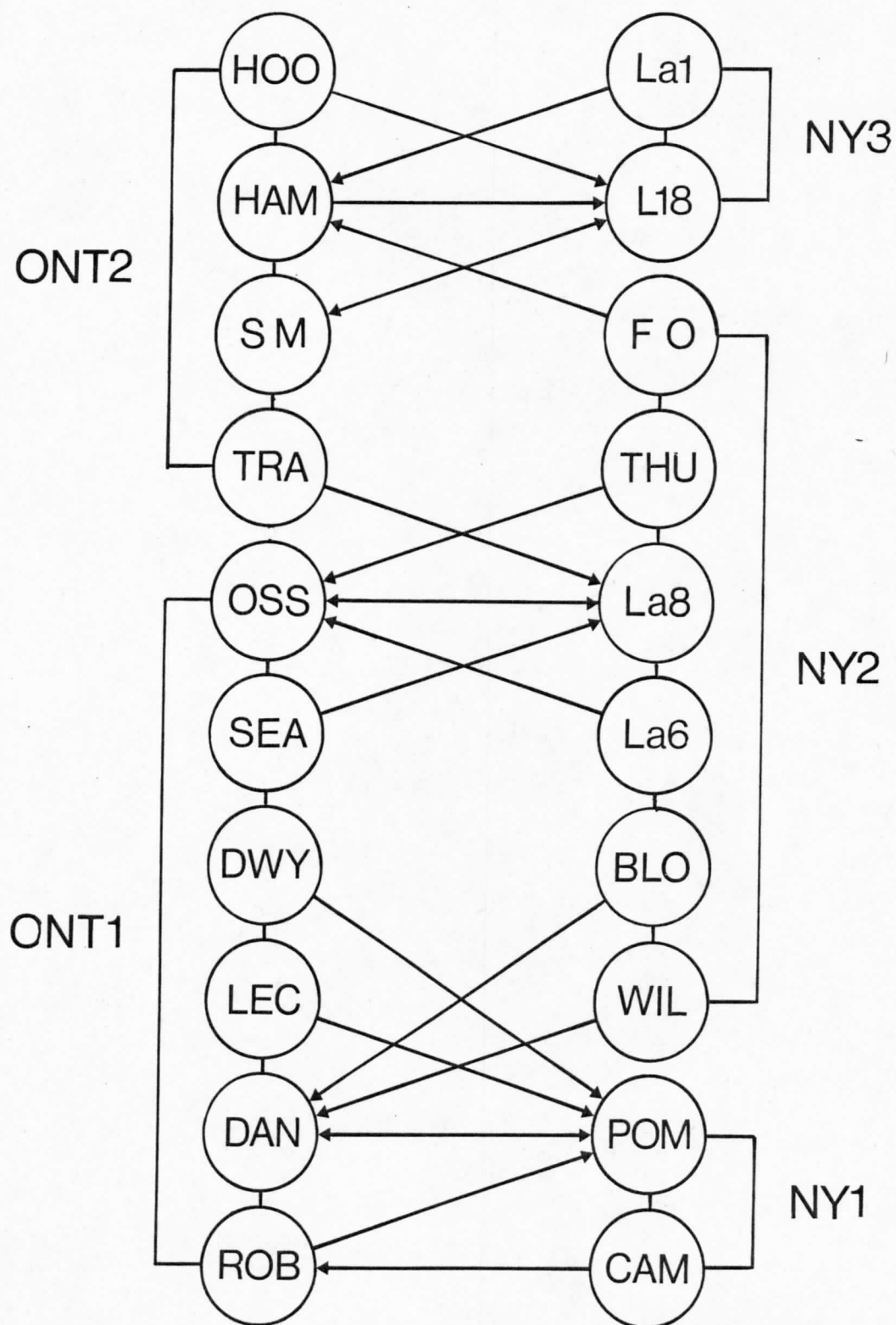


Figure 4. Percentages of Bead Type Clusters With the Ontario and the New York/Pennsylvania blocks the sites are arranged in their approximate chronological order from early (left) to late (right).



.... Figure 5. Similarities between Ontario
 (left) and New York/Pennsylvania sites
 (right). Arranged from relatively early
 (bottom) to late (top). Linkages as
 described in text.

DATA SOURCES FOR SITES USED IN THE ANALYSIS

ABBR	SITE NAME	ETHNIC GR.	NO.	SOURCE
CAM	Cameron	Oneida	836	Pratt, 1976
POM	Pompey Centre	Onondaga	665	Bradley, 1977
WIL	Wilson	Oneida	200	Hosbach and Gibson, 1980
BLO	Blowers or Beecher	Oneida	482	Bennett, 1979
La8	36La8	Susquehanna	c7351	Kent, 1982
THU	Thurston	Oneida	746	Pratt, 1976
La6	36La6	Susquehanna	c1054	Kent, 1982
F 0	Fort Orange	Dutch	293	Huey, pers. comm.
L18	Lot 18	Onondaga	743	Bradley, 1976
La1	36La1	Susquehanna	c595	Kent, 1982
ROB	Robitaille	Huron	31	Fitzgerald notes
DAN	Daniels Cemetery	Neutral	1098	Fitzgerald notes
LEC	LeCaron	Huron	167	Rexe, 1972
SEA	Sealey Cemetery	Neutral	518	Fitzgerald notes
OSS	Ossossane Ossuary	Huron	260	Fitzgerald notes
DWY	Dwyer Cemetery	Neutral	224	Fitzgerald, 1982
HAM	Hamilton	Neutral	260	Lennox, 1981
TRA	Train or St. Joseph	Huron	77	Kenyon notes
S M	Ste. Marie I	French/Huron	43	Fitzgerald notes, courtesy of Jamie Hunter
HOO	Hood	Neutral	40	Fitzgerald notes

REFERENCES

- Bennett, M.
1979 The Blowers Site, OND 1-4: An Early Historic Oneida Settlement. *Chenango Chapter, New York State Archaeological Association Bulletin* 18(2).
- Biggar, H.P.
1901 *The Early Trading Companies of New France: A Contribution to the History of Commerce and Discovery in North America.* Argonaut Press, New York City.
- 1922-
1936 *The Works of Samuel de Champlain.* The Champlain Society, Toronto.
- Bradley, J.W.
1976 Report on European Glass Beads from the Lot 18 Site, 1650-1655. *William M. Beauchamp Chapter, New York State Archaeological Association Bulletin* 1(1):1-3.
- 1977 The Pompey Center Site: The Impact of European Trade Goods, 1600-1620. *William M. Beauchamp Chapter, New York State Archaeological Association Bulletin* 2(1):1-23.
- 1979 The Onondaga Iroquois: 1500-1655. A Study in Acculturative Change and its Consequences. Ph.D. dissertation, Syracuse University, Syracuse, New York.
- Brasser, T.J.
1978 Early Indian-European Contacts. *Handbook of North American Indians, Volume 15, The Northeast.* Edited by B. Trigger. Smithsonian Institution, Washington, D.C., pp. 78-88.
- Ceci, L.
1977 The Effect of European Contact and Trade on the Settlement Patterns of the Coastal Indians of New York, 1524-1665. Ph.D. dissertation, Queen's College, New York City.
- Daillon, J.
1866 Letter of July 18, 1627. *Histoire du Canada et voyages que les Freres mineurs Recollets y ont faicts pour la conversion des infidelles depuis l'an 1615, ... avec un dictionnaire de la langue huronne.* Tross, Paris.
- Everitt, B.S.
1974 *Cluster Analysis.* Halsted Press, London.
- Fitzgerald, W.R.
1979 The Hood Site: Longhouse Burials in an Historic Neutral Village. *Ontario Archaeology* 32:43-60.
- 1982 A Refinement of Historic Neutral Chronologies, Evidence from Shaver Hill, Christianson and Dwyer. *Ontario Archaeology* 38: pp. 31-46.
- Hosbach, R.E. and S. Gibson
1980 The Wilson Site (OND 9): A Protohistoric Oneida Village. *Chenango Chapter, New York State Archaeological Association Bulletin* 18(4A).
- Hunt, G.T.
1940 *Wars of the Iroquois, A Study in Intertribal Trade Relations.* The University of Wisconsin Press, Madison.

- Jamieson, J.B. 1983 The Role of the St. Lawrence Iroquoians as Middlemen in the Early Fur Trade. Paper presented at the 16th annual Canadian Archaeological Association meeting, Halifax, Nova Scotia.
- Jennings, F. 1978 *Susquehannock. Handbook of North American Indians, Volume 15, The Northeast*. Edited by B. Trigger. Smithsonian Institution, Washington, D.C., pp. 362-367.
- Johnson, A. 1911 *The Swedish Settlements on the Delaware, 1638-1664*. Burt Franklin, New York City.
- Karklins, K. 1974 Seventeenth Century Dutch Beads. *Historical Archaeology* 8:64-82.
- 1982 Glass Beads. *History and Archaeology* 59. National Historic Parks and Sites Branch, Parks Canada, Ottawa.
- Kent, B.C. 1982 The Susquehanna Bead Sequence. Paper Presented at the Glass Trade Bead Conference, Rochester, New York
- Kenyon, I.T. 1972 The Neutral Sequence in the Hamilton Area. Paper presented at the 5th annual Canadian Archaeological Association meeting, St. John's, Newfoundland.
- Kenyon, I.T. and T. Kenyon 1982 Comments on 17th Century Glass Trade Beads in Ontario. Paper presented at the Glass Trade Bead Conference, Rochester, New York.
- Kenyon, I.T. and W.A. Fox 1982 The Grimsby Cemetery- A Second Look. *Kewa* 82-9:3-16.
- Kenyon, W.A. 1982 *The Grimsby Site: A Historic Neutral Cemetery*. Royal Ontario Museum Publications in Archaeology, Toronto.
- Kidd, K.E. 1949 *The Excavation of Ste. Marie I*. University of Toronto Press, Toronto.
- 1953 The Excavation and Historical Identification of a Huron Ossuary. *American Antiquity* 18(4):359-379.
- 1979 Glass Bead-making from the Middle Ages to the Early 19th Century. *History and Archaeology* 30. National Historic Parks and Sites Branch, Parks Canada, Ottawa.
- Kidd, K.E. and M.A. Kidd 1970 A Classification System for Glass Beads for the Use of Field Archaeologists. *Canadian Historic Sites: Occasional Papers in Archaeology and History* 1:45-89. Ottawa.

- Lennox, P.A.
1978 The Hood Site: A Historic Neutral Town of 1640 A.D. Report submitted to the Ontario Heritage Foundation, Toronto.
- 1981 The Hamilton Site: A Late Historic Neutral Town. *National Museum of Man Mercury Series, Archaeological Survey of Canada Paper Number 103*, Ottawa.
- Pratt, P.P.
1961 *Oneida Iroquois Glass Trade Bead Sequence, 1585-1745*. Fort Stanwix Museum, Rome, New York.
- 1976 *Archaeology of the Oneida Iroquois, Volume 1. Occasional Publications in Northeastern Anthropology 1*.
- Quinn, D.B.
1965 *England and the St. Lawrence, 1577 to 1602. Merchants and Scholars, Essays in the History of Exploration and Trade*. The University of Minnesota Press, Minneapolis, pp. 119-143.
- 1977 *North America From Earliest Discovery to First Settlements: The Norse Voyages to 1612*. Harper and Row, New York City.
- Rexe, J.P.
1972 Preliminary Report on the Le Caron Site, Northern Simcoe County. Unpublished manuscript on file with the Department of Anthropology, Trent University, Peterborough, Ontario.
- Sauer, C.O.
1971 *Sixteenth Century North America: The Land and the People as Seen by the Europeans*. University of California Press, Berkeley.
- Thwaites, R.G.
1896-
1901 *The Jesuit Relations and Allied Documents*. Burrows, Cleveland, Ohio.
- Trigger, B.G.
1971 The Mohawk-Mahican War (1624-1628): The Establishment of a Pattern. *Canadian Historical Review* 52:276-286.
- 1976 *The Children of Aataentsic: A History of the Huron People to 1660*. McGill-Queen's University Press, Montreal.
- 1979 Sixteenth Century Ontario: History, Ethnohistory, and Archaeology. *Ontario History* 71(4):205-223.
- Wray, C.F.
1973 *Manual for Seneca Iroquois Archaeology*. Cultures Primitive, Honeoye Falls, New York.
- Wray, C.F. and H.L. Schoff
1953 A Preliminary Report on the Seneca Sequence in Western New York, 1550-1687. *Pennsylvania Archaeologist* 23(2):53-63.