

## RESEARCH INTO THE PALEO-INDIAN OCCUPATIONS OF ONTARIO: A REVIEW

Peter L. Storck

### ABSTRACT

Research into the Early Paleo-Indian (fluted point) cultures in Ontario has virtually exploded in the past 15 years. Two long-term projects initiated in the early 1970's and a number of shorter projects conducted over the last seven years have identified several fluted point complexes and produced information on lithic technology, community and settlement patterns, the direction and perhaps seasonal aspects of band movements, and "special activities" of possibly a ceremonial nature.

Research into Late Paleo-Indian or Plano cultures has continued at a steady pace in northwestern Ontario since the pioneering work of MacNeish in the 1950's. As a result, a major Late Paleo-Indian manifestation — the Lakehead Complex — has been identified. In southern Ontario, interest in Late Paleo-Indian occupations has increased within the past five to seven years with the discovery of Agate Basin and Hell Gap related material representing population movements ultimately derived from the Plains.

### INTRODUCTION

The purpose of this paper is to summarize recent research on the Paleo-Indian occupation of Ontario which occurred after the final retreat of the ice sheet between perhaps 7000 and 11,500 years ago. This brief survey of Early Man research in Ontario is also intended to indicate the amount of work that has and is being done, the variety of approaches that are being taken both in the fieldwork and in the analysis of the material, the range of ideas that are being explored, and the potential of the research for bearing on problems of national and international interest.

### EARLY PALEO-INDIAN (FLUTED POINT) CULTURES

#### Background

I would like to begin by reviewing the work that has been done on the Early Paleo-Indian cultures of the so-called "fluted point complex." Charles Garrad's 1971 fluted point survey published in *Ontario Archaeology* provides a very useful baseline and point of departure. In the article, Garrad drew together information on fluted points reported by David Boyle in 1906 and Kenneth Kidd in 1951 as well as on a large number of other specimens which had not previously been reported (Fig. 1). Survey work directed specifically to the discovery of fluted point sites began in Ontario in the late 1960's but so far as the published record reveals, no fluted point sites had been reported in the province at the time of Garrad's article in 1971 and our understanding of the earliest peoples in the province was based, for the most part, on the archaeological record in the far western and eastern parts of the United States. This has all changed. As a result of the considerable amount of work which was conducted in the 1970's and is continuing today, we are beginning to develop a fairly detailed picture of cultures which are distinctive to the region and are making discoveries which may have broader significance for determining the events that led to the peopling of North America as a whole.

---

Storck, Peter L.

1984      Research Into the Paleo-Indian Occupations of Ontario: A Review. *Ontario Archaeology* 41:3-28.



Fig. 1. Distribution of isolated surface finds of fluted points in Ontario as mapped by Garrad (1971).

During the 1970's and the first three years of this decade, archaeological work on Paleo-Indian cultures — and specifically on those of the fluted point complex — has been conducted throughout much of southern Ontario.

In the southwestern part of the province, intensive survey work has been carried out by Brian Deller (1976a, 1979) and major excavations by Deller and Ellis (Deller 1981; Deller and Ellis 1982) and William Roosa (1977a, 1977b; Roosa and Deller 1982). The survey work has been intensive but selective in the sense that it has been strongly focused on specific combinations of landscape features and soil bodies.

In southcentral Ontario, long-term survey work and major excavations have been conducted by the Royal Ontario Museum in the Alliston area and the Georgian Bay region since 1973 (Storck 1977, 1978a, 1978b, 1978c, 1979) and in the Lake Simcoe region since 1979 (Storck 1982). Shorter projects have been conducted by Peter Sheppard (1977), John Prideaux (1977, 1978), Gordon Dibb (1979, 1982) and Andrew Stewart (1982). Generally speaking, the survey work has been focused on glacial lake strandlines. Most of the work has been conducted on the strandline of glacial Lake Algonquin and perhaps 70% of the strandline has been surveyed or otherwise investigated.

Elsewhere in southcentral Ontario, specific projects have been conducted in the Peterborough area by Laurie Jackson in 1976 (Jackson 1977) and along the north shore of Lake Ontario by Arthur Roberts during the late 1970's (Roberts 1982).

In southeastern Ontario, Clyde Kennedy has continued his survey work, which began in 1953, along the former strandline of the Champlain Sea on both sides of the Ottawa River upstream from Ottawa (Kennedy: personal communication).

## Early Paleo-Indian Complexes in Ontario

Before the extensive fieldwork of the 1970's it was not possible to identify local cultures of fluted-point-using peoples. Rather, all fluted points were classified together into an all inclusive category — the so called fluted point complex — and individual specimens were compared with examples from across North America, such as with Clovis and Folsom in the west and Enterline and Bull Brook in the east. Now in Ontario, as a result of the work of the last decade, it is possible to identify several fluted point complexes which probably represent different groups of closely related bands. These complexes — named Parkhill, Crowfield and Sydenham — have been defined by the individual and collaborative work of William Roosa (1963, 1965, 1977a, 1982), Brian Deller (1982), and Chris Ellis (Deller and Ellis 1982). The complexes are defined on the basis of such criteria as: (1) differences in site location (possibly reflecting differences in settlement patterns), (2) tool kit contents, (3) chert type or types used in tool manufacture, (4) projectile point styles and manufacturing techniques, and (5) differences in the method of producing flakes for use in tool manufacture.

The Holcombe Complex has also been identified in southwestern Ontario (Deller: personal communication), as might be expected because of the nearness of the Holcombe site outside Detroit, but sites of this complex have so far not been excavated in the province.

To illustrate some technological aspects of fluted point material from Ontario, I will comment briefly on the Parkhill and Crowfield complexes.

The Parkhill Complex was the first to be defined, based on material from the Barnes site in central Michigan (Roosa 1963, 1965; Wright and Roosa 1966) and the Parkhill site in southwestern Ontario (Roosa 1977a, 1977b). Other sites included in the complex are the Leavitt site in southern Michigan (Shott 1983), the Thedford II (Fig. 2) and McLeod sites in southwestern Ontario (Deller and Ellis 1982), and the Fisher site (Fig. 3) in the southern Georgian Bay region (Storck 1982, 1983). For reasons which I will discuss later, Parkhill Complex peoples in Ontario are believed to have migrated seasonally between southwestern Ontario and the Georgian Bay region (Fig. 4). It is not known what relationships existed between Parkhill Complex peoples in Ontario and those in Michigan although it has been suggested that, since both peoples used local cherts, they may represent individual groups of bands that occupied separate territories (Deller 1983).

As Brian Deller has recently suggested (Deller 1983), the presence of Michigan Bayport chert in Parkhill Complex sites in Ontario suggests some form of social interaction between bands in the two regions (Fig. 5). This may have involved the trade of raw material, finished tools, or even the realignment of individuals or family groups from one band to another. If it could be determined that the social interaction involved the exchange of finished tools, a consideration of the types of tools which were exchanged in terms of the presumed sexual division of labour might indicate whether the contact between bands involved males or females or both. The involvement of predominately one sex might imply the exchange of mates for the purpose of marriage while the involvement of both sexes might imply family realignments from one band to another.

The Parkhill Complex is well defined on the basis of point typology with good samples of material illustrating manufacturing techniques from the Barnes (Wright and Roosa 1966), Parkhill (Roosa 1977a, 1977b; Roosa and Deller 1982), and Fisher (Storck 1983) sites.

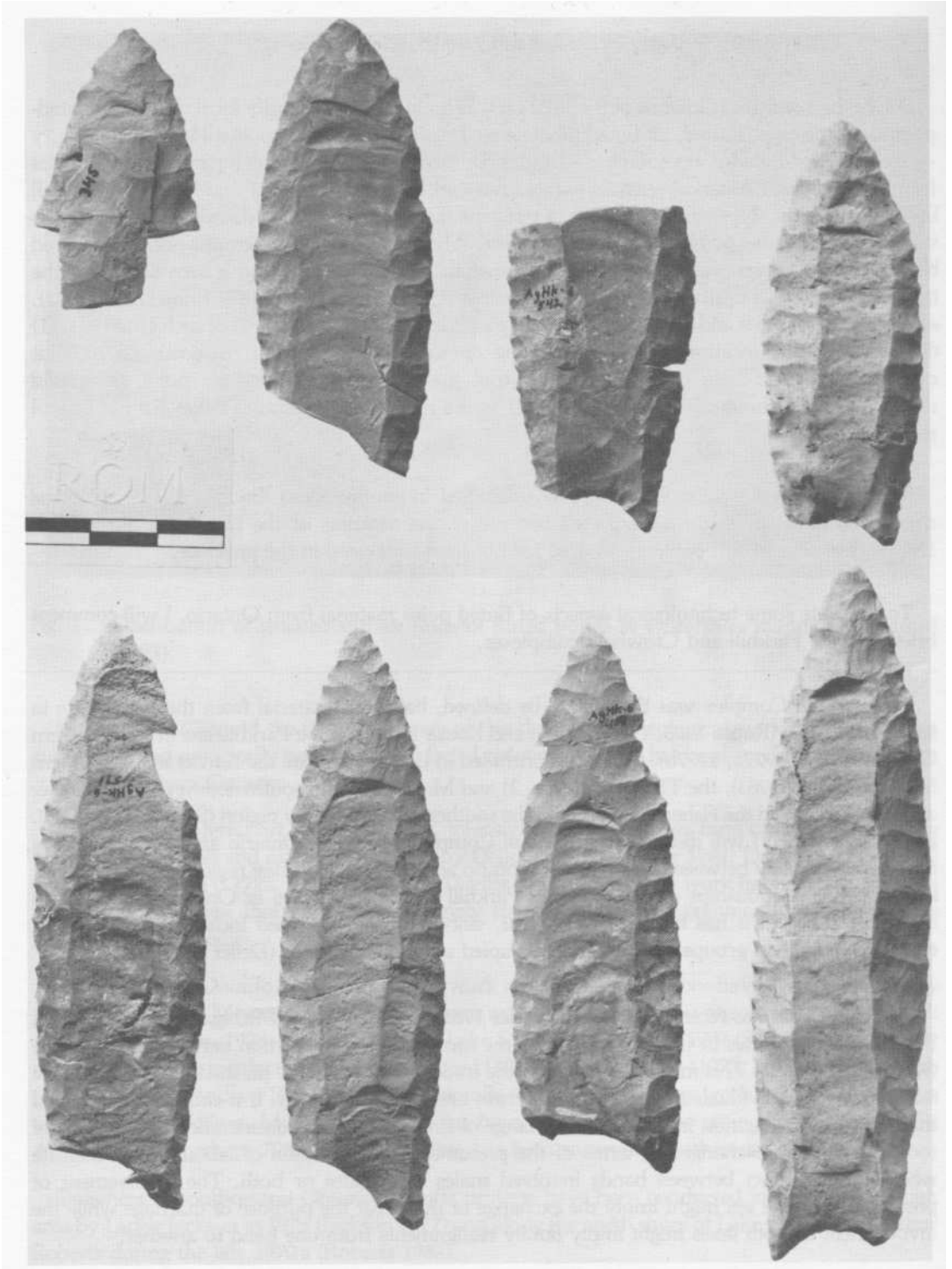


Fig. 2. Examples of Barnes-type fluted points from the Thedford II site (Parkhill Complex), southwestern Ontario. Photograph courtesy of D. Brian Deller and Chris Ellis.

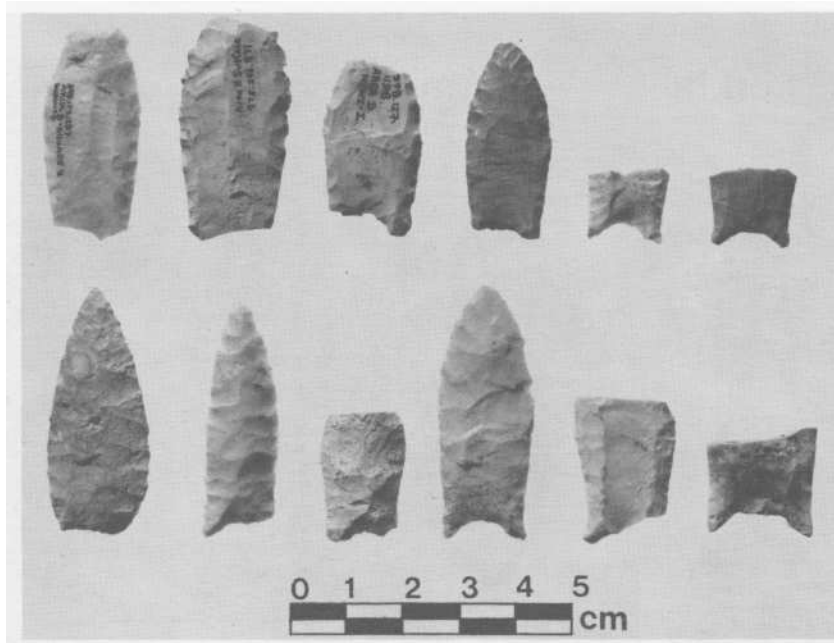


Fig. 3. Examples of Barnes-type fluted points (finished) from the Fisher site (Parkhill Complex), southcentral Ontario.

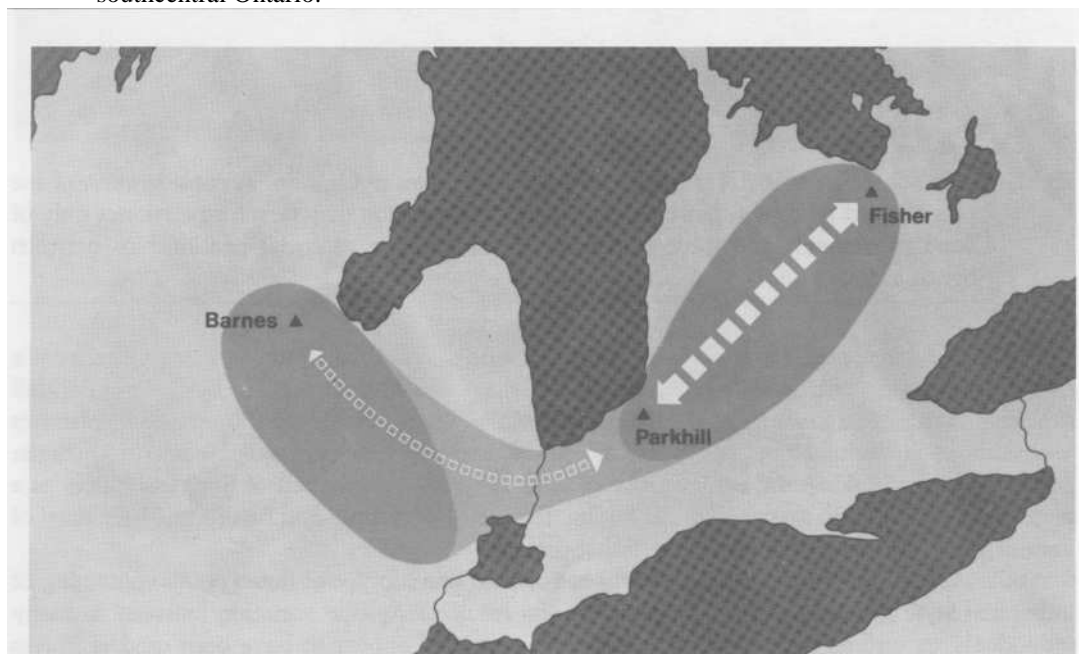


Fig. 4. Distribution of the Parkhill fluted point complex in southwestern Ontario and eastern Michigan showing the locations of the Fisher, Parkhill, and Barnes sites. The Parkhill and Fisher sites are believed to have been occupied by the same band(s) of people, possibly on a seasonal basis. It is not known what relationships existed between Parkhill Complex peoples in Michigan and those in Ontario.

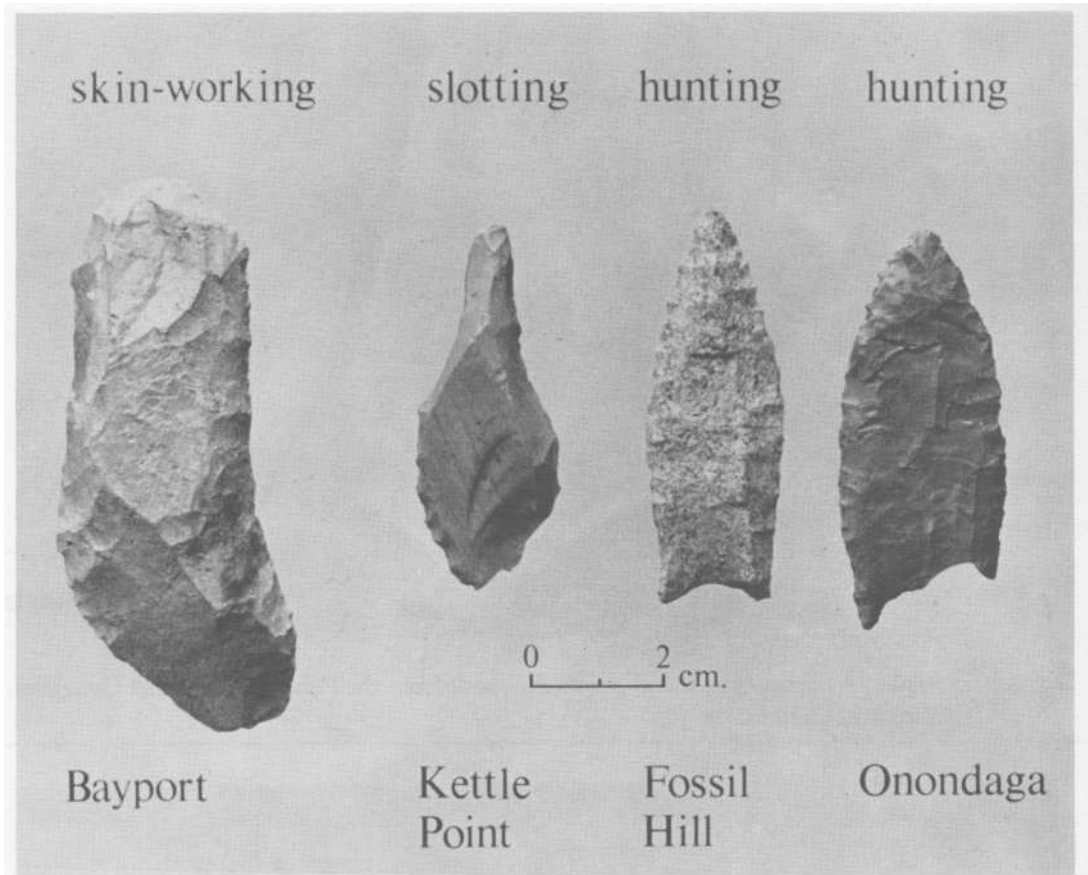


Fig. 5. Some chert types used by Early Paleo-Indian peoples in Ontario. A consideration of the uses of chert types which are exotic to a particular region may be informative not only of band movements and trade relationships but possibly of social relationships between bands as well.

Parkhill Complex points are characterized by a tendency for single fluting on both faces from a carefully prepared, centrally-located basal nipple. This is well illustrated at the Barnes and Parkhill sites. In addition, a large sample of 80 unfinished points from the Fisher site (Storck 1983) illustrates several stages of manufacture. Specific technological attributes which are well documented include: patterns of facial flaking and the sequence of flake removal, preparation of the basal nipple as a platform for fluting, tip preparation for fluting, frequency of fluting, and finally, the frequency of various types of failure relating to the fluting process.

At the Parkhill site, Roosa (1977a, 197Th) has defined one subtype of fluted point, containing 12 individual style groups which he believes are the result of stylistic variation between as many individuals, as well as two subtypes of fluted artifacts that appear to have been used as knives rather than as points.

The Crowfield fluted point complex was first identified by Brian Deller and Chris Ellis at the site of that name in southwestern Ontario (Deller 1981; Deller and Ellis 1982) (Fig. 6). Crowfield points have since been identified in southcentral Ontario as well (Storck 1982). The Crowfield point is characterized by multiple fluting on both faces which was apparently conducted from a bevelled but not isolated platform (Deller and Ellis: personal communication).

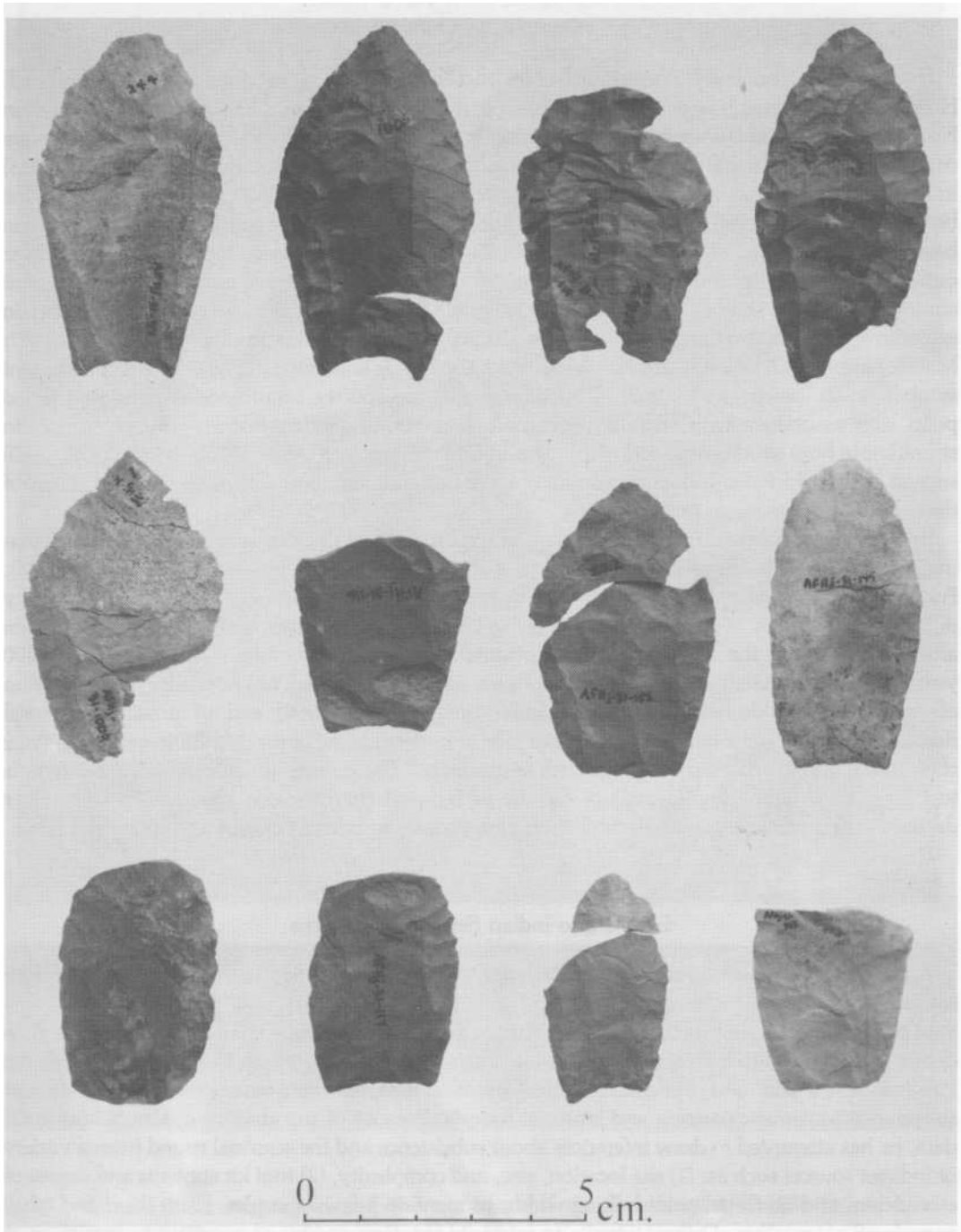


Fig. 6. Examples of Crowfield-type fluted points from the Crowfield site, southwestern Ontario. Photograph courtesy of D. Brian Deller and Chris Ellis.

## The Age of the Early Paleo-Indian Complex in Ontario

Unfortunately, no Early Paleo-Indian sites in Ontario have as yet been radiocarbon dated. However, the apparent association of Paleo-Indian sites with glacial Lake Algonquin, shown in Fig. 7 in dark and medium grey tones, strongly suggests that Early Paleo-Indian peoples were contemporaneous, in part, with that lake. Geological studies in Ontario (Karrow et al 1975) indicate that Lake Algonquin formed sometime between 12,000 and 12,500 years ago, shown at the bottom of the map in Fig. 7 by the line representing glacial retreat in the southern part of the Huron basin. The lake existed until approximately 10,400 years ago when glacial retreat uncovered lower outlets in northern Ontario as shown in the upper right of Fig. 7. The age range of the fluted point complex in North America as a whole brackets the latter part of the history of Lake Algonquin extending from approximately 11,500 to 10,200 years ago (Gramly 1982; Haynes 1967; MacDonald 1968; McNett et al 1977; Moeller 1980). This is illustrated in Fig. 7 by the fluted point symbols in the bar below the map. This dating evidence and the occurrence of numerous fluted point sites associated with islands, peninsulas, lagoons, and other features of the Algonquin strandline in both southcentral and southwestern Ontario (see also Deller 1976a, 1976b, 1979, 1980) suggest that Early Paleo-Indian peoples may have been contemporaneous with the later stages of that glacial lake.

Brian Deller has been examining the date of exposure of in situ deposits of various cherts that may provide clues to the relative chronology of the different fluted point complexes (Deller 1983). For example, he suggests that an increasing frequency in the use of Kettle Point chert may differentiate between peoples who lived during Lake Algonquin times and those who date from after the draining of the lake since in situ exposures were apparently under water until after 10,400 years ago. Unfortunately, these interpretations are limited by our lack of knowledge of the location of the Algonquin shoreline in this particular area (Karrow 1980) and of possible temporal fluctuations in the lake level, as well as by our lack of understanding of the distribution of Kettle Point chert in situ and in secondary deposits such as glacial till. These same limitations apply to attempts to interpret the dating implications of the use of Bayport chert — also apparently under water during Algonquin times — by Parkhill Complex peoples in both Michigan and Ontario.

### Early Paleo-Indian Settlement Patterns

A good deal of research has been conducted into Early Paleo-Indian settlement patterns in both southwestern and southcentral Ontario.

In southwestern Ontario, Brian Deller (1982), believing that there may be considerable time depth in the Paleo-Indian occupation of the region, has attempted to determine whether the Parkhill, Crowfield and Sydenham fluted point complexes were characterized by different subsistence/settlement patterns and seasonal rounds. Because of the absence of faunal and floral data, he has attempted to draw inferences about subsistence and the seasonal round from a variety of indirect sources such as: (1) site location, size, and complexity, (2) tool kit contents and degree of exhaustion, and (3) fluted point hafting width, to mention a few examples. From these and other sources of information, Deller attempts to infer site function, season of occupation, species or at least type of animal hunted and hunting techniques, and other aspects of the seasonal round. Many of these interpretations are admittedly speculative because of the indirect nature of the evidence used. However, Deller's approach is both imaginative and very productive because he attempts to make the maximum possible use of the data and, in so doing, stimulates a constructive debate and the development of new approaches to the problem.



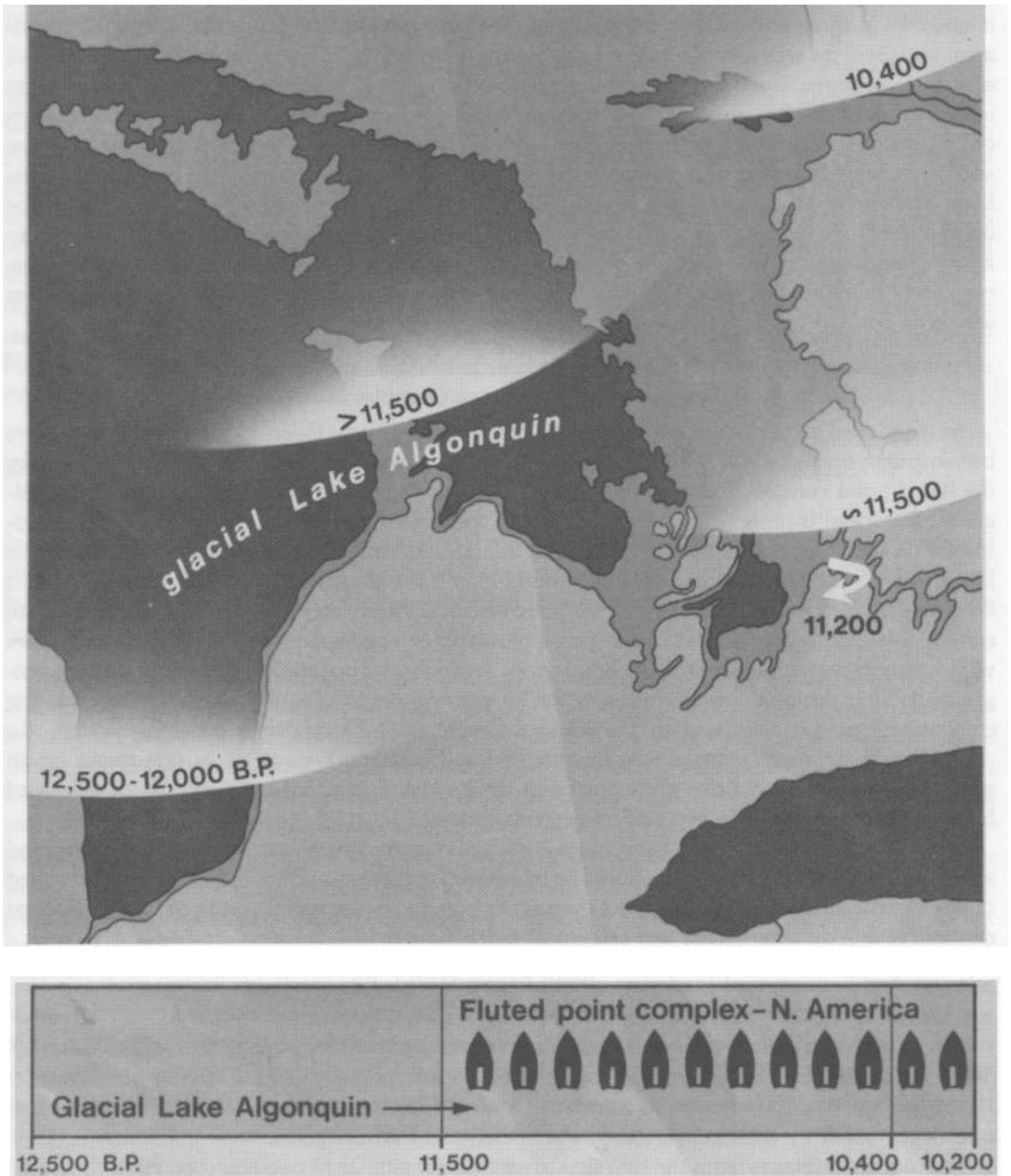


Fig. 7. Glacial Lake Algonquin and the age span of the fluted point complex(es) in North America. The geographic extent of Lake Algonquin in the Huron and Georgian Bay basins and adjacent areas is shown in medium and dark grey tones. The white areas indicate the approximate sequence of glacial retreat during the life of the lake. The temporal overlap between the age span of Lake Algonquin and the fluted point complex(es) suggests that Early Paleo-Indian peoples may have been contemporaneous, in part, with that glacial lake.

In southcentral Ontario, survey work along the Algonquin strandline has been conducted intensively in three areas: (1) in the southern Georgian Bay region, (2) in the Alliston-Bradford area, and (3) in an area east of modern Lake Simcoe (Storck 1982). The number and distribution of sites in these three areas suggest some possible intra-regional differences in Early Paleo-Indian settlement patterns. For example, both the southern Georgian Bay region and the eastern margins of the Simcoe Lowlands appear to have been intensively occupied. This is indicated by the large size and presumably recurrent occupations at the Fisher site in the western part of the region and by the large number of sites in the eastern part of the region. What appears to be different in the occupation of the two regions is that the southern Georgian Bay area was exploited primarily from a single large base camp — Fisher — while the eastern part of the region was exploited from a large number of much smaller sites. This may reflect differences in the distribution of food resources, the season of occupation, and/or the size of the social groups that occupied the two regions.

#### The Significance of lake Algonquin in Early Paleo-Indian Occupation

As mentioned earlier, there are reasons for believing that Early Paleo-Indian peoples may have been contemporaneous with glacial Lake Algonquin. However, the younger end of the age span for the fluted point complex indicates that Early Paleo-Indian peoples also persisted into early post-glacial times and therefore most likely postdated the draining of the lake as well. If Early Paleo-Indian occupations bracketed both lake Algonquin and early post-Algonquin times, as seems likely, the subsistence base and seasonal round may have changed considerably in response to changing environmental conditions. Two basic orientations in Early Paleo-Indian subsistence are conceivable: first, an orientation to a spruce parkland or open spruce forest of late glacial times with an important hunting emphasis on caribou; secondly, an orientation to a succession of post-glacial habitats during the revegetation of the former Algonquin lake bed with a primary hunting emphasis on moose, deer, and elk (Storck and Gwyn 1983). During early post-glacial times, the Algonquin shoreline may have been favourable for occupation because of its occurrence on an ecological edge between a closed conifer forest on the former mainland and a complex mosaic of habitats on the former lake bed undergoing revegetation.

Because of the possibility that Early Paleo-Indian peoples may have occupied Ontario during and after the life of Lake Algonquin, it should be recognized that the strandline may also have presented quite different subsistence opportunities through time and may therefore have been part of different cultural/ecological adaptations and settlement patterns.

#### Band Movements and the Seasonal Round

A determination of the geological source of the chert used for tool making by Parkhill Complex peoples has implications with respect to the direction and possibly even season of occurrence of Paleo-Indian band movements in southern Ontario. This research direction developed out of questions raised by the excavation of the Fisher and Parkhill sites.

The tool assemblages from the two sites are strikingly similar in two respects. First, the fluted points are nearly identical both stylistically and technologically. This is the basis for the suggestion that the two sites were occupied by interacting bands, if not actually by the same bands of people. Secondly, the same chert is the predominant material used in tool manufacture at both sites. Since the sites occur 185 kilometres apart in different bedrock zones, it seemed likely that the chert was exotic to one of the two regions. The possibility that the chert was acquired through long-distance trade between the two regions was discounted because the similarities in fluted point manufacture appear too close to be the product of different groups of people and because it seemed unlikely that material acquired by trade would form a predominant part of the tool assemblage on a manufacturing site. If the material was acquired in the course of band movements between the two

regions, then a determination of the geologic source of the chert promised to indicate something about the direction of those movements.

After two years of fieldwork, paleontological and geological studies by Dr. Peter von Bitter of the Royal Ontario Museum determined that the chert used at the Fisher and Parkhill sites is from the Fossil Hill formation (Storck and von Bitter 1981). Known outcrops of this formation containing bands of chert occur 40 kilometres west of the Fisher site near the top of the Blue Mountain highlands in the southern Georgian Bay region. Since it is unlikely that glacial till in southwestern Ontario would provide anything other than small amounts of Fossil Hill chert, it is felt that the occupants of the Parkhill site and other sites in extreme southwestern Ontario obtained their chert directly from the Blue Mountain highlands, thus indicating a two-way movement — first northward to the source of the raw material and then southward to the southern Lake Huron region (Storck 1982) (Fig. 8). If these interpretations are correct, the geographic distribution of the Fisher and Parkhill sites and other closely related sites such as Thedford II, loosely defines a residential core territory within which a seasonal round presumably occurred.

The geologic source of Fossil Hill chert also has implications with respect to the season of chert acquisition and possibly, more broadly, to the seasonality of band movements as well.

Fossil Hill chert was probably only available in the Blue Mountain highlands. Even if Paleo-Indian peoples obtained their chert from secondary deposits such as glacial till, rather than from in situ exposures, it would probably only have been available in the highland region since transport by glacial ice would have occurred in a southerly direction from natural exposures and toward the highland interior.

Today, the Blue Mountain highlands occur in a prominent snowbelt because of their elevation above Lake Huron and Georgian Bay and because of the abundant moisture carried from these lakes by the prevailing winds (Fig. 9). Snowbelt conditions probably also existed in the highlands during late glacial times. Although the highlands were isostatically depressed by approximately 68 metres because of the weight of the former ice sheet, they would have reached elevations of as much as 288 metres above glacial Lake Algonquin. Geological studies indicate that, as today, the prevailing winds were from the north and west. These conditions would probably have been sufficient to create abundant precipitation and, because of the reduced temperatures during late glacial times, a more extensive and persistent snowbelt may have existed on the highlands at that time than today.

Under these conditions, Fossil Hill chert would probably only have been accessible during the snow-free seasons of the year, particularly if it was obtained from secondary deposits on the surface of the ground or in erosional cuts. This raises the possibility that the occupation of the southern Georgian Bay region in general may have been limited to this time of the year as well, and, if the occupation of the Parkhill site was part of the same settlement pattern, that extreme southwestern Ontario may have been occupied during the winter season of the year.

### Community Patterns

There are strong indications at two Early Paleo-Indian sites — Parkhill and Fisher — that different areas may have been used for different activities during the same occupation. The preliminary analyses at the two sites are based on: (1) studies of the horizontal distribution of artifacts both within and between excavated blocks with respect to functional classes of tools and different types of debitage, and (2) topographic characteristics of different parts of the sites. At the Fisher site, a use-wear analysis being conducted by John Tomenchuck will also contribute to the study of possible activity areas.

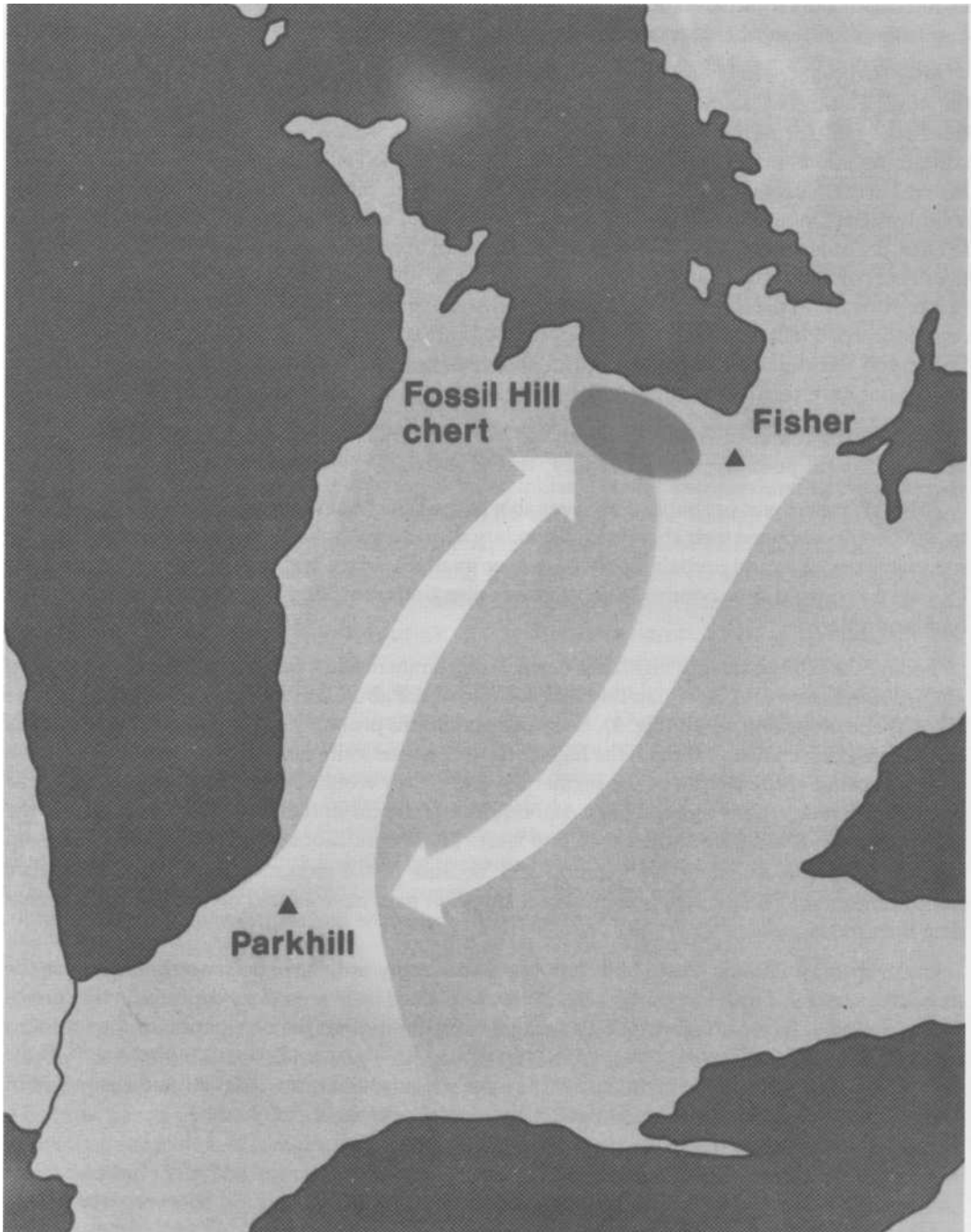


Fig. 8. Location of known in situ exposures of Fossil Hill chert and the direction of possible band movements between the southern Georgian Bay region and extreme southwestern Ontario.

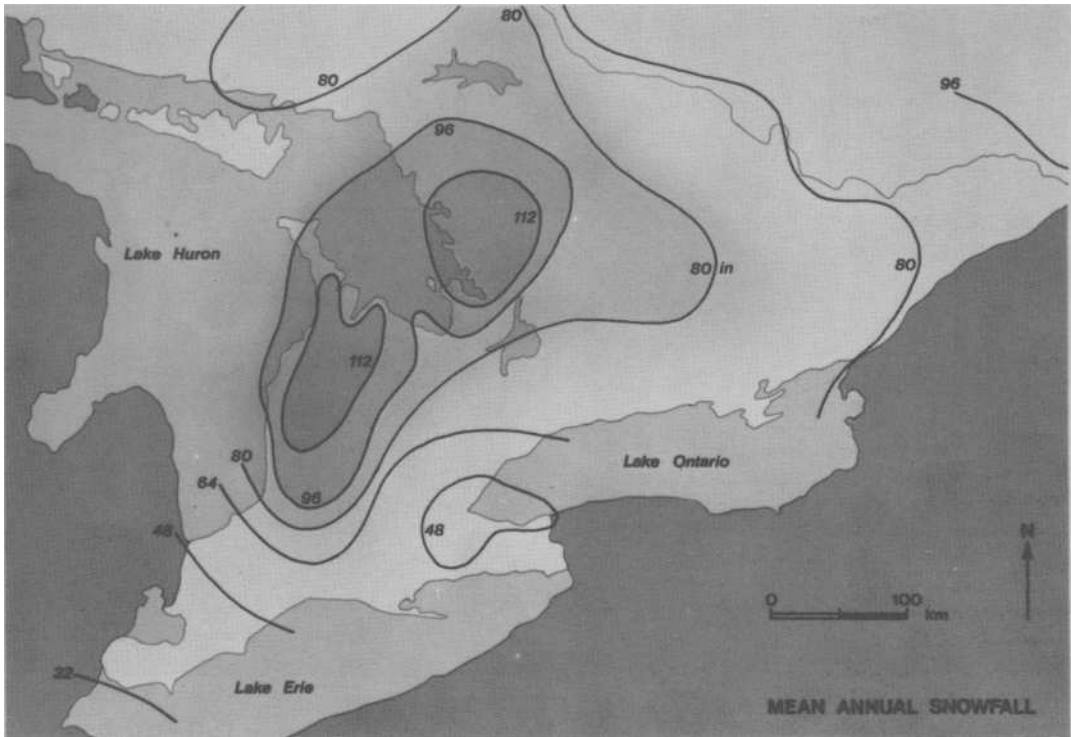


Fig. 9. Modern mean annual snowfall (in inches) in southern Ontario. Today, the Blue Mountain highlands in the southern Georgian Bay region are in a prominent snowbelt receiving 112 inches of winter precipitation (from mid-November to the end of March). More extensive and persistent snowbelt conditions may have existed during late glacial times making Fossil Hill chert available only during the snow-free seasons of the year. Precipitation data from Brown, McKay, and Chapman (1974).

At the Parkhill site, excavated by William Roosa in conjunction with Brian Deller, a total of ten concentrations of artifact material were identified (Fig. 10). A detailed analysis of surface material by Brian Deller indicates that several areas may have had different functions (Deller 1980). Areas shown in light tone were locations of a considerable amount of point manufacture. Areas shown in darker tone were also probably general purpose camps, judging from the wide variety of tool types which are present. Areas illustrated in white appear to contain or to consist entirely of somewhat specialized activity areas because of the limited variety of tools which are represented. Although the contents of some areas may represent a mixture of activities from several occupations, there is nevertheless an indication that two areas — B and D — may have served somewhat different functions, if not at the same time then at least during the same episode of occupation. Deller (1980) and Ellis (1979) report that channel flakes from Area B matched with two fluted points from Area D and suggest that the two areas were occupied either contemporaneously or on two separate but related occasions as a result of perhaps pre-hunt and post-hunt activities by the same people.

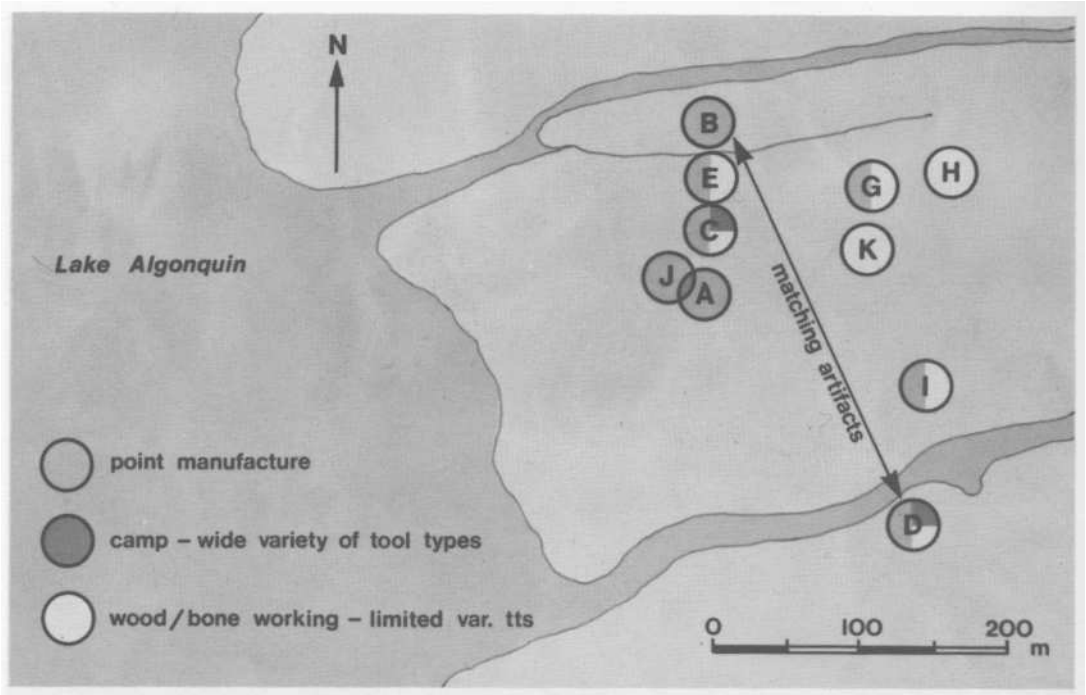


Fig. 10. Activity areas on the Parkhill site, southwestern Ontario. Data from Deller (1980) and Ellis (1979).

At the Fisher site, a total of 19 distinct artifact concentrations have been identified occurring over an area of approximately 55 acres (Storck 1977, 1978b, 1982) (Fig. 11). Several of these concentrations, areas B, C-E, D, F, b and c contain abundant evidence of fluted point manufacture. Other concentrations, areas C and F, contain little or no evidence of point manufacture but have produced abundant evidence of block reduction and preform preparation and higher numbers of curated scrapers and non-curved flake tools. It would appear from this as though different knapping activities and perhaps different non-lithic tool making activities were conducted in the two types of areas and that they represent, not independent campsites, but functionally interrelated activity areas that were used during the same occupation(s).

This and other evidence of internal structuring on Early Paleo-Indian sites in southern Ontario and in eastern North America generally may eventually prove to be surprisingly informative of the nature of Paleo-Indian social organization and band structure.

#### Special Activity Sites

While most of the Paleo-Indian sites that have been discovered were clearly used for tool making and activities related to subsistence, two sites have been reported in the past few years that appear to have been the focus of ceremonial activities.

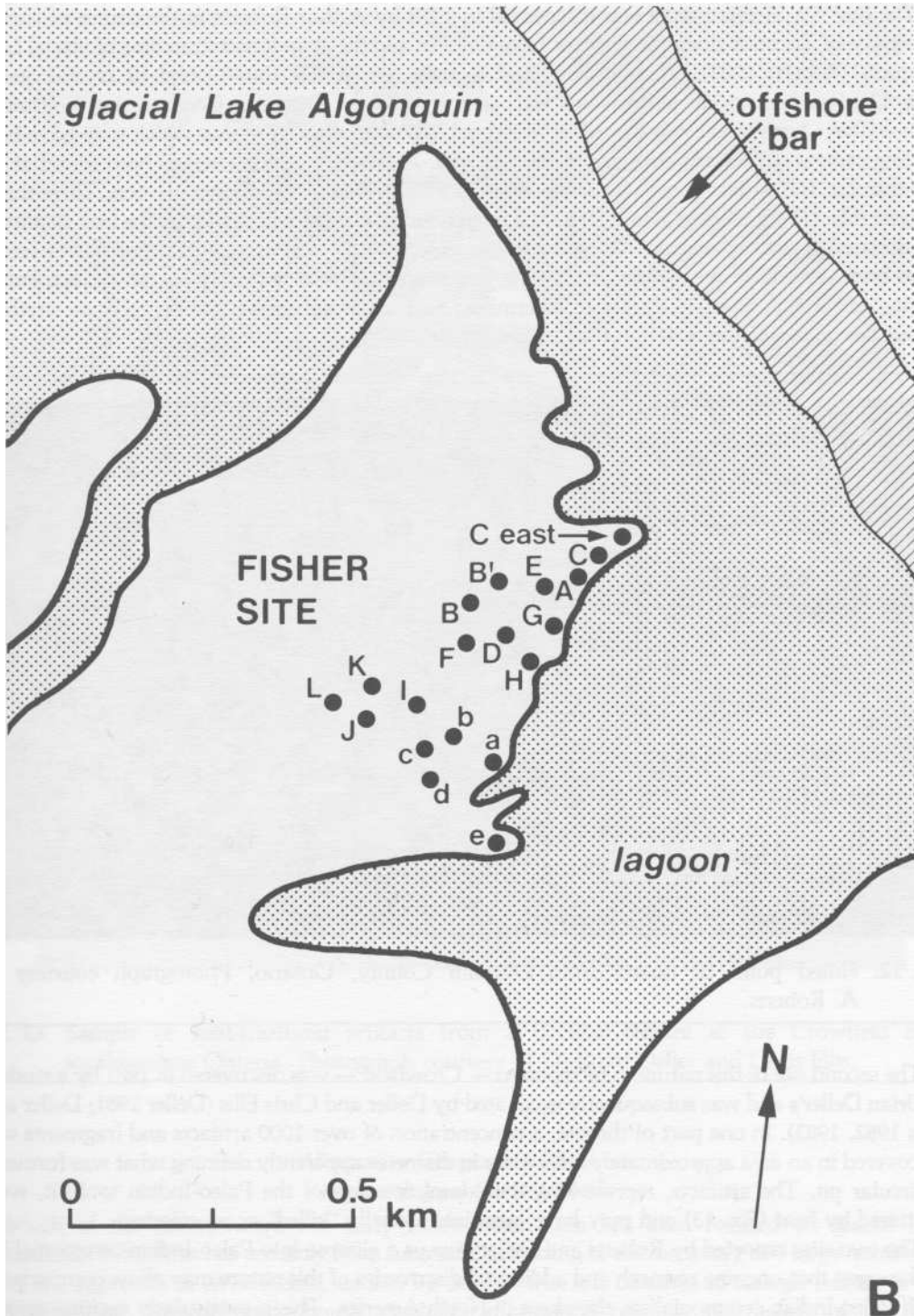


Fig. 11. Activity areas at the Fisher site, southcentral Ontario.

The first site of this nature was discovered in 1978 by Arthur Roberts in the course of survey work east of Toronto along the shore of Lake Ontario and the abandoned strandline of glacial Lake Iroquois (Roberts 1982). The site produced a most remarkable fluted point of crystal quartz (Fig. 12). Residues on the point which were analyzed by the Canadian Conservation Institute in Ottawa have been tentatively identified as red ochre and another substance which may have been hafting cement (Roberts: personal communication). Although nothing else has been found at the site thus far, the artifact may mark the location of a Paleo-Indian burial or cremation. Three things suggest this: (1) the unusual type of material from which the point was made, (2) the high quality of workmanship used in manufacturing the point, especially considering the fact that quartz would have been very difficult to work, and (3) the presence of traces of red ochre on the artifact. Future testing will be conducted at the site to determine whether the soil chemistry may indicate anything about the nature of the activities that occurred there.

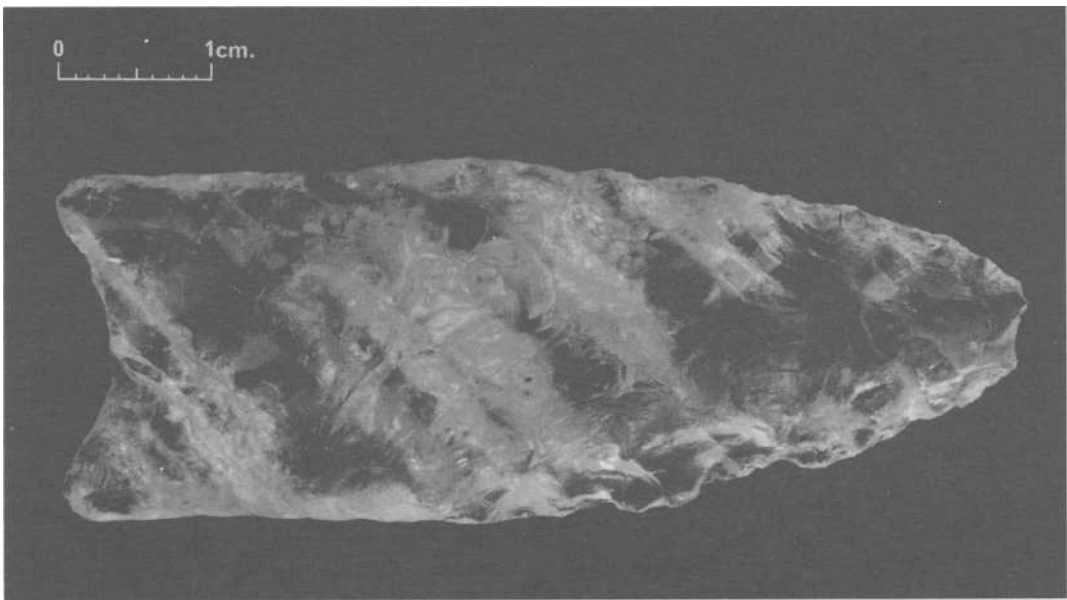


Fig. 12. Fluted point of quartz from Durham County, Ontario. Photograph courtesy of A. Roberts.

The second site of this nature to be reported — Crowfield — was discovered in 1981 by a student of Brian Deller's and was subsequently excavated by Deller and Chris Ellis (Deller 1981; Deller and Ellis 1982, 1983). In one part of the site, a concentration of over 1000 artifacts and fragments was discovered in an area approximately 1.5 metres in diameter apparently defining what was formerly a circular pit. The artifacts, representing the complete range of the Paleo-Indian tool kit, were shattered by heat (Fig. 13) and may have been intentionally "killed" as an offering.

The two sites reported by Roberts and Deller give us a glimpse into Paleo-Indian ceremonial life and suggest that ongoing research and additional discoveries of this nature may allow comparisons with Paleo-Indian ceremonialism elsewhere in North America. This is particularly exciting since it could reveal cultural relationships between geographically distant peoples in the area of fundamental beliefs. Up to now, our understanding of these relationships has been based on our knowledge of shared material culture and lithic technology which, by comparison with the underlying beliefs of the culture, are profoundly limiting.



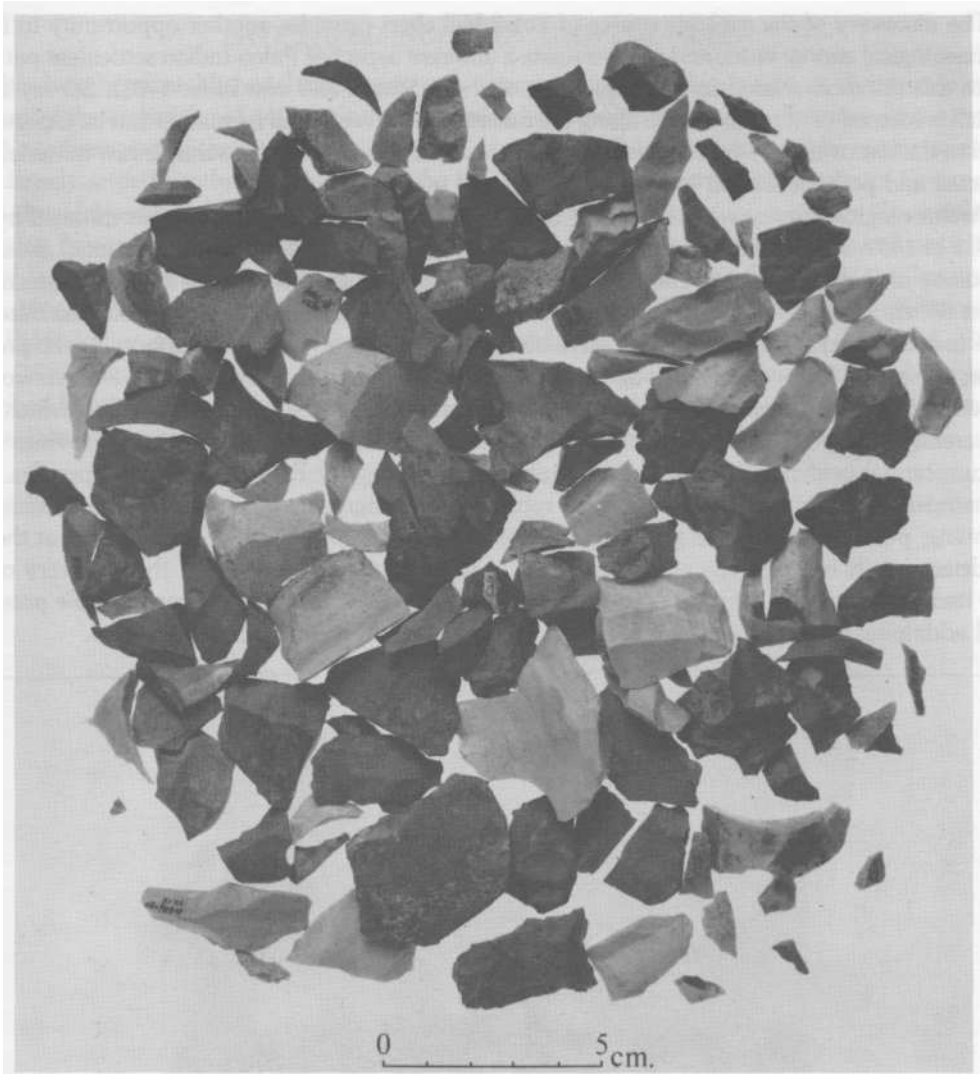


Fig. 13. Sample of heat-fractured artifacts from a circular feature at the Crowfield site, southwestern Ontario. Photograph courtesy of D. Brian Deller and Chris Ellis.

---

#### Alternative Geographic Focus for Archaeological Survey Work

Much of the survey work for Early Paleo-Indian sites has been focused on glacial lake strandlines. While this has certainly been successful in leading to the discovery of a large number of sites, the approach is, nevertheless, limited by the fact that it is confined to a single feature of the landscape and therefore undoubtedly produces information on only one aspect of the total settlement pattern. There is a need to develop several ways in which to focus survey work not only to provide more complete information on Paleo-Indian settlement patterns but to provide opportunities to discover sites in a wide range of geological contexts with differing potentials for stratification and the preservation of organic material (Storck 1982).

The discovery of the geologic source of Fossil Hill chert provides another opportunity to focus archaeological survey work and to investigate a different aspect of Paleo-Indian settlement patterns — in this instance, related to the acquisition of chert (Storck and von Bitter 1981). Survey work which is focused on a narrow zone along the outcrop of the Fossil Hill formation can be expected to lead to the discovery of sites at quarries or surface collecting areas where suitable raw material was selected and perhaps shaped into preforms for tool manufacture.

Archaeological survey work along the outcrop of the Fossil Hill formation was initiated by the ROM in 1982. Almost immediately this resulted in the discovery of a large site situated above an exposure of Fossil Hill chert. The fields surrounding the site are littered with blocky fragments of chert which were apparently plucked and then dropped by glacial ice as it overrode the outcrop. The material used for knapping may have been obtained entirely from the surface. At the present time, the site is known only through surface collecting. One diagnostic artifact — a re-worked fluted point — has been recovered (Fig. 14). Unfortunately, since it is a surface find which was apparently discarded during use, rather than during manufacture, the artifact provides only circumstantial evidence that the site was used for knapping by Early Paleo-Indian peoples. The remainder of the artifacts that have been recovered are fragments of bifaces in various stages of thinning, possibly intended as preforms. Further archaeological work will be conducted at the site to determine its research potential. Regardless of what this may prove to be, the discovery of the site itself indicates that a geographic focus on the Fossil Hill formation has considerable potential and additional survey work will be conducted in the region over the next few years.

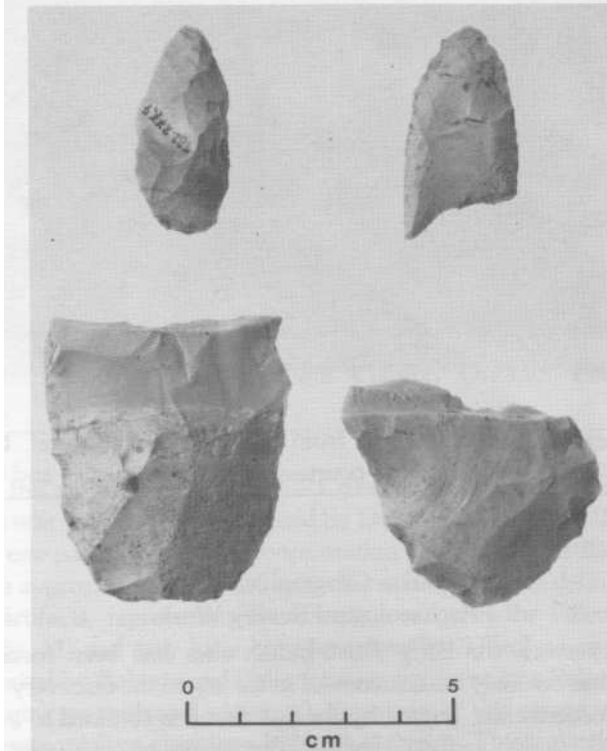


Fig. 14. Selected artifacts from the Kolapore site. Top row (left to right): complete biface; re-sharpened fluted point (the right "ear" is missing). Bottom row: biface fragments presumably from preforms.

*LATE PALEO-INDIAN (PLANO) CULTURES*

It has long been established that Ontario was occupied by Late Paleo-Indian or Plano peoples as well as by the earlier fluted point cultures. Somewhat curiously, the earliest discoveries were made in the northern part of the province rather than, as one might have expected, in the more populous and densely settled southern part. During the late 1930's and the early 1940's Emerson Greenman from the University of Michigan conducted a considerable amount of work in the northern Georgian Bay region and excavated a Late Paleo-Indian component at the George Lake I site which would later be compared with Eden-Scottsbluff material on the Plains (Fitting 1970; Greenman 1943, 1966; Mason and Irwin 1960). In the early 1950's Thomas Lee also discovered evidence for Late Paleo-Indian occupations at the site of Sheguiandah on Manitoulin Island (Lee 1954, 1955, 1956, 1957 (Fig. 15). In 1952, much farther to the west near Thunder Bay, Richard MacNeish described Plano material from the Brohm site, a quarry/workshop located on terraces of a former glacial lake ancestral to modern Lake Superior (MacNeish 1952).

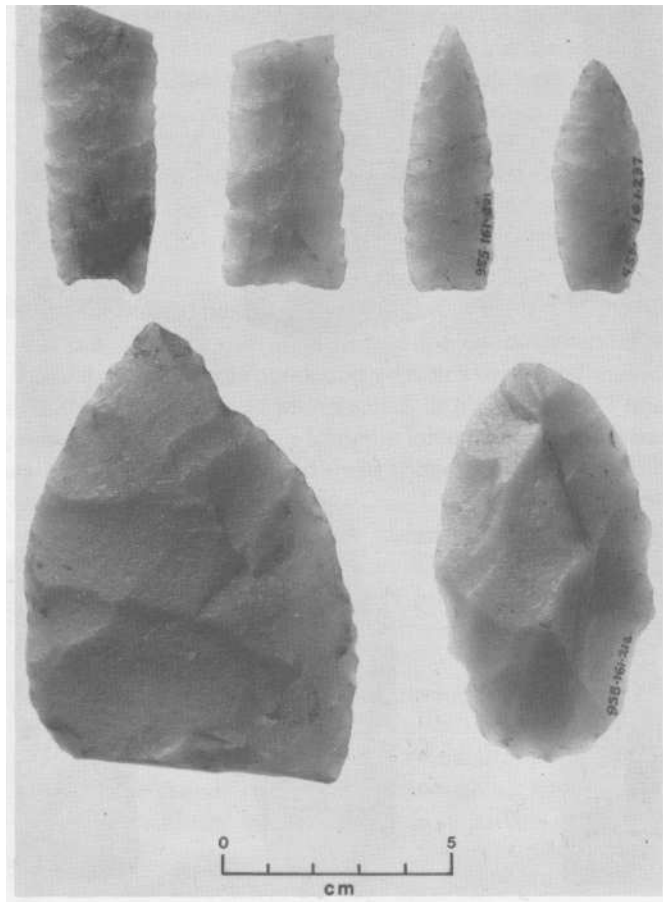


Fig. 15. Selected artifacts from the Sheguiandah site, Manitoulin Island. Top row: Late Paleo-Indian (Plano) projectile points. Bottom row: (left to right): biface fragment from the so-called "upper till;" complete biface from the so-called "lower till." Artifacts housed at the Royal Ontario Museum, Toronto.

Late Paleo-Indian material has been reported from southern Ontario as well although the earliest discoveries were isolated surface finds rather than sites as was the case in the northern part of the province. Certainly some of the most aesthetically attractive material is a small collection of point fragments from an island in the St. Lawrence River in extreme southwestern Quebec (Gogo 1961; Wright 1972) (Fig. 16). Unfortunately, the artifacts have not been associated with an occupation site.

Since these initial discoveries, fieldwork directed toward problems relating to the Late Paleo-Indian occupation of Ontario has continued in both the northern and southern parts of the province.

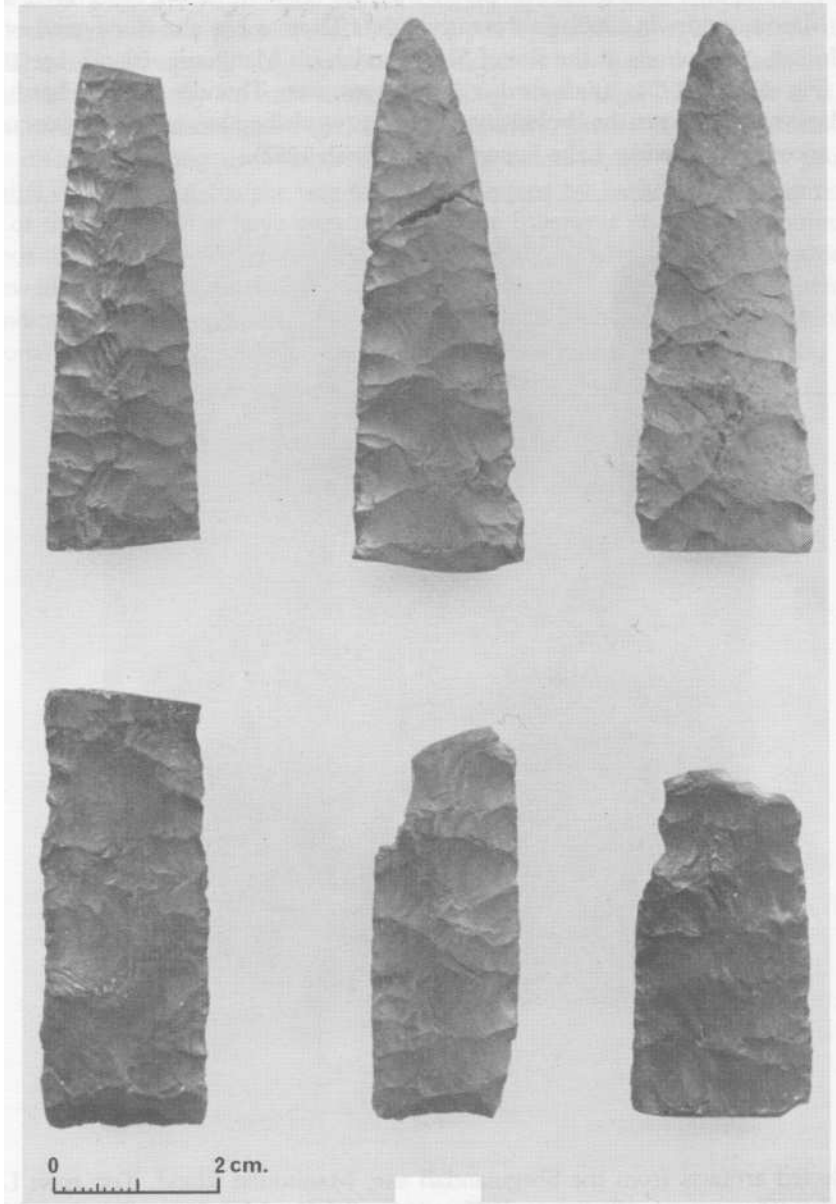


Fig. 16. Late Paleo-Indian projectile point fragments from Thompson's Island, Quebec. Artifacts housed in the Archaeological Survey of Canada, National Museum of Man, Ottawa.

In northern Ontario, survey work and excavations conducted separately by Kenneth Dawson (1983a, 1983b), James Wright (1963), William Fox (1975, 1977, 1980), and William Ross (personal communication) have resulted in the discovery of over a dozen additional sites related to Brohm and which are regarded as belonging to the same cultural complex — the Lakehead Complex. These sites extend the known distribution of the complex westward to the eastern margins of glacial Lake Agassiz and reveal a settlement pattern oriented to inland as well as to lake-margin habitats. Unfortunately, the Lakehead Complex has not as yet been radiocarbon dated. However, stratigraphic evidence recently obtained by Patrick Julig (personal communication) indicates that Late Paleo-Indian peoples were contemporaneous with the middle or later stages of Lake Minong dating between perhaps 5000 and 7500 years B.C.

Excavations have not been conducted at the site of Sheguiandah since Thomas Lee's work. This is unfortunate since the significance of the artifacts (Fig. 15) in the so-called till deposits remains ambiguous and controversial. The ROM conducted fieldwork in the vicinity of George Lake I site in 1970 in the hope of turning up additional Late Paleo-Indian material but the survey was unsuccessful, at least in this regard (Storck 1974).

In southcentral and southwestern Ontario, an increasing amount of Late Paleo-Indian (Plano) material has been recovered over the past decade, in large part as an indirect result of the search for fluted point sites. A subtle shift in research orientation is taking place, however, since within the last few years Brian Deller and Chris Ellis have focused attention on the so-called Hi-Lo Complex (Ellis and Deller 1981, 1982) which is either Late Paleo-Indian or Early Archaic in cultural affiliation, and John Prideaux (1977, 1978), Andrew Stewart (1982), and Gordon Dibb (1979, 1982) have recently conducted work on Agate Basin and perhaps Hell Gap related material.

#### AFTERWORD

Paleo-Indian research in Ontario has virtually exploded in the last 15 years. There are probably many reasons for this but certainly one of them was the establishment of a provincial funding agency in 1974 — the Ontario Heritage Foundation — which supported the work of many students and archaeologists, both avocational and professional. In my own case I must also acknowledge the continuous support of the Royal Ontario Museum which, as a research institution, was able to provide seed money for untested projects and those showing little else but promise when year to year results were occasionally discouragingly low.

Another reason for the florescence of Paleo-Indian research in Ontario is the fact that people started deliberately looking for the material to the exclusion of all else. The survey work has been, and continues to be, strongly problem-oriented and highly focused geographically with the immediate objective of determining the best and most productive ways of discovering Paleo-Indian sites. Considering the fact that the several dozen Paleo-Indian sites we know of today were totally unknown and even unsuspected in the early 1970's, this single-mindedness of purpose has been not only remarkably productive but apparently essential for the development of our knowledge. Other areas in the archaeological record could benefit from a similar approach and the results of Paleo-Indian research over the past decade or so should give strong encouragement to those whose interests are in areas which are almost wholly unknown regardless of the time period concerned.

#### ACKNOWLEDGEMENTS

I am pleased to acknowledge the support of several research grants from the Canada Council and the Social Sciences and Humanities Research Council of Canada.

I would like to thank K.C.A. Dawson, William Fox, Patrick Jul\* and William Ross for their assistance in several queries I had about their work on the Lakehead Complex. Similarly, Clyde

Kennedy was most helpful in a telephone conversation about his work along the margins of the Champlain Sea.

The photographs were taken by William Robertson of the Art Department at the Royal Ontario Museum. The photographs in Figs. 2, 6, and 13 are published through the courtesy of D. Brian Deller and Chris Ellis. The photograph in Fig. 12 is published through the courtesy of Arthur Roberts. The maps in Figs. 1, 4, 7, 8, 9, 10, and 11 were drawn by Catherine Farley, a free-lance artist in Toronto. Finally, I would like to thank J.V. Wright and Robert Pammett of the Archaeological Survey of Canada for arranging for me to study and photograph the artifacts in Fig. 16 and several other collections.

This article is based on a paper delivered at the Tenth Annual Symposium ("Ontario in the Past") of the Ontario Archaeological Society, October 29, 1983, Toronto, Ontario.

#### REFERENCES CITED

- Boyle, David  
1906 Notes on Some Specimens. Flints. *Annual Archaeological Report of Ontario 1905*. Appendix to the Report of the Minister of Education, pp. 10-12.
- Brown, D.M., G.A. McKay and L.J. Chapman  
1974 The Climate of Southern Ontario. *Climatological Studies Number 5* (second edition). Environment Canada Atmospheric Environment.
- Dawson, K.C.A.  
1983a Cummins Site: A Late Palaeo-Indian (Plano) Site at Thunder Bay, Ontario. *Ontario Archaeology* 39:3-39.  
1983b *Prehistory of Northern Ontario*. Thunder Bay Historical Museum Society.
- Deller, D. Brian  
1976a Paleo-Indian Locations on Late Pleistocene Shorelines, Middlesex County, Ontario. *Ontario Archaeology* 26:3-19.  
1976b The Heaman Site: A Preliminary Report on a Paleo-Indian Site in Middlesex County, Ontario. *Ontario Archaeology* 27:13-28.  
1979 Paleo-Indian Reconnaissance in the Counties of Lambton and Middlesex, Ontario. *Ontario Archaeology* 32:3-25.  
1980 The Parkhill (Brophey) Site, AhHk-49: Analyses of Surface Materials. Unpublished MA thesis, Department of Anthropology, Wilfrid Laurier University, Waterloo, Ontario.  
1981 Crowfield AfHj-31: A Paleo-Cremation in Southwestern Ontario. Report on file at the Department of New World Archaeology, the Royal Ontario Museum, Toronto.  
1982 Some Paleo-Indian Cultures and Their Suggested Evolution in Southern Ontario and Michigan. Report on file at the Department of New World Archaeology, the Royal Ontario Museum, Toronto.  
1983 Paleo-Indian Utilization of Exotic Lithic Raw Materials: Data Suggesting Seasonal Resource Scheduling and Social Interaction in the Central Great Lakes Region. Paper presented at the 9th Annual Archaeology Symposium, McMaster University, Hamilton, Ontario.

- Deller, D. Brian, and C.J. Ellis  
 1982 Archaeological Investigations at Thedford II, Crowfield and Other Paleo-Indian Sites in Southwestern Ontario, 1981. Report on file at the Archaeology Division, Ontario Ministry of Citizenship and Culture, Toronto.
- 1983 Crowfield: A Probable Paleo-Indian Cremation in Southwestern Ontario. Paper presented at the 50th Annual Meeting of the Eastern States Archaeological Federation, Salem, Massachusetts.
- Dibb, Gordon C.  
 1979 An Archaeological Survey of the East Holland River and Its Environs. Report on file at the Archaeology Division, Ontario Ministry of Citizenship and Culture, Toronto.
- 1982 Deavitt Site Excavations and Algonquin Shoreline Survey and Monitoring Activities, 1980. Report on file at the Archaeology Division, Ontario Ministry of Citizenship and Culture, Toronto.
- Ellis, Christopher John  
 1979 Analysis of Lithic Debitage from Fluted Point Sites in Ontario. Unpublished MA thesis, Department of Anthropology, McMaster University, Hamilton, Ontario.
- Ellis, C.J., and D. Brian Deller  
 1981 Hi-Lo Point Life Histories. Report on file at the Department of New World Archaeology, the Royal Ontario Museum, Toronto.
- 1982 Hi-Lo Materials from Southwestern Ontario. *Ontario Archaeology* 38:3-22.
- Fitting, James E.  
 1970 *The Archaeology of Michigan: A Guide to the Prehistory of the Great Lakes Region*. The Natural History Press. Garden City, New York.
- Fitting, James E., Jerry Devisscher and Edward J. Wahla  
 1966 The Paleo-Indian Occupation of the Holcombe Beach. *University of Michigan, Museum of Anthropology, Anthropological Papers* 27.
- Fox, William A.  
 1975 The Palaeo-Indian Lakehead Complex. *Canadian Archaeological Association Collected Papers*, March 1975, Research Report 6, pp. 29-53. Division of Parks, Ontario Historical Sites Branch.
- 1977 The Lakehead Complex: New Insights: *Data Box* 349:1-22. Historical Planning and Research Branch, Ontario Ministry of Culture and Recreation.
- 1980 The Lakehead Complex: New Insights: In *Collected Archaeological Papers*, Archaeological Research Report 13 (edited by David Skene Melvin), pp. 127-151. Historical Planning and Research Branch, Ontario Ministry of Culture and Recreation.
- Garrad, Charles  
 1971 Ontario Fluted Point Survey. *Ontario Archaeology* 16:3-18.
- Gogo, George M.  
 1961 Thompson's Island, Its Significance to Early Man in Eastern Ontario. Report on file at the Archaeological Survey of Canada Archives, National Museum of Man, Ottawa.
- Gramly, Richard Michael  
 1982 *The Vail Site: A Palaeo-Indian Encampment in Maine*. Bulletin 30 of the Buffalo Society of Natural Sciences. Buffalo, New York.

- Greenman, Emerson  
 1943 An Early Industry on a Raised Beach Near Killarney, Ontario. *American Antiquity* 8(3):260-265.  
 1966 Chronology of Sites at Killarney, Canada. *American Antiquity* 31(4):540-551.
- Haynes, C. Vance, Jr.  
 1967 Carbon-14 dates and Early Man in the New World. In *Pleistocene Extinctions: The Search for a Cause* (edited by P.S. Martin and H.E. Wright, Jr.), pp. 267-286. Volume 6 of the Proceedings of the VII Congress of the International Association for Quaternary Research, Yale University Press, New Haven and London.
- Jackson, L.J.  
 1977 An Archaeological Survey of the Western Rice Lake Basin, Ontario. Report on file at the Archaeology Division, Ontario Ministry of Citizenship and Culture, Toronto.
- Karrow, P.F.  
 1980 The Nipissing Transgression Around Southern Lake Huron. *Canadian Journal of Earth Sciences*. 17(9):1271-1274.
- Karrow, P.F., T.W. Anderson, A.H. Clarke, L.D. Delorme and M.R. Sreenivasa  
 1975 Stratigraphy, Paleontology, and the Age of Lake Algonquin Sediments in Southwestern Ontario, Canada. *Quaternary Research* 5(1):49-87.
- Kidd, Kenneth E.  
 1951 Fluted Points in Ontario. *American Antiquity* 16(3):260.
- Lee, Thomas E.  
 1954 The First Sheguiandah Expedition, Manitoulin Island, Ontario. *American Antiquity* 20(2):101-111.  
 1955 The Second Sheguiandah Expedition, Manitoulin Island, Ontario. *American Antiquity* 21(1):63-71.  
 1956 Position and Meaning of a Radio-carbon Sample from the Sheguiandah Site, Ontario. *American Antiquity* 22(1):79.  
 1957 The Antiquity of the Sheguiandah Site. *The Canadian Field-Naturalist* 71(3):117-137.
- MacDonald, George F.  
 1968 Debert: A Palaeo-Indian Site in Central Nova Scotia. *National Museum of Canada, Anthropology Papers* 16.
- MacNeish, Richard S.  
 1952 A Possible Early Site in the Thunder Bay District, Ontario. *National Museum of Canada, Bulletin* 126:23-47.
- Mason, Ronald J., and Carol Irwin  
 1960 An Eden-Scottsbluff Burial in Northeastern Wisconsin. *American Antiquity* 26(1):43-57.
- McNett, Charles W. Jr., Barbara A. McMillan and Sydne B. Marshall  
 1977 The Shawnee-Minisink Site. In *Amerinds and Their Paleoenvironments in Northeastern North America* (edited by Walter S. Newman and Bert Salwen), pp. 282-296. *Annals of the New York Academy of Sciences* 288.
- Moeller, Roger W.  
 1980 6LF21: A Paleo-Indian Site in Western Connecticut. Occasional Paper No. 2, American Indian Archaeological Institute. Washington, Connecticut.



- Prideaux, John
- 1977 Schomberg and Black River Basin Survey. Report on file at the Archaeology Division, Ontario Ministry of Citizenship and Culture, Toronto.
  - 1978 Schomberg River Basin Survey and Excavation 1978. Report on file at the Archaeology Division, Ontario Ministry of Citizenship and Culture, Toronto.
- Roberts, Arthur
- 1982 Preceramic Occupations Along the North Shore of Lake Ontario. Unpublished PhD dissertation, Department of Geography, York University, Toronto, Ontario.
  - 1983 Paleo-Indian Along the North Shore of Lake Ontario. Paper presented at the 50th Annual Meeting of the Eastern States Archaeological Federation, Salem, Massachusetts.
- Roosa, William B.
- 1963 Some Michigan Fluted Point Sites and Types. *Michigan Archaeologist* 9(3):4148.
  - 1965 Some Great Lakes Fluted Point Types. *Michigan Archaeologist* 11(3-4):89-102.
  - 1977a Great Lakes Paleoindian: the Parkhill Site, Ontario. In *Amerinds and Their Paleoenvironments in Northeastern North America* (edited by Walter S. Newman and Bert Salwen), pp. 349-354. *Annals of the New York Academy of Sciences* 288.
  - 1977b Fluted Points from the Parkhill, Ontario Site. *University of Michigan, Museum of Anthropology, Anthropological Paper* 61:87-122.
- Roosa, William B., and D. Brian Deller
- 1982 The Parkhill Complex and Eastern Great Lakes Paleo-Indian. *Ontario Archaeology* 37:3-15.
- Sheppard, Peter
- 1977 An Archaeological Survey of the Niagara Escarpment Southwest of Collingwood, Ontario (1977). Report on file at the Archaeology Division, Ontario Ministry of Citizenship and Culture, Toronto.
- Shott, Michael
- 1983 Paleo-Indian Technology and Settlement Mobility in the Great Lakes Region. Report on file at the Department of New World Archaeology, the Royal Ontario Museum, Toronto.
- Stewart, Andrew
- 1982 Palaeo-Indian Survey in the Schomberg Basin and Zander Site Excavation 1982. Report on file at the Archaeology Division, Ontario Ministry of Citizenship and Culture, Toronto.
- Storck, Peter L.
- 1970 Beachcombing into the Past. *Royal Ontario Museum Archaeological Newsletter*, New Series 63.
  - 1971 The Search for Early Man in Ontario. *Rotunda* 4:18-27, The Bulletin of the Royal Ontario Museum.
  - 1973 Two Paleo-Indian Points from the Bronte Creek Gap, Halton County, Ontario. *Royal Ontario Museum, Archaeology Paper* 1:1-4.
  - 1974 Two Probable Shield Archaic Sites in Killarney Provincial Park, Ontario. *Ontario Archaeology* 21:3-36.
  - 1977 The Fisher Site. *Early Man News*, Newsletter of the Commission for the Paleocology of Early Man of INQUA, No. 2. Tubingen, Germany.

- 1978a The Coates Creek Site: A Possible Late Paleo-Indian-Early Archaic Site in Simcoe County, Ontario. *Ontario Archaeology* 30:25-46.
- 1978b Some Recent Developments in the Search for Early Man in Ontario. *Ontario Archaeology* 29:3-16.
- 197& Preliminary Report on the Fisher Project: 1978. Report on file at the Social Sciences and Humanities Research Council of Canada, Ottawa.
- 1979 A Report on the Banting and Hussey Sites: Two Paleo-Indian Campsites in Simcoe County, Southern Ontario. *National Museum of Man, Mercury Series, Archaeological Survey of Canada* 93.
- 1982 Palaeo-Indian Settlement Patterns Associated with the Strandline of Glacial Lake Algonquin in Southcentral Ontario. *Canadian Journal of Archaeology* 6:1-31. 1983 The Fisher Site, Fluting Techniques, and Early Palaeo-Indian Cultural Relationships. *Archaeology of Eastern North America* 11:80-97.
- Storck, P.L., and Q.H.J. Gwyn  
1983 Glacial Lake Algonquin and Early Palaeo-Indian Settlement Patterns in Southcentral Ontario. Paper presented at the 96th Annual Meeting of the Geological Society of America, Indianapolis.
- Storck, Peter L., and Peter von Bitter  
1981 The Search Changes Direction: Ice Age Man in Ontario. *Rotunda* 14(3):28-36. The Bulletin of the Royal Ontario Museum.
- Wright, Henry T., and William B. Roosa  
1966 The Barnes Site: A Fluted Point Assemblage from the Great Lakes Region. *American Antiquity* 31(6):850-860.
- Wright, James V.  
1963 Field Notes 1963. On file at the Archaeological Survey of Canada, National Museum of Man, Ottawa.  
1972 *Ontario Prehistory: An Eleven-Thousand Year Archaeological Outline*. Archaeological Survey of Canada, National Museum of Man, Ottawa.

Department of New World Archaeology  
The Royal Ontario Museum  
100 Queen's Park Crescent  
Toronto, Ontario, M5S 2C6