MICMAC NOTES, 1957.

The record of a summer's archaeological survey and the sampling of nine prehistoric camp-sites in southwestern Nova Scotia.

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Introduction.

Our knowledge of the pre-European people of this province leaves much to be desired. French pioneers and missionaries have left us descriptions of the life of the Indians between 1607 and 1756. English records are chiefly incidental until Silas Rand, in the mid-nineteenth century, studied the Micmac language, customs and legends. A few antiquaries collected arrowheads and dug shell-heaps and graves to this end, the chief being the Rev. George Patterson, and the collections were studied by Harry Piers of the Provincial Museum. In 1913-14 W.J. Wintemberg and H.I. Smith excavated shell-heaps at Mahone Bay and Merigomish respectively in connection with the Geological Survey, and the National Museum published the results in 1929. In the 1920's the hydro-electric development of the Mersey River opened up and destroyed the richest Indian site in Nova Scotia. This attracted the attention of T.H. Raddall and his friends, and they went on to sample some of the Port Joli shell-heaps. In 1955 Wallis and Wallis brought out an excellent ethnographical study of "The Micmac Indians of Eastern Canada". And in 1957 the Nova Scotia Museum of Science allowed me to spend two months in surveying the remains in the southwestern part of the province. Obviously I have been able only to scratch the possibilities even of this area, but this is a preliminary report upon what has been done, written in the hope that it may reach some of those interested and inspire more work on the subject.

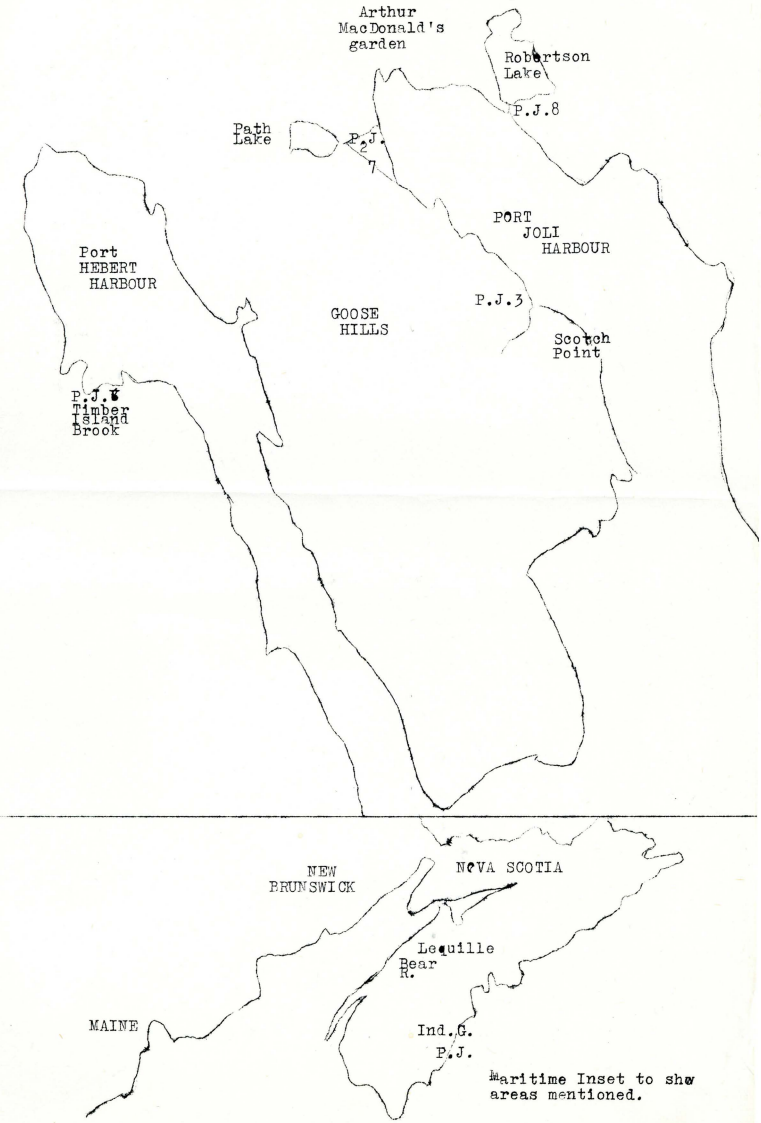
The nearest modern excavations which we can use as a background, are those of Dr. Douglas Byers of the Peabody Foundation who excavated at Ellsworth Falls, Maine. There he found a lowest layer with primitive blades like those of the desert cultures. This was undated. Above this was his Early Boreal Archaic, dated to 2009 B.C. (-310 yrs.), with pecked and percussion-flaked implements. Above this the Late Boreal Archaic, dated to 1400 B.C. (-400 yrs.), which is the "Red-paint Culture", very similar to that of the recent Beothuks of Newfoundland. Later comes a Woodland culture, undated, and the beginnings of pottery, probably of southern Atlantic type. The later type of pottery suggests the coming of the Abnaki tribes from the St. Lawrence, but this is as yet unproved and undated. Dr. Byers insists that there is no abrupt break at any point, which suggests that the earlier attempt to identify particular levels of culture with particular tribes is not likely to take us far. No doubt many different tribes contributed to the culture of the Indians whom the French found here, but probably each group absorbed its predecessors and their culture, and names and languages may have changed independently of culture. Before we have a picture in any way clear, we must have more facts, and my samplings are merely another drop in the very empty bucket of our information.

The Port Joli Area.

The peninsula of the Goose Hills lies between the narrow harbours of Port Joli and Port Hebert. These have clam-flats, once rich, and eel-grass beds which are a favourite grazing-ground of great flocks of geese in winter. In general, the deep channels of both harbours follow the eastern shores, while the best clam-flats lie to the west. European settlement, therefore, has tended to concentrate on the eastern shores and at the outer parts of the harbours where there is better anchorage for boats and easier access to the sea. The soil is very poor, till and boulders overlying country rock of granite and slate with thick veins of quartz, and cultivation has been very limited. All these factors have been fortunate from the point of view of the excavator, since the Indians seem to have chosen sites that avoided surf and were near the clam-flats.

It would be an exaggeration to say that every brook behind every clam-flat has had its Indian camp, but in the four miles of shore-line between Robertson Lake and Scotch Point I sampled four sites, Dr. Raddall two more, and a seventh

MAP OF PORT JOLI AREA , SHOWING SITES
Scale app. 1 inch to 1 mile



had been the site of Mr. Arthur MacDonald's garden for some years. Much the same pattern was found on Port Hebert Harbour where one small site had been known on the eastern shore at Bill's Point but a large double site (No.6) was sampled and another site described on the western shore.

The simplest type of Port Joli site was an area roughly circular and perhaps ten yards in diameter. Almost always there was a projecting boulder near the centre, and here the ash and pot-fragments were deepest. The boulder was usually discoloured and exfoliated by fire and had often become completely buried in ash, after which a new boulder had been rolled in for a fire-back. At times a sort of side-wall of the hearth might be seen and more rarely a rough flooring, but both these features may have been the result of an accumulation of pot-chocks. A lookout was kept for special stones to be heated in the fire and then used to boil water in wooden or birchbark vessels, but nothing was found that could not also have been pot-chocks. Occasionally (Port Joli 7 and Indian Gardens 3) there was a second hearth in the shelter of a high boulder where a conical wigwam could not have been pitched. Here there may have been a lean-to or even an open kettle-hearth for rendering down moose-bones. Bones, ash and potsherds were deep in such places. In Port Joli 7 two pieces of iron pyrite were found, and these were probably usedfor the lighting of fires, flint-and-steel fashion, as was done commonly in Newfoundland. Many sites, though most conspicuously Port Joli 6, contained lumps of bog-iron mixed with sand. These were obviously introduced, and were probably used as pigment.

The only suggestion of the type of house used was in Port Joli 3, near Scotch Point. This site was the largest seen, about 300 square yards. It would appear to have been occupied at first for some years by lodges which were pitched now here, now there, over the area, shell and ash being levelled between occupations. In the last phase, which included rather more than half the bulk of the ash deposited and perhaps more of the shell, three circular areas received practically no new deposit, while between these a midden of shell and ash some four yards wide and a yard deep built up. This suggests that the houses were circular, conical or domed wagwams such as were used historically and were from four to six yards in diameter. Each site seems to have been occupied by one family for a long time, though perhaps seasonally only, for the pottery of each site is distinct. The northern circle was based upon a layer of crushed shells, ash and goose-bones, with quartz pebbles that were often chipped but never flaked. The upper eight inches consisted of sand and ash. Shells filled with clean beach-sand were found in the midden nearby, which suggested that the floors had been swept and sanded. The pot fragments were strong and undecorated. The western circle had a floor almost without shell and ash. Pottery was firm and decorated; one quartz pebble only was found and there were pieces of rotten granite which suggested material for pot-tempering. The southern circle had a floor of ash and crushed shell. There were many pieces of pottery, almost all in a very crumbly state. They had been made of clay overtempered with grit, had been baked, recovered with a slip of pure clay and decorated with much elaboration; but usually the poorly made pot had crumbled away, leaving only fragments of the tastefully decorated slip. Much of the pottery so common in the lower central midden was also overtempered and covered with a slip but was never decorated with this elaboration. This and the untidy floor of ash and shell and bone in the southern circle suggest that the housewife of this wigwam may represent an older generation. The swept and sanded floors of the other two circles suggest an innovation, perhaps the rush-mats mentioned by Lescarbot or the moose rugs described by LeClercq, since such care could not have been given to floors with the usual deep covering of fir-boughs.

Hammer-stones, usually water-rounded pebbles, and flat or ridged anvils were common. They seem to have been used indifferently for chipping flints and for cracking moose-bones. Flat-topped boulders of convenient height for seats and work-benches had never been used, whereas these anvils were deep in

chips and bits of bone. Obviously these Indians squatted on their heels to work as Denys described.

We cannot be sure that most of our sites were not occupied at different periods by different families. Any site which had been occupied for some years had become a level oasis in a waste of boulders. We have evidence of the reoccupation of some of them in recent times. One edge of Port Joli 7 yielded a drawn-wire nail, a piece of cheap chinaware, and the base of a stake cut with a steel axe. Port Joli 8 had been occupied in part by a fish-house, and nails and glass had penetrated the site quite deeply. Boulders beside Port Joli 3 had been packed with smaller stones as is done in clearing land for grazing. And at Port Joli 6 a hunting camp had covered part of the site at one time, and a wrecked kitchen range lay on the ground. However, the uniformity of the sites and the lack of evidence of foreign influence suggest that we are dealing here with the unified culture that preceded the demoralization following European contacts (Port Joli 3 perhaps excepted). That this was the true Micmac culture, as the Wallis's have described it from vestiges and memories of the present Indians, is suggested by the fact that the formula for finding ancient sites turns up numbers of others distinguished as recent by their rusty nails and broken glass, but which in plan resemble the old ones.

A Comparative Table of Area and Position of Sites Sampled.

Area	Port Joli						Lequille		Indian Gardens	
List Number	2	3	6	7	8		Bear R.		1-2	3
Area in sq.yds	50	300	80	80	75	9	200		17?	8?
Yds.sampled	9	15	6	17	11	9	9		17	8
Shell/ash	med	high	low	med	low	no	med		none	none
Yds fr.sea or river	200	25	40	150	0	30	80		80	80
Arrowheads	yes	no	yes	yes	yes	yes	yes		yes	yes

Lequille, Annapolis County.

The river, at present called Lequille, is of considerable size and has about one mile of tidal valley with salt marshes. At Lequille Village the river drops the usual last ten feet in rocky rapids and intersecting channels. This was the place at which salmon traps could most conveniently be constructed, and there was spring-water (the Indians seem to have avoided using river water when possible) available on the north bank. Traditionally this was the gathering place of the local Indians and one would expect to find many campsites. The vegetation confirms the occupation, for "Indian orchard" (Amelanchier, Crataegus and Prunus virginiana and serotina) are abundant on all sides. However, most of the probable spots showed tiny cellars, probably French, and these houses, roads and cultivation have removed surface signs of the camps. A search of the obvious canoe-landing at the top of the tide was hindered by the ruins of old mills, but a search of the banks and shallows yielded quartz chips and a broken slate adze.

The only site determined was in the backyard of John Vidito to the north of the falls. His son had dug up many arrowheads there, and he gave me permission to excavate. Two successive houses had encroached upon the site, and the abundance of superficial rubbish made it uncertain that I should recognize any European trade-material that might be found there. Excavation was begun beside a boulder which was guessed correctly to be the hearth. Chips of pink quartzite were abundant, argillite and quartz rather scarce. There was no shell, and bones were almost entirely absent. Two fragments, which may be moose bone, and what may be two rounded points of bone flakers, seemed to belong to the site; a mouse cranium and a lower jaw of rat or squirrel were probably intrusions. There were a good number of broken arrowheads and one longer knife or spearpoint, and these were often of good workmanship; there were several complete points, all of inferior quality and probably discards. The abundance of stone suggested a chipping workshop; but potsherds were common. This pottery was standard Micmac but in various ways was slightly different from any found at Port Joli. One pot was decorated inside the rim, others had comb-dotting.

Eight square yards of the site were excavated, almost all not covered by logs. At the outer edges ash disappeared and chips became scarce; in the deepest place the ash reached fourteen inches. There were few underlying boulders, but stone anvils were common above the lowest occupation layer. Hammer-stones and pebbles of various kinds were also abundant, but the crumbling grit-stone, so common in Port Joli sites, was not found.

The picture here is much less clear than at Port Joli, for there food-bones had largely survived, giving one some idea of the major activity of food-gathering. Here the only observable activity is flint-chipping, men's work. The cores, chips and flakes are not dissimilar to those at Port Joli, and argue the same techniques; the predominance of small points is the same, and the inferior workmanship may well be due to the more intractable rocks. The pottery is made in the same way and in varying thicknesses. But there are differences. The predominant stone is local in each case; the barbed-and-tanged point, rendered so by base-notching, was never found at Lequille; the pot forms and decorations, while of similar type, are not quite the same, and the Lequille pots are always grit-tempered, never shell-tempered. It seems that this was only a fragment of a village site, whereas the Port Joli camps were of independent families. There is nothing to show that women ever used this site. It may well have been the men's club, where they gathered to gossip and chip arrowheads and eat a club dinner. The lodge-sites of these salmon camps are still uncertain. Those I sampled at Tusket Falls had deep ash and little else. They suggest busy holiday gatherings where little constructive work, beyond the fishing, was done.

We have no dates for this. Lescarbot knew this place, for it was here that the French built the first water-mill on the continent. He says that the Indians had already given up flint-chipping and potting, and his information was drawn from this area. That sets the site to before 1607. One other possibility remains to be explored. In the digging there turned up a flattened piece of much oxidized copper or brass. This was rolled out of sheet metal. It is very possible that it came from the nineteenth-century house beside the site, but it resembles also the rolled sheet-metal beads popular among the New England Indians in the sixteenth century.

Bear River, Annapolis County.

Bear River is an obvious place for Indian sites. It has a fair clam-beach, a run of salmon, and was one of the canoe routes to the central area from which the larger rivers of the southwest take their source. Among the whites I found no recollection of arrowheads having been picked up, and the obvious salmon-fishing sites at the head of the tide had been occupied by mills and power-stations. However, an old Indian at Bay View Beach by the lifeboat station told me that he had picked up arrowheads on the beach below the Colonial Arms. "But you gotta look for'm"

I walked out along that unpromising point. It was a glacial kame of water-laid gravel rising to nearly a hundred feet. The beach showed the effects of fresh water only in two places, and one of these was occupied by a gypsum warehouse. The other was on a steep hillside. I followed the line of the fresh water up a path and tested the few almost level places along it without success. I was just giving up when I noticed, some fifty yards to one side, a clump of unusual native hawthorn. Beside this I found another flat shelf which showed shell.

The site turned out to be a series of wigwam-shelves terraced out of the hillside and extended out over a talus of shells. Three sites were sampled and at least one other was suspected below. The northernmost was some 18" deep, the centre one 24", the southern 15". All were very poor. The clamshells were comparatively small and often deformed, shells of whelks were frequent, bones of moose, wildcat and fish comparatively scarce. One arrowhead was found in the central site, and chips occurred scantily throughout. There were an unusual number of pebbles, some suitable for chipping, others brilliantly red or white had probably been brought in

as being pretty. Pottery was scarce but present throughout. In fact, only the low proportion of quartz to all-stone distinguished this from a site on the South Shore. There were, however, two unusual features: pottery showing the imprint of textiles, as in southern Algonkian sites and as found at Merigomish; and a slate whetstone or sinker with a drilled cylindrical hole instead of the usual hour-glass drilling.

Indian Gardens, Mersey River, Queens County.

One of the greatest of Micmac villages was Indian Gardens on the Mersey River. Here were a number of falls and rapids suitable for salmon-traps and eel-weirs and this seems to have been a seasonal meeting-place for a great number of the Indian groups from southwestern Nova Scotia. In 1908 a reservoir dam was constructed just above the deserted treeless site of Indian Gardens, and fill for the dam was hauled from a knoll which turned out to be the Indian burial ground of recent date. Bodies were found wrapped in birchbark and still having recognizable hair. Croft, the caretaker of the dam, ploughed a garden in the Indian Gardens site and reported later having turned up "thousands of dollars worth of arrowheads". A small farm of house and barn and one field was opened below Indian Gardens soon after the dam was built, but for the next twenty years the area could be reached only by a scramble along eight miles of "tote-road" from Greenfield. In the hydro-electric development of 1928 a new dam was built a third of a mile below the earlier one, and a new road made this area easy of access. During three years the water flowed into the dam, rising in winter, falling in summer, until the lake was full. In the erosion of each winter large numbers of Indian tools were exposed on the beach. T.H.Raddall, Roy Gordon and Brenton Smith made collections, and the craze spread and has continued until today. The collections of the three original enthusiasts remain practically intact, but most of the others have been scattered and are lost to science. Today the pickings are much diminished. Most of the richest sites are now permanently submerged or eroded to the bottom. Other settlements at East Bay, West Brook and the Screecher remain to be explored, but it is to be feared that all except winter camps will have been eroded.

The types of artifacts picked up include almost everything known in Nova Scotia and many items which look, and may be, quite foreign to the area. Raddall's collection includes serrated points and heavy war-heads, which suggest more advanced cultures farther west, and gouges and ground and bevelled blades with hafts threaded for lashing, which normally belong to the Red-paint Late Archaic period. I was much too late to get more than accidental pickings on the beach. I found a quartz bolas-stone, probably of Red-paint times, and a willow-leaf blade of chalcedony of much later date. It was still possible to trace out many camp-sites on the beach by an ellipse of quartz chips. The woods back from the shore were level, so that sites might have been anywhere, and my trials were all unsuccessful. I took the only other alternative. I searched roughly a mile of shore-line, looking for fans of quartz-chips where the apex of the fan remained uneroded, and I was fortunate enough to find two. As these were set back from the river some eighty yards into the woods, it is probable that they were winter camps and therefore scarcely typical of the salmon-fishing gatherings along the shore.

One site, No.3, had been reduced to a thin square yard of occupation-layer, but some five yards to the south, protected by a huge boulder, was a kettle-hearth covered with an overburden of gravel of from nine to eighteen inches which had protected a narrow triangle of uneroded site some twelve feet long, four feet wide at the apex, and down to fifteen inches deep in ash. This contained typical pottery, arrowheads and chips, but bones were reduced to chalky nodules or lumps of yellow dust. The pattern and contents of the site differed in no detail from those at Port Joli.

On a low knoll to the east of the lake, beside a summer-dried brooklet, I found another incomplete fan of chips. At the head of the fan was a badly eroded occupation-layer, flooded only at the height of winter floods, and this yielded

some bits of typical Micmac pottery and an inch of the grooved stemmof a clay pipe. The layer was discontinuous and unpromising, so I tried around the boulder a few yards distant and found part of a much more definite site. I named these sites, No.1 and No.2, though they seem once tohave been continuous. No.2 yielded abundant quartz chips and some jasper, both reaching nearly to the top of the black layer above which lay the protecting overburden of beach gravel. Broken arrowheads of jasper and quartz, a slate whetstone (or sinker), and Indian pottery were usual enough; moose bones had either become reduced to shalky nodules or were in very fresh condition, some moose teeth - the only moose teeth ever found in a site - being still white. With these were some rusty wrought-iron nails, fragments of two more clay pipes (factory made), pieces of at least three items of chinaware, and a Nova Scotian halfpenny token of 1832. Some of the nails and pieces of pipe came from lower in the site than one arrowhead.

We cannot dismiss the possibility that we are dealing with two discontinuous occupations of the same site. Most of the Micmac pottery came from low down, though not that from Site 1. Some faint yellowish lines were seen in the cross-section, and these suggested that the floor had been cleaned or levelled by the addition of gravel from the beach of the river. However, it was not possible to follow these layers for more than a few inches. There was definitely no surviving interval layer separating the occupations. It is widely accepted that stone-arrowheads had been given up in favour of those of iron during the sixteenth century, and this receives some support from the fact that old Indians today know the techniques of bow-making but not of flint-chipping. However, this site can too readily be explained to suit any theory.

Yarmouth County Sites.

At Pleasant Lake, eight miles south of Yarmouth, the Hatfields have an excellent collection of arrowheads from at least three areas on their farm on both sides of the main road. The arrowheads are of several shapes: base-notched, long or gothic arch in outline, small to large, triangular or swallow-tailed, and in varying stages of completeness. Material is quartz, jasper, chalcedony and argillite. Chips are scattered freely over the fields and broken arrowheads are frequent. There is now no sign of ash or bone and potsherds have not been noticed. Whetstones of fine hard stone are abundant. A grooved hammer once turned up in a load of gravel but its origin was unknown.

Wilbur Sollows of Arcadia has an interesting collection from the neighbourhood of Tusket Falls. This includes an eight-inch spindled spear-point of slate, flat on one side and rounded on the other. It was found in a marsh. The type is Red-paint or Late Archaic. He has a broken gorget and a broken grooved sinker from the rapids, and many spear and arrow-points. The principal camp-site seems to have been beside a small brook to the east of the present road. It has all been cultivated, but at present on the garden to Dr.Anthony's cottage is not grassed over. The whole area is suitable for occupation, and test-holes near the river showed camps with thin occupation layers and odd quartz chips which need not be of the same date.

Sollows reports on hearsay that the burial of a baby wrapped in furs and copper was found on an island in Tusket Lake.

Pottery.

The pottery turned up in the samplings of sites in the southwest is much what was to be expected. It seems to have been typical of Indian pottery to temper the clay with with either grit or shell. This makes the clay stiffer at once, allows it to dry more rapidly without cracking, and usually produces a rather inferior crumbly body. Grit-temper is the most common, crushed shell much less so, and the finest ware is of the type described by Wintemberg as "untempered". I should be uncertain of the correctness of this description. In Honduras I have seen the Maya Indians temper lake-bottom

Grit and shell temper.

Pottery from Port Joli 8.

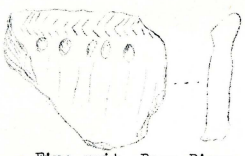
Fine grit temper

Fine grit, P.J.8

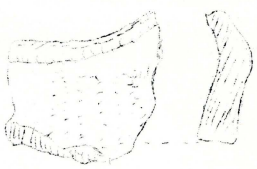
Fine grit, P.J.8

Coarse grit, Lequille.

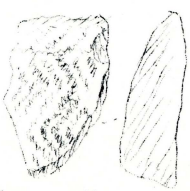
Shell temper, Bear River.



Fine grit, Bear River



Fine grit, cloth pattern,
Bear River.



Coarse grit,
Indian Gardens 2.

Sand, Ind.Gard.2

Coarrse grit,
Ind.Gard.3.

clay with hillside loam to produce pottery of much finer texture than our best finds. The suggestion by Loomis and Young, quoted by Wintemberg, that the shell-tempered ware was made on the shore and the grit-tempered inland, receives no support here. Six of the nine sites sampled had abundant shell, and all of these had some pottery with shell-tempering; the other three sites had no shell and had no pottery with shell temper. This suggests that pottery was not brought inland from the shore; it is impossible to prove the reverse, but in almost every shell-heap abundant fragments of decayed sandstone and gritstone were found, and these, too friable for use as whetstones, can only have been intended for use as pot-temper. I would suggest that pottery, like the wooden kettles mentioned by Denys, was left at the place where it was made.

Approximately fifteen pounds of pot-fragments were collected from these nine sites. Since rarely more than three sherds could be identified as belonging to the same pot, this suggests a collection of more than one hundred pots, enough for some generalization. R.B.Dixon has given three characters as distinguishing the pots of southern from those of northern tribes:

Southern	Northern
a. Conical or lemon-shaped base.	A. Rounded base.
b. Straight lip.	B. Outcurved lip.
c. Cord or textile impressions.	C. None.

The pottery excavated by Wintemberg at Mahone Bay had the following characters from the above contrasts: A, bB, C.
Smith at Merigomish found: a, b, c.
Our nine sites gave: A, bB, cC.
Obviously this classification does not help us greatly.

The colour of the pottery varied from grey through yellow-drab to brown and dull red, the reddest specimens being the shell-tempered ones. It seems likely that the red colour is due rather to the absence of impurities introduced with soil or grit tempering than to the presence of shell, since the pots covered with a slip of pure clay had something of this redness. Sizing the potsherds against the curves of modern bowls, I estimated that the original pots varied in diameter from about five to over fifteen inches.

The quality of the pottery was never high. The higher the proportion of temper, the lower the quality. Most grit-tempered ware was quite friable, and some had crumbled away, leaving only fragments of the decorated slip. Occasional sherds had broken away along lines parallel to the bottom, which suggested that these pots had been built up in coils. However, this was equally true in some of the coarsest grit-tempered pots which one would have expected to have been built by the punch and paddle method.

Vertical lips were somewhat more common, and it is possible that some of the everted ones may have been less emphatic in pots sloped inward below the mouth. (There were never sufficient pieces to allow for plausible reconstruction.) Vertical lips were sometimes corniced or double-corniced but were never thickened of collared as in Iroquoian pots. Frequently the lip rose into points in the Iroquois fashion, a characteristic not commented upon by earlier excavators, although Wintemberg's photographs show one or two examples. This was common among the New England Algonkians as is shown in Willoughby's Figs.113 a, d; 116 d. The "lugs" which Dixon had thought characteristic of northern pottery were not observed. One rather ornately modelled piece of pot might have been a lug or equally might not. Holes for suspension of pots were found from three sites. Most of the holes were coarse and seemed to have been bored by awl after the pot was dry; one was neat and round and resembled the decorative holes punched with a bird's leg-bone and which leave raised bumps on the inside of the pot. No connection was found between the holes and the raised points on the rims of the pots.

Decoration was all incised and was geometric in character, consisting of lines, dots, zigzags, crescents, and rarely small circles. The lines were probably made by knife-blade or shell or by dragging a comb across the surface. Parallel lines, often in chevrons, may have been made, as Smith suggested, with cord-rolled twigs, or may have been made with the edge of a corded potting paddle. These were sometimes coarse, sometimes so fine

Arrowheads or knives.

106
Argillite
Ind.Gard.3

100
Jasper
Ind.Gard. 3

103
Quartz
Ind.Gard.3

117
Quartz
Ind.Gard.3

118
Jasper
Ind.Gard.2

POTTERY.

Z3
Coarse grit
P.J.3

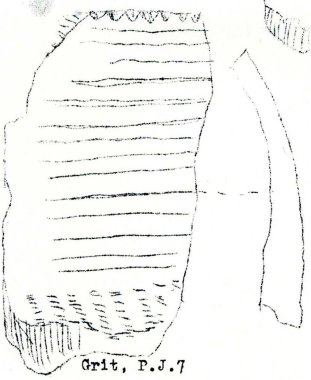
E6
Clay slip.
P.J. 3

Z11
Fine grit
P.J. 3

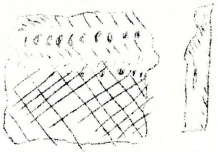
Grit.
P.J.7

Grit.P.J.7

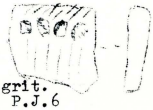
Grit, P.J.7



Grit, P.J.7



Shell temper, P.J.7



Fine grit.
P.J.6

as to resemble the print of a screendoor-spring. The zigzags were made by rocking a curved blade or shell over the surface. The dots when fine were probably pricked with a comb, when coarse with some blunt punch. The small circles may well have been pricked with bird-bones. Styles of pot-making and artistry (never very exalted) varied from site to site and, when the wigwam circles were fixed, from house to house, which suggested that every woman made her own pottery. The variety of decoration was so great within comparatively narrow limits of ornament that it was impracticable to seek evidence of a movement of decorative ideas within small limits of area. Patterning by impressing fabrics, a southern idea found also at Merigomish, was noticed only at Bear River. Scarification of the inside of the pot was most conspicuous at Port Joli 6.

The use of the pots is obvious. Many are blackened beneath, most are blackened on the inside where food has soaked into the unglazed pot and has become carbonized there. Very large and thick potsherds are frequent in the "kettle-hearths" against high boulders, and there can be little doubt that moose-bones were rendered down in them as in wooden kettles. It is possible that the lower weight of pots per square yard in some sites may have been due to the use of wooden kettles there, but it would be difficult to prove this.

Pottery per square yard Excavated, in ounces.

Port Joli					Bear River	Lequille Indian Gardens	
2	3	6	7	8		1-2	3
1.4	2.9	1.7	2.5	3.8	2.7	.12	4.9

Objects Made from Bone, Antler or Shell.

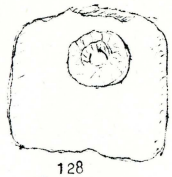
In these camp-sites bone was well preserved roughly in proportion to the shell/ash ratio. We can expect that bone tools will have disappeared from the sites in much the same proportion. The commonest bone tools found were the points called "awls", which may have served many purposes as well as that of punching holes in leather or birchbark. Very few were found entire. Broken shafts were rare, but these would have been difficult to distinguish from accidental fragments of bone. Tips were fairly usual, cylindrical and sharp in most sites, flat and sharp only in Port Joli 3, cylindrical with rounded tips frequently - these last probably having been flaking tools.

Points obviously for weapons were rare. Port Joli 3 yielded a flat point with shallowly notched barbs at one side,(43). This resembles some "bird-darts" figured by Willoughby. Port Joli 7 gave the cylindrical tip of a harpoon with a slight barb at one side (69). Besides these Port Joli 2 and 3 each yielded one conical tip of antler ground smooth. That from Site 2 may have been an arrow-tip, but that from Site 3 is so bulky and has so narrow a socket that I have wondered whether it was not a handle into which beaver-incisors, common in the camps, might be inserted to serve as chisels. The socket is a tight fit for a beaver-tooth.

Although a few fishbones were found in most sites, and many in Port Joli 3, fish-hooks occurred only in Port Joli 8, in which there were five, very sharp points of bone with a basal barb by which they might have been bound firmly to a twig.

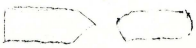
A few objects of bone could not be assigned definitely to any purpose. One piece (154) about one and one-half inches long has been broken at both ends. It had been thinned to the cross-section of a keyhole, thin strip up, and the thin fin had been pierced with an oval eye. This fin sloped down to the cylinder before and behind the eye. This looks like a clumsy version of the "snowshoe needle" illustrated by Smith, but it might have been a toggle. Another (90), blunt at one end and broken at the other, with a blunt barb at the intact end and the suggestion of one at the broken end, may have been a harpoon point. Perhaps three ounces out of twenty-five pounds of bone collected, showed definite evidence of having been worked. There were many pieces which could have been used, but these, like most eoliths, prove nothing.

Drillings



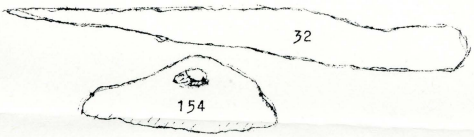
128
Sandstone

82
Slate



116
Slate

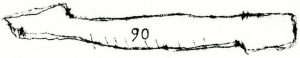
Bone and Antler Tools



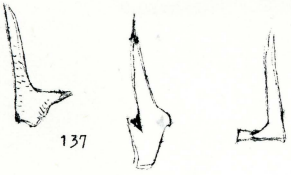
32

154

67

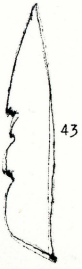


90



137

69



43

41

There were few fragments of antler in the sites. As these are supposed to have been summer-sites, it is perhaps surprising that there should be antlers at all. Moose was by far the commonest game, that the only moose antlers were in Port Joli 6, two short stubs, probably tines hacked off and ground. In this same site there were several spikehorns, some extremely small, of white-tailed deer. Another spike was found in Port Joli 2. In Port Joli 8 a few inches of antler from near the base appeared to be caribou. All these had decomposed more than bone.

A number of large clam-shells were found which seemed to have had holes punched roughly through them. It is easy to do this accidentally, but it seemed possible also that these might have served as arrow-scrapers. Other shells contained piles of fish-bones or fresh beach sand, which suggested that they had been used as plates and as diggers. No working of shell was observed.

Flint-working.

To be exact, we have no flint or chert in Nova Scotia. The essential for applying the chipping technique was a strong stone with a conchoidal fracture (chipping in scoops and not in plates, slivers or irregularly), and of these our best are quartz, which occurs commonly in veins in the metamorphic rocks of the South Mountain, jasper and chalcedony which occur in thin veins in the trap rock of the North Mountain, and the argillite group of highly metamorphic rocks between slate and quartzite. The classification given is necessarily coarse from the point of view of a petrologist but will serve our purposes.

Several questions have arisen in connection with local stone-chipping. Was there any trade in stone, or did local groups make expeditions to get desirable material, or did they depend upon local supplies? Was arrow-making a specialty, or did every man do it, naturally with great variation in efficiency? Were the variations in chipping local or of individual preference? Were the stone tools manufactured at the quarry, at home or in special workshops? A table of finds may clear up some of these points, since our Port Joli sites were in an area of quartz and argillite, Bear River in the argillite area, Lequille with quartzite at hand and jasper and chalcedony not far away, and Indian Gardens had abundant quartz of very poor texture.

	Port Joli							Indian Gardens		
	2	3	6	7	8	BR	Leq	1-2	3	Average
Stone ox. per y^2.	8.4	2.7	10.5	6.1	4.1	8.2	7.9	7.1	9.5	7.2
% jasper	1	0	0	1	5	11	1	1	⅛	2
% quartzite	0	0	0	0	0	0	25	0	0	3
% argillite	8⅛	5	3	13	19	53	46	0	0	17
% quartz	90	95	97	86	76	36	27	99	99⅛	78
	Completed tools, whole or in part.									
Pieces	4	0	2	6	1	4	15	2	4	38
% jasper	25	0	0	0	0	0	0	50	25	8
% chalcedony	0	0	0	0	0	0	46	0	0	18
% quartzite	0	0	0	0	0	0	0	0	0	0
% argillite	25	0	50	67	0	75	40	0	25	42
% quartz	50	0	50	33	100	25	14	50	50	29

This table is obviously inadequate. The Lequille site stands out as not belonging in the same group with the others. It is probably a men's club and not a residence. The high proportion of completed argillite tools as against the low proportion of chips was noted also by Smith at Merigomish. He explained it as being perhaps due to the manufacture of argillite at the quarry. I would suggest that argillite was easier to work but less valued when completed, and that the resulting grey or black tools were easier to lose in the ash. However, the table suggests that in all sites, except Lequille, the local "flint" was the type principally worked. When it is recalled that a family of southwestern Indians might, in the course of a single year, harvest gaspereau in the Gaspereau River, salmon at Indian Gardens, moose at Lake Kejimkujik, and seal on Seal Island, and that arrowheads would be chipped

Arrowheads or Knives.

139
quartz
P.J.2

138
quartz
P.J.2

30
Jasper
P.J.2

149
quartz
P.J.6

148
argillite
P.J.6

62
argillite
P.J.7

64
argillite
P.J.7

63 argillite
P.J.7

59
argillite
P.J.7

60
quartz
P.J.7

48
argillite
A.MacD. P.J.

49
argillite
A.MacD. P.J.

50
quartz
A.MacD. P.J.

136
quartz
P.J.8

5
chalcedony
Lequille

6
argillite
Lequille

2
chalcedony -Lequille

84
argillite
Bear River

85 XX
argillite
Bear River

83
quartz
Bear River

in most idle moments, it need not surprise us that the completed and broken implements are not consistently of local stone. Nor need we postulate trade in stone or any specialization in quarrying. Jasper is the only stone found chipped far from its place of origin. It has been said, though I cannot confirm it, that jasper pebbles are to be found on South Shore beaches, but nothing here rules out the possibility that jasper "blanks" may have travelled from the North Mountain in arrowhead pouches and have been finished off elsewhere.

Was arrow-making a specialty? We have arrowheads from every site except Port Joli 3, where chipping was at low ebb, and we have flint-working from all sites. This rules out the confinement of the art to specialists. The tools found do not suggest great skill in the workers. (This does not apply to the tools picked up in the great centres, such as Indian Gardens, Pleasant Lake and Tusket Falls, for there we are dealing perhaps with a great period though more probably with several periods confused together.) Most of our sites have a kindred resemblance in types of tool, Lequille again least, but certain sites suggest that the same hand made all the tools found therein, e.g. the tiny points of Timber Island Brook =P.J.6, and the clumsy asymmetrical points of P.J.7. At Lequille the broken points were of excellent workmanship, and the complete points were so crude as to suggest discards. Here again nothing suggests the specialist.

It shows the incompleteness of this survey that no axes, adzes or tomahawks turned up in any site. They do occur in them, for the late James Tupper found a ground grooveless axe at Bill's Point and Mr. Arthur MacDonald found some sort of stone axe in his garden site at Port Joli. The absence of such tools tends to align our sites with those of the early southern Algonkians, but this may be the result of inadequate excavation.

Drillings.

Our evidence with regard to drilling of holes in stone among our Indians is unsatisfactory. My excavations turned up two drilled whetstones or sinkers of slate, and I saw four gorgets which had been picked up; one at Lamb Lake on the Lequille River, one at Tusket Falls, two at Indian Gardens. All of these had poor hour-glass borings. One seemed to have been used as a whetstone, one for sinew-smoothing. The fragment(128) found by Sherman Hines at Indian Gardens, shows the method in some detail. At first a wide shallow depression was made, probably by twisting a flint chip back and forth; then a finer chip produced a conical hole on each face, and these may at last have met; finally the central hole was enlarged, probably with a sliver. It is possible that so poor a hole was desirable as being less likely to cut the suspending string. No.116, from Indian Gardens 2, is also of hour-glass bore, though smaller and neater. On the other hand, No.82, from Bear River, has a cylindrical hole cut with a hollow reed or with an iron tool, probably the former. But this hole is unique among the local relics that I have seen. The bear's tooth (92) has been scraped down and pierced for suspension, but this perforation is mere gouging.

Vegetal Food.

Direct evidence of the plant food of these Indians was lacking. Few recognizable fragments of firewood charcoal had survived and none of carbonized food. I had hoped that the centuries might not wholly have wiped out the rubbish-heap flora which must have surrounded summer sites, but I had not reckoned on the white settlers. Every forest in the area had been reduced by wild fires to poor second-growth, and most had been grazed as well. The first indication of vegetal food came from Port Joli 8. This site was in the angle of the brook and the salt-marsh and was protected from fire from behind by Robertson Lake. It had been pastured and had once had a building upon it, but the area was too stony for cultivations. The surrounding trees were predominantly white spruce, but four species of deciduous trees had survived the grazing: apple (Malus pumila L.), Indian pear (Amelanchier laevis Wieg.), choke-cherry (Prunus virginiana L.) and red hawthorn (Crataegus coccinea L.) The first is, of course, a modern introduction, but the other three species are all surculose trees, sprouting from suckers,

and may well have survived for many centuries. This was my first encounter with the "Indian orchard" which later I came to associate with Indian sites. On the Fundy Shore black cherry, Prunus serotina Ehrh., was another member of the group. It seems probable that the Indians gathered the fruit of these wild trees and planted the seeds by accident around their camps. Of course, the trees may be found anywhere at wood-edges in a wild state, but their abundance is apt to be a sign of Indian occupation.

This observation was useful to me, since at Bear River I found a site chiefly by noticing a clump of an unusual hawthorn (Crataegus punctata??). However, Indian orchard has often wandered from its earlier position. At Indian Gardens I noticed a line of native hawthorn forming almost a hedge around a clearing to the east of the old Indian village, but a guide who had known the area before 1908 when the land had been cleared for that farm, said that at that time the hawthorns were down by the river near the old village, in the area now covered by the waters of the dam. In the same way, at Lower Granville the site of the old Indian village of Poutrincourt's time is now park and was formerly ploughed field, but the Indian orchard has worked its way up the roadside past the Scots Fort where it is unlikely that the Indians ever camped.

Obviously this fruit can have been only a small fraction of the vegetal food of the Indians, but even this indirect evidence is welcome in the absence of actual remains.

Animal Food.

Evidence concerning the animal food of the Indians was abundant in the shell-heaps at Port Joli and Bear River, scanty in the salmon-fishing sites of Lequille and Indian Gardens.

Molluscs. Mr. J.C.Medcof was so kind as to name the shellfish from the shell-heaps, so that this section may be regarded as satisfactorily determined, while my treatments of mammals, birds and fish must be taken as provisional.

Shells are the most abundant and the best preserved evidence of animal food, but it should not be taken that they formed a basic part of the diet. The bones of one moose probably represent as much nourishment as some four thousand clamshells, even of the larger clams of those days. The bones of fish amounted to only a few ounces of the total of twenty-five pounds of bones collected, yet these may be all that remains of as much food as all the shells.

Long clams (Mya arenaria Linne) formed the bulk of all heaps, but my efforts to estimate the number of shells in a site did not convince even myself that I had any significant number. "Cockles" (Polinices heros Say) were second most frequent in Port Joli sites but were absent from Bear River. It is probable that the sturdier shells of the gastropods have preserved them out of proportion to their original abundance. Small winkles (Thais lapillus Linne) and Nassarius obsoletus Say) occur frequently and yet can have been of little food value. One eroded shell of Nassarius was picked up at Indian Gardens on the beach, and this occurrence twenty miles inland suggests that these shells may have been valued for something other than food, perhaps as pieces or counters in a game. Surf-clams (Spisula solidissima Dillwyn) occurred rarely, and Mr. Medcof pointed out that one fragment of such a shell was much worn by having been used as a scraper. Land-snails (Helix hortensis) were in all the Port Joli sites, never in the others, and the abundance of this species at Port Joli 8 suggested that it had formed the basis of a dinner. Only two shells of blue mussel (Mytilus edulis Linne) could be identified certainly, but often there was a shimmer of purple shell in the ashes, and this may well have been decomposed mussel-shells. In the same way razor-clams (Ensis directus Conrad), although very common on the Port Joli beaches, could be identified certainly only once, probably because its flimsy shells had been crushed beyond recognition. At Bear River Polinices was replaced by whelks (Buccinum undatum Linne) and Colus stimpsoni Morch) and by one specimen of Aporrhais occidentalis Beck.

Fish. Fish-bones were very ill-preserved, except in Port Joli 3 with its high shell/ash ratio. In this site even fish-ribs were frequent, sometimes in clusters in a shell as

though this had been used as a plate. Some large vertebrae were named by Dr. A.H.Leim and Mr. L.R.Day as being either cod or pollock. The smaller bones could not be identified. The bones which I have drawn tentatively as "fish-hooks", these experts thought to be the opercular spines of long-horned sculpin (Myoxocephalus octodecimspinosus Mitchill), and they doubt their usefulness as fish-hooks. However, I still maintain the suggestion. Apart from two fragments of harpoon, we have no other items of fishing equipment. Weirs are not used in the Port Joli area where the tide is not great, but at Bear River they are still common and probably were the Indian mode of fishing there.

Birds. Bird-bones were fairly common but not well preserved. Large curved femurs and wish-bones must have belonged to the geese which are still common here from October until April. Duck or loon bones were also preserved, but these have not yet been named.

Mammals. Lescarbot says that the Indians did not hunt much in summer, but our sites do not confirm this. Moose, deer, caribou, wildcat, beaver, porcupine, rabbit and squirrel are definitely included in the collections, and a more informed examination would probably reveal many more species. Some sites, notably Port Joli 2, showed only fore-quarters of moose, which probably means that hind-quarters were smoked for winter food. Bones were always broken small either for the marrow or for rendering them down, which must have been done in the abundant pots. In some sites (P.J.2) the knuckles of moose bones were never gnawed, in others (P.J.3) they often were, which may mean that some had no dogs, or more probably that these were careful to protect the moose from insult by dogs. The abundance of rabbits, squirrels and clams in Port Joli 3 suggests that the women and children had to shift for themselves for long spells. Wildcat jaws were probably dinner and nothing more. Bears' teeth were frequent but bears' skulls were absent, so these teeth were probably magical. One was pierced as a pendant. Beaver and porcupine teeth were used as blades in knives for carving wood, and many teeth were split or snapped.

The camps give no evidence as to methods of hunting, apart from arrow and spear points. The practice of driving moose between converging fences and into pits seems not to have been recorded by early writers, but a "moose-pit" of this kind is known near Sandy Cove, Digby County. Early writers agree that moose were jointed by the women at the point of killing, and this is confirmed by the absence of head-bones of moose from all camps except the recent Indian Gardens 2. Deer-teeth do occur, but a whole deer is not too heavy for an Indian.

Indian traditions, as well as all records, assert that the Indians went inland to pass the winter and returned to the clam-flats in the starvation time of the spring freshets. The evidence from the camps neither confirms nor denies this. The fish-bones suggest summer. Goose-bones suggest winter. Antlers suggest August to January but might have been picked up at other seasons. We can only be certain that such a hunting people must have moved on frequently so as not to run short of game.

Summary.

As yet we have far too little material, even in addition to what had been learned from previous excavations, to give us even a satisfactory outline of Nova Scotian pre-history. Although the sites sampled this year were of three types - shell-heaps, salmon camps and (possibly) winter camps -, the implements found suggested only one culture which conforms in all detail to what is known of the Micmac. No stratified sites joining this culture to an earlier one are known in this province, although the remains found at Indian Gardens suggest that there is still hope that some undestroyed salmon camp may yet supply this. No satisfactory links even with the sixteenth-century fishermen have been found. (No report has yet been received upon the piece of sheet metal from the Lequille chipping floor.) Indian Gardens 1-2, which combined typical pre-Columbian pottery and stone-working with other remains datable to the early nineteenth century, is probably best considered as the remains of a Micmac

wrong!

camp of circa 1832 built upon the levelled remains of a much earlier camp. Port Joli 3, which showed the decline of stone-chipping without any definite European remains, fits in with Willoughby's opinion that flint-chipping had practically disappeared from this shore by the days of Champlain and Lescarbot, and we should need more conclusive evidence than from one fragmentary site to dismiss this accepted picture.

Typology, whether in flints or pots, helps us not at all. We have no sequence of development, and the variation in manufacture from site to site does not suggest more than considerable individualism within rather narrow range. We have stone arrowpoints of three different cultures, chiefly in the Raddall-Smith-Gordon collections, but all of these were collected out of context. One suspects, but cannot prove, that the ground and bevelled points are earliest, that the typical chipped siliceous stones are more recent, and that the skilfully chipped and serrated arrowheads are late and possibly not of local origin.

Working backward, we see at Port Joli 3 a three-wigwam site, directly on the shore, with swept (probably matted) floors and declining stone-chipping and abundant pots. This is a culture altered from the aboriginal but less altered than that described by Lescarbot in 1607-8, and we may date it provisionally to the sixteenth century and the beginning of European trade. Yet the Bear River site had three or four wigwams, was open to the sea, and still had both chipping and pots in abundance. The smaller sites, usually set back in the woods, show a lower shell-ash ratio and are probably earlier, but how much earlier we cannot say without carbon-dating, and for this there are no facilities in Canada. It was my impression that white-tailed deer were present in these sites and not in the shore sites a few furlongs away, but it would need far more expert examination of the bones to make this certain. It is possible that the deer may have disappeared quite suddenly, which might, when dated, provide a useful horizon. There is no evidence that the Indians destroyed any game animals. The size of clams was maintained throughout the Indian period but declined rapidly and consistently from Loyalist days until the present, according to the evidence of my sampling of farm-middens and clammers' heaps.

We have Dr.Byers's dating for the Red-paint culture in Maine as surrounding 1440 B.C., and we find that the Micmacs, according to Wallis, have a tribal memory of a time when Beothuks (probably Red-paint in culture) lived in Cape Breton. In time we may find evidence to date the retreat or absorption of the Beothuks by Micmacs or their earlier Algonkian relatives in the intermediate shore.

Acknowledgements.

It would be impossible to list all the people whose co-operation made the gathering of this material possible. I should to thank particularly: the Nova Scotia Museum of Science for which the work was done; Mr. J.F.Donly and his friends of the Goose Hills and Port Hebert camps for hospitality and advice; Mr. Arthur MacDonald for collections from Port Joli; Dr. T.H.Raddall and Mr. Roy Gordon for advice and assistance at Indian Gardens; many others for having given permission to dig; Dr. MacNeish of the National Museum of Canada, Dr.Byers of the Peabody Foundation, and Mr. Russell Harper of the St.John Archives for information and advice; and Mr. J.C.Medcof and his colleagues for naming shells and fish-bones.

We hope that this pamphlet may encourage others to put on record whatever they know about Indian remains. To the present writer's knowledge there are several people who have far more valuable work still unpublished, all of which will be needed if we are to reach an understanding of the prehistoric period in this province.