THE MEADOWOOD EARLY WOODLAND MANIFESTATION IN THE MARITIMES: A PRELIMINARY INTERPRETATION

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by

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ABSTRACT

This thesis reviews the Early Woodland period (3000-2000 B.P.) in the Maritime Provinces. An intrusive cultural manifestation from the Great Lakes region called Meadowood is examined in detail, including a recently excavated Meadowood mortuary/cache site (BaDd-4) in southwestern Nova Scotia. The inland location of Meadowood ceremonial and habitation sites on major river systems suggest a riverine/lacustrine settlement and subsistence pattern. Meadowood-style artifacts, made primarily of local raw materials, have no precedent in the Maritimes and may be explained by an eastward migration of small Meadowood groups. An interaction sphere model may also account for the presence of Meadowood traits in the Maritimes.

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CHAPTER ONE

INTRODUCTION

This thesis is an account of the Early Woodland period in the Maritimes. The theoretical approach adopted here is culture-historical. In recent years, the culture-historical approach has been viewed by many archaeologists as 'simplistic' (Thomas 1989: 54) and inappropriate for understanding the behaviour of prehistoric peoples (Binford 1991). Yet, this approach remains important in regions where detailed cultural chronologies have not yet been worked out (Trigger 1989: 244). This is precisely the state of archaeological research in the Maritime Provinces. Soil erosion, submerging coastlines, the late development of professional archaeology and a lack of stratified sites contribute to the choppy, incomplete story of the prehistoric inhabitants in eastern Canada (see Davis 1991c: 5).

A perplexing development in Maritimes prehistory is the appearance of two "intrusive" cultural manifestations from the Great Lakes region during the Early Woodland period (Rutherford 1991: 108). These cultural manifestations are known as Meadowood and Middlesex, or Adena. While Meadowood artifacts, burial sites and habitation components have been encountered, the only Middlesex sites yet identified are burials (Turnbull 1976, 1986; Davis 1991b). This study focuses primarily on the Meadowood phase in the Maritime Provinces.

Meadowood phase sites are most densely distributed in New York State and Ontario. Meadowood style artifacts have been found on sites as far west as Michigan (Beld 1991; Binford 1963a,b; Binford and Papworth 1963) and Ohio (Stothers and Abel 1993: 36) and in Pennsylvania (Kinsey 1975). J.V. Wright (1987), in the Historical Atlas of Canada depicts the easternmost expansion of Meadowood Early Woodland materials and sites to be around Quebec City, and extending into northern Vermont and New York State. However, the presence of Meadowood-like materials in excavations and surface finds in the Maritime Provinces of Canada reveals that the influence of this Early Woodland manifestation extended much farther east.

The first Meadowood researcher, William Ritchie (1944, 1955, 1969), constructed a trait list of artifacts and burial styles that are typically found on Meadowood Early Woodland sites as well as locations where they are likely to be found. More recently Joseph Granger (1978a,b) categorized Meadowood artifacts, ecofacts, structures, and entire sites by function. Granger demonstrated that different types of sites were used at various times of the year and used this information to construct a model of seasonal movement for Meadowood Early Woodland peoples in the Niagara River area of New York.

Research Objectives

The specific purpose of this thesis is to examine the cultural dynamics of Meadowood in the Maritime Provinces of

New Brunswick and Nova Scotia. In order to accomplish this, three objectives are sought, namely, to:

1. Identify and describe Early Woodland sites, components and surface finds in the Maritime Provinces.

2. Provide a preliminary definition of Meadowood for the Maritimes based on evidence of settlement/subsistence patterning and technology (i.e., artifacts and raw materials), as well as geographical and temporal span. Granger's settlement model (i.e., including site types) will be reviewed to consider its applicability to Meadowood sites in the Maritimes. An attempt to define Meadowood Early Woodland in the Maritimes raises several important issues. Paramount is whether Meadowood represents an intrusive migrant population or a borrowing of traits and customs by the existing population.

3. Examine various mechanisms that have been suggested to account for Meadowood influences in the Maritimes. The mechanisms considered here are diffusion, in situ development and migration. In particular, Meadowood data will be tested by Irving Rouse's (1958) model for identifying migrations in the archaeological record, which has been updated by D. Sanger (1975).

One of the main goals, then, is to establish whether or not actual Meadowood peoples were present in the Maritimes. The applicability of Granger's settlement model devised for Meadowood sites in the Niagara region will be compared to

contemporaneous sites in the Maritime Provinces. If these sites fit Granger's settlement model, it is conceivable that an eastward population movement may have occurred during the Early Woodland period. Whether or not Granger's model fits, an attempt will be made to explain the presence of Meadowood artifact styles so far from the core area.

This thesis is divided into five chapters. Chapter 2 provides a general summary of Meadowood Early Woodland sites in New York, Ontario, Quebec and the New England States. This is done to provide a general model of Meadowood to compare with Early Woodland manifestations in the Maritimes. Granger's settlement model is reviewed and his settlement/site types are applied to Meadowood sites in the Great Lakes region. Chapter three is a description of sites, features and surface finds associated with the Early Woodland period in the Maritime Provinces. A preliminary report on BaDd-4, a recently excavated Meadowood mortuary/cache site from southwestern Nova Scotia (Davis 1993) is presented in Appendix A. Chapter four presents a preliminary definition for Meadowood in the Maritimes. The Rouse/Sanger migration model is then used as a framework to test the adequacy of migration, diffusion and <u>in situ</u> development models for Meadowood in the Maritimes. Chapter five presents concluding remarks on the presence of Meadowood traits on sites in the Maritimes.

CHAPTER TWO

EARLY WOODLAND IN THE GREAT LAKES REGION

Introduction

In this chapter, I summarize the Meadowood Early Woodland period in New York, Ontario, Quebec and New England. A number of settlement/subsistence models has been proposed for Meadowood Early Woodland. The most convincing settlement model yet constructed is based on the work of Joseph Granger. Granger produced a list of characteristic traits (1978b: 5-10) of Meadowood Early Woodland from Ritchie's description in The Archaeology of New York State (1969: 179-201) and organized them into functional categories. These functional categories provide the basic framework for Granger's settlement pattern for New York. However, prior to discussing Granger's settlement model, the history of Meadowood research and a general synopsis is required for the region where this line of enquiry began.

New York State

Meadowood Early Woodland sites in New York are located primarily in the northwest corner and central parts of the State. Meadowood sites cluster around the Niagara River area, Genesee River, Oneida Lake and the Adirondack Mountains near the Canada/United States border. Very few sites bearing Meadowood components and artifacts are found in the eastern and southern regions (see Figure 2.1 and Table 2.1).

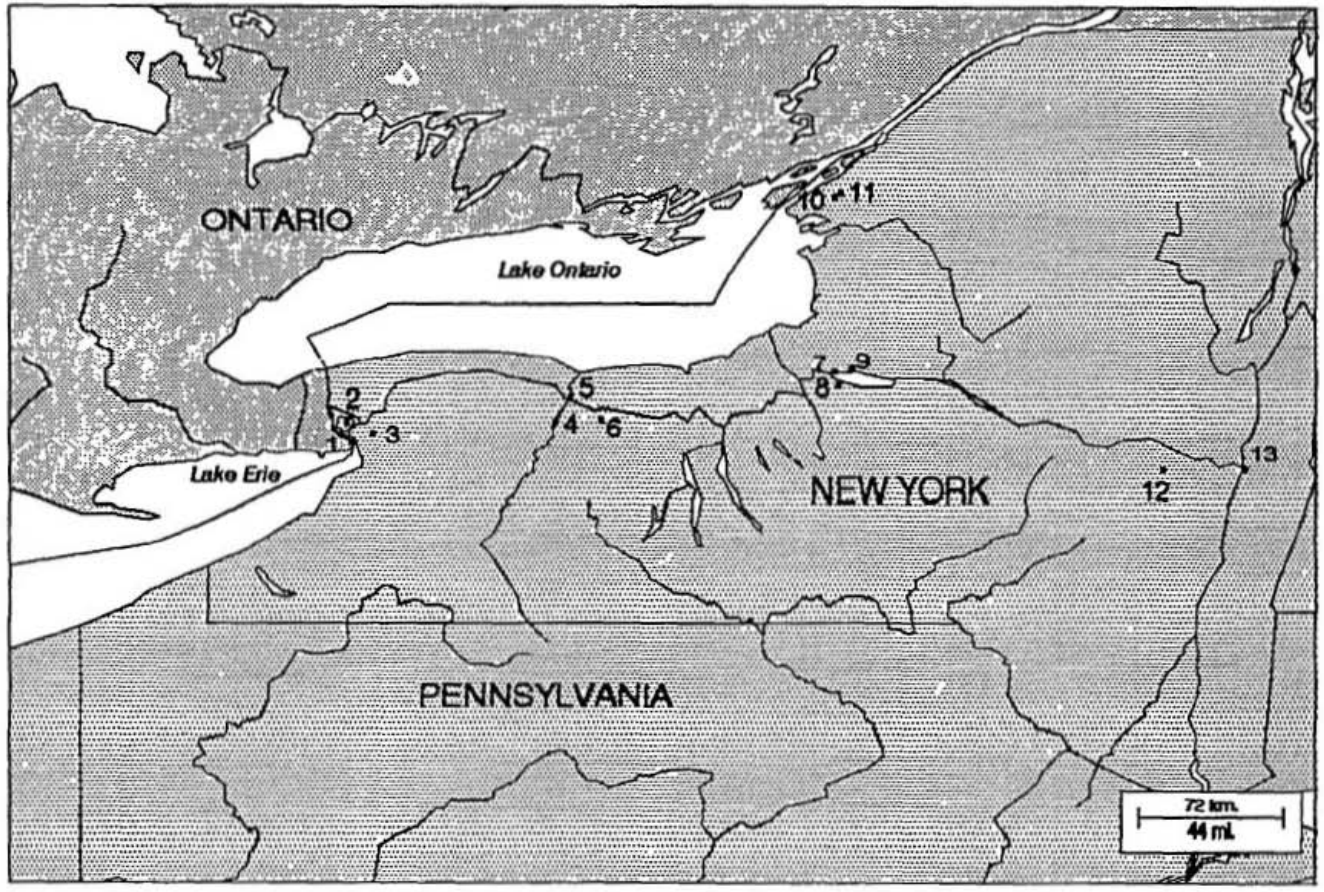
Exceptions are the Dennis site in the Hudson River Valley (Funk 1976), Nahrwold 2 at Middleburg (Ritchie 1969) and Fortin, in the Upper Susquehanna River Valley (Funk et al. 1974). Recently, a number of Meadowood sites have been found in the Chenango River Valley by researchers at State University of New York at Binghamton and Colgate University (Klein 1983, 1984, 1985; Nicholas 1991, 1992, 1993).

Table 2.1: New York Meadowood Early Woodland Sites.

No.	Site	R.C. Date (BP)	Lab. #	Reference
1	Orchid B	------	------	Granger 1976
2	Riverhaven 2	**	**	Granger 1978b
3	Sinking Ponds	**	**	Granger 1978b
4	Scaccia	2780±60	Y-1654	Ritchie and Funk 1973
5	Wray	------	------	Ritchie 1944
6	Morrow	2563±250 2630±100	M-640 Y-1171	Ritchie 1962, 1969
7	Vinette	------	------	Ritchie 1944
8	Pickins	------	------	Ritchie 1944
9	Oberlander 2	2998±170	C-192	Ritchie 1962
10	Hunter	2841±68	Y-981	Ritchie 1955
11	Muskalonge Lake	------	------	Ritchie 1955
12	Nahrwold 2	2760±80	Y-1651	Ritchie 1969
13	Dennis 4	------	------	Funk 1976

**Granger's dates from Riverhaven 2 and Sinking Ponds were discounted due to water soaked charcoal (1978b: 253) and samples with low carbon content (1978b: 155).

Figure 2.1: New York Meadowood Early Woodland Sites



Meadowood Defined

In 1930 William Ritchie was called by Charles F. Wray who had found a small cemetery on his property at West Rush, in central New York. Ritchie (1969: 180) later used the term "Meadowood", the name of the estate where the cemetery was located, to designate the cultural phase associated with the site. Ritchie defined the Meadowood phase in northern, central and western New York as native groups with a "...preference for relatively flat terrain and propitious fishing grounds on sizeable streams and small lakes..." (1969: 181). Diagnostic artifacts include distinctive side-notched projectile points (Ritchie 1971; Justice 1987) and cache blades produced from Onondaga chert (Kenyon 1980), trapezoidal shaped gorgets, bar (with or without pop-eyes) or expanded body birdstones and Vinette 1 pottery. Red ochre was commonly sprinkled evenly on artifacts in burial contexts (Ritchie 1969: 179-201).

Prior to the investigation of the Scaccia site in the mid 1960s, practically all excavated sites yielding Meadowood style artifacts were burial locations (Ritchie 1944; 1955). After excavations were completed at Scaccia, Ritchie and Funk (1973) proposed two settlement types for the Meadowood phase. These settlement types were camps, represented by the Scaccia, Riverhaven 2 and Vinette sites, and cemeteries (Ritchie and Funk 1973: 346). Ritchie and Funk (1973) also suggested there was not much evidence that Meadowood peoples used back country

sites and as a result failed to use a seasonal round settlement pattern. Rather, Early Woodland populations were "semi-sedentary" (Ritchie and Funk 1973: 348).

The research of Joseph Granger has indicated that the lifeways of Early Woodland populations are much more complex. Using archaeological data from northwestern New York, Granger (1978a,b) produced a Meadowood settlement system model based on site types distinguished by the presence or absence of particular artifact, feature and ecofact categories as well as site size, location and relative artifact density. These site or settlement types consist of base camps, extractive camps, specialized extractive camps and mortuary activity sites.

Base camps are large sites, approximately 1 ha in size (Granger 1978b: 264), often situated on terraces which bear the remnants of house structures and deep pits that accompany long term storage and waste deposition. The presence of deep middens demonstrates a consistent reoccupation over time. Several extractive and specialized extractive camps are likely to be found nearby. Base camps are also multi-purpose sites where a variety of activities may occur at the same time. For instance tools are manufactured and retouched at base camps, and deer and other herbivorous mammals are processed. Caches of artifacts may also be found (Granger 1978a,b).

Extractive camps are small sites, approximately 0.15-0.25 ha in size (Granger 1978b: 259, 261), located around shallow lakes that lack evidence for long-term storage. These sites

were used for a single purpose such as the procurement and processing of fish or gathering plant foods such as berries. At extractive camps, one can expect to recover netsinkers and processing artifacts such as unifacial and bifacial scrapers, abrading stones and anvilstones, faunal and floral remains, and features like hearths and rock heaps.

Specialized extractive camps are represented by chert resource sites. In the Niagara Frontier region, chert resource sites were the source of high grade Onondaga chert and were located on the Onondaga escarpment near a navigable waterway (Granger 1978b: 295). At these quarry sites mauls, cores, primary flakes and caches of quarried raw material may have been retrieved as modified tabular cores or quarry blanks were produced and taken elsewhere (Granger 1978a: 103).

At Meadowood mortuary activity sites, burial pits with cremation and/or interment burials are found, often with crematories (rock heaps) located nearby. These burials are often recovered in clusters which may signify membership in different kin groups. Grave goods recovered from burials are utilitarian artifacts, exotic goods, and cache blades often coated with red ochre. The amount of artifacts in burial context are frequently in excess of what anyone could use in everyday life. In some cases, but not all, habitation areas are located near mortuary sites (e.g., Ritchie 1944: 166; Spence et al. 1990: 134).

Granger distinguishes five main feature types at

Meadowood Early Woodland sites in New York. These feature categories are rock heaps, hearths, storage pits, manufacture pits, and composite features (Granger 1978b: 93, 95). Rock heaps are shallow pits with fire cracked rocks piled above the surface. Hearths are lined with fire-cracked rocks and contain ash, charcoal and fire reddened soil and rocks. Storage features are represented by basin or deep shaped pits containing general waste. Manufacture features are represented by deep, steeply sided pits holding blanks, hammerstones and debitage. Cache pits were associated with one artifact type, such as netsinkers or quaternary blades, and shallow depressions. Composite features: "... are made up of a packed floor or another manifestation within which several features of different types are associated, for example, pits and postmoulds which form a house pattern" (Granger 1978b: 95).

In producing his settlement model, Granger also separates artifact classes by function. The six classes of artifacts that Granger employs are procurement, processing, storage, manufacturing, ceremonial and habitation. Procurement activities ensure the food supply and artifactually, are represented by projectile points, birdstones (used as atlatl weights) and netsinkers (Granger 1978b: 15-16). Processing artifacts are used in domestic situations, such as producing organic materials fit for consumption and also for general purposes. Storage activity is depicted by refuse middens and

artifacts that are put away for future use in cache or storage pits. Manufacture activity is represented by those artifacts employed to make chipped and ground stone tools. Stages of artifact manufacture are demonstrated by the presence of tools at different levels of completion and the recovery of flint detritus. Ceremonial activities associated with the deceased and performed ritually by the living are represented by cremation burials and/or interments, red ochre and symbolic artifacts. Habitation activities are represented by feature types such as postmoulds and composite features that resemble living structures as well as an assemblage of domestic artifacts (Granger 1978b: 11-19).

At this time it should be noted that artifact classes as well as feature and ecofact types are not mutually exclusive (Granger 1978b: 11,16). They are found on all Meadowood settlement type sites. For example, manufacturing artifacts such as hammerstones and primary, secondary, tertiary and quaternary blanks are located on some procurement and/or processing extractive camps. In addition, birdstones may have functioned as status symbols and atlatl weights (Granger 1978b: 16).

Settlement Models

According to Granger's model, base settlement camps were inhabited in the fall and winter by agglomerations of kin groups who gathered shellfish and hunted deer. Extractive

camps were occupied by small, kin-related task groups in the spring, summer and early fall, who fished, hunted waterfowl and gathered berries and other vegetable foods. Specialized extractive camps were found at source areas of Onondaga chert and were occupied by small task groups during the spring and summer. Raw material cores were transported to summer extractive camps and taken to the base camp in the fall for the manufacture of cache blades. It is believed that Meadowood cache blades were produced in western New York/southern Ontario and then exchanged at mortuary sites where many kin related groups would coalesce to bury their dead, and socially interact. Granger argues that communication between groups began in central New York as the need for Onondaga chert by outlying bands, who were not in close proximity to outcrops, intensified.

Base Camps

According to Granger's model, Riverhaven 2 and Scaccia were base settlement camps inhabited in the winter by agglomerations of kin groups who gathered shellfish and hunted deer. At Riverhaven 2, on Grand Island in the Niagara River, investigations focused on three loci and a test unit (Granger 1978b; Kochan 1961, 1962). The majority (67%) of features at the site are deep storage pits. Other features present include a clay heap where materials used to make ceramics may have been cached, a rock heap, and hearths. A high

percentage, 77.5%, of artifacts came from storage pits but: "...showed no clear concentration of function.." (Granger 1978b: 205). Overall, artifacts of manufacture are by far the most numerous as this category is represented by 67% of the artifact assemblage (Granger 1978b: 208). However, all artifact categories are represented as are most feature categories.

In the faunal assemblage large mammals were most highly represented (52.4%), followed by small mammals (29.3%) and birds (10%) (Granger 1978b: 230). In terms of usable meat, mammals represented the maximum proportion at 96% (Granger 1978b: 230). White tailed deer was the largest meat producer that would have been available to inhabitants during Early Woodland times. In fact, upland mammal species such as deer, bear and turkey would have been available year round and especially in late fall and winter. The presence of oak and hickory trees would have meant an abundance of mast for mammals to subsist on. Fishing was not likely an important subsistence activity as netsinkers only represent 1% of the artifact assemblage (Granger 1978b: 208). The random distribution of rock heaps also suggests that fishing may have been a peripheral activity at the site. For these reasons, Granger argues for: "...an inland rather than a riverine subsistence economy" (1978b: 234). In addition, 95.2% of all lithic materials were represented by high grade Onondaga chert that would have been available at the Onondaga escarpment

nearby (Granger 1978b: 238). Due to the small number of locally available pebbles on the site, it is likely that an Early Woodland population would have brought back tabular blocks from an Onondaga chert quarry area. The presence of an arc of storage pits at the edge of the terrace may indicate the storage of deer or moose meat during winter months. Dug into the subsoil, these pits may also signify the recurrent use the site. Granger believes the site was a base camp inhabited in the fall, winter and spring by a population of 125 (1978a: 102) to 150 individuals (1978b: 289).

Extractive Camps

An example of an extractive camp is Sinking Ponds, a small 0.15 hectare site located on a ridge of glacial kames and moraines in East Aurora. Granger suggests that Sinking Ponds was occupied by small, kin-related task groups in the spring, summer and fall, who fished and hunted waterfowl. A number of artifact categories and features suggest the probable function of the site. Artifacts used in procurement, processing, manufacture, storage and ceremony were recovered.

Since organic materials were poorly preserved at Sinking Ponds indirect evidence was used to reconstruct subsistence practises. Procurement artifacts make up 83% of the total assemblage found at the start of a ravine leading down to a shallow lake. Also 98% of netsinkers came from rock heaps

close to the ravine. A ratio of 30 projectile points to 70 netsinkers places an emphasis on fishing. Seventeen netsinkers were cached in feature 25 as well. The largest clusters of scrapers were found in a possible house feature close to the ravine. Also near the ravine were thirteen rock heaps formed in a J-like fashion which may have functioned as an oven to dry fish. With the presence of three possible house structures, Granger suggests that around thirty people inhabited the site. Granger (1978b: 156) believes the site was occupied by a small extractive group during the spring/summer to procure and process fish and other game.

Specialized Extractive Camps

Granger's chert resource site for the Niagara region is the Orchid B site in Fort Erie, Ontario. Situated near an Onondaga chert quarry, the Early Woodland component at Orchid B contained large numbers of cores and primary flakes which indicate a preliminary modification of tabular blocks (Granger 1976).

Mortuary Activity Sites

An example of a ceremonial site is Muskalonge Lake, located on a high sand ridge beside the Indian River flood plain in the Adirondack region of northern New York (Ritchie

1955). This site has three main loci. In Locus one, a large pit yielded red ochre and 1500 cache blades along with a human temporal bone. Locus 2 yielded two paint stains with two cremations. In Locus 3 features 1-3 consist of a pit containing red ochre, a cremation burial and the interment of an individual facing west with bark surrounding the skull. Mortuary offerings include approximately 210 heated cache blades arranged in a conical pile which may indicate they were deposited in a sack. Since there is no evidence of burning in the burial feature, Ritchie (1955) suggests the materials were burned elsewhere, in a stone crematory, and then placed with the individual. Red ochre was deposited on all artifacts and human remains. Feature 4 is shallow and yielded a "mass of bright red hematite pigment" and a calcined bone. Among the artifact assemblage were copper, purple and white discoidal shell beads and a fiber cord that made up a probable necklace. Feature 5 is devoid of material remains, and was filled with homogenous dark sand and fire cracked rocks. In feature 6, a bag of red ochre appears to have been placed in the pit with a variety of ceremonial bone, chipped and ground stone artifacts.

Alternative Meadowood Settlement Pattern Models

A number of settlement pattern models for the Early

Woodland populations of southern Ontario and the lower Great Lakes region has been presented. The traditional model of Early Woodland seasonality is built upon ethnographic analogies to the northern Algonquians (Wright and Anderson 1963; Finlayson 1977; see Wilson 1991) and has been recently called the "Coalescence/Dispersal" model by Stothers and Abel (1993). The pattern of seasonal movement suggested here is a spring/summer aggregation near bays, estuaries and lakes to exploit spawning fish, bury the deceased, trade and communicate with other kin groups. In the fall and winter, the large group, or "macroband" (Spence et al. 1990), breaks up into smaller, nuclear family units that move inland and spread out over the landscape to exploit deer yarding beside swamps (Spence and Fox 1986).

In addition to the Coalescence/Dispersal model, Stothers and Abel (1993) have devised the "Hub and Spoke" settlement model to accommodate sites from the upland till plains of north-central Ohio. According to the Hub and Spoke model, the two main settlement types are base camps and auxiliary sites. Base camps are the "perennial focus of seasonal activities" and are occupied throughout the fall and winter. Auxiliary sites are heavily utilized in summer and fall when bands disperse to collect nuts and hunt game. Mortuary sites were employed in the spring before the bands migrated to auxiliary

sites (Stothers and Abel 1993).

Jim Wilson (1993) uses an ecologically-based settlement framework with four types of site locations (i.e., floodplains, terraces, bluff tops and upland sites). Since this model is in the initial stages of formulation, and its applicability remains largely untested, it is highly speculative (Wilson 1993: 19).

Ellis and others (1988) apply Granger's settlement model to Meadowood sites from the Caradoc sand plain. Large upland sites such as Welke-Tonkonoh, Glen Oak and Lambert are viewed as functionally similar to Granger's winter base camp sites, Riverhaven 2 and Scaccia. This hypothesis is based on the number and diversity of artifacts found as well as the large surface area of the sites. Wilson (1993) points out that such an assessment, based on a small scale excavation at Welke-Tonkonoh and surface collections at Glen Oak and Lambert, needs reinforcement with extensive excavation.

Ontario

An Early Woodland period has been recognized in Ontario since the early 1950s when Thomas Lee discovered Vinette 1 pottery in Bruce County (Lee 1952: 69). However, it was not until the mid 1970s that archaeologists began to search systematically for Early Woodland sites. The major excavations of that decade were Bruce Boyd (Spence et al.

1978), Liahn 2 (Williamson 1978, 1980) and Dawson Creek (Jackson 1980, 1986).

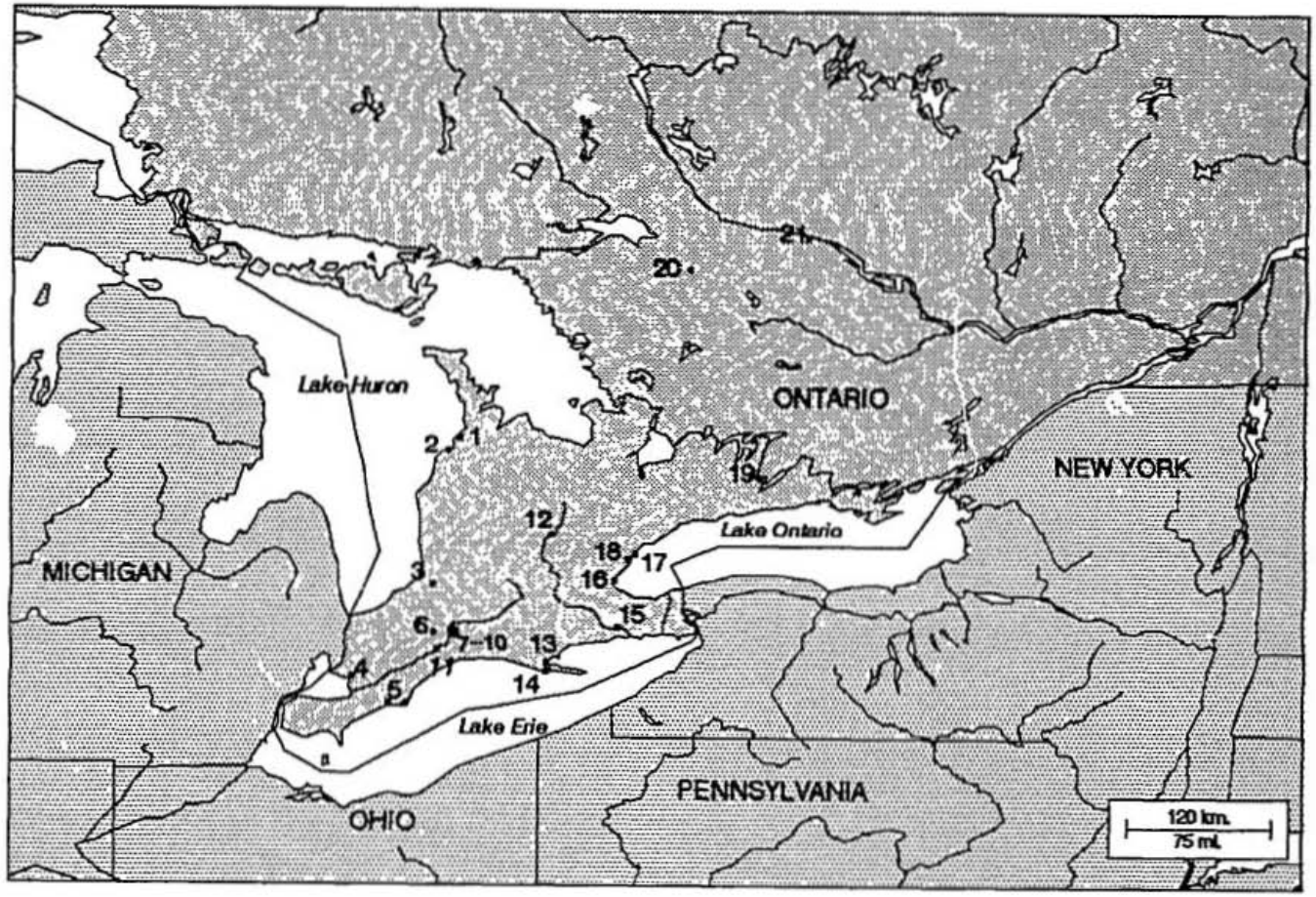
Today, Meadowood Early Woodland sites indicate a wide geographical distribution in Ontario (see figure 2.2 and table 2.2). The vast majority of Early Woodland investigations and reports of Meadowood collections has taken place on the Caradoc sand plains west of London and along the northern shore of Lake Erie, particularly around Long Point. Recently a number of Early Woodland sites were located on river drainages flowing into Lake Huron (Deller et al. 1986; Fisher 1993). Three Meadowood sites in the western Lake Ontario region have been subject to recent investigation (McEachen and Williamson 1995; Timmins 1992; Williamson et al. n.d.). Meadowood style materials have also been recovered at the Ault Park site near Cornwall (Spence et al. 1990: 135), Algonquin Park (Spence and Fox 1986) and near Deep River in the eastern part of the province (Mitchell 1963, 1990).

Table 2.2: Ontario Meadowood Early Woodland Sites.

No	Site	R.C. Date	Lab. #	Reference
1	Donaldson	2530±60 2585±150	S-119 S-490	Wright 1963; Finlayson 1977
2	Ferris	2470±80	I-13535	Fox 1984a
3	Wyoming Rapids	2530±85	I-10651	Kenyon 1980
4	Liahn 2	------	------	Williamson 1978, 1980
5	Morpeth South	2700±50	DIC-1009	Spence et al. 1986
6	Neeb	------	------	Spence et al. 1986
7	Welke-Tonkonoh	------	------	Ellis et al. 1988
8	Glen Oak	------	------	Ellis et al. 1988
9	Lambert	------	------	Ellis et al. 1988
10	Brodie	------	------	Ellis et al. 1988
11	Pocock	2440±50	Beta-54735	Wilson 1993
12	Cashbrown	------	------	Williamson 1988
13	Bruce Boyd	2520±65	S-1288	Spence et al. 1978
14	Boyd Lakefront	2845±115	NMC-1217	Fox 1983
15	Slack Caswell	------	------	Spence et al. 1986
16	Billiard	------	------	Timmins 1992
17	Scott-O'Brien	------	------	Williamson et al. n.d.
18	Siller	------	------	McEachen et al. 1995
19	Dawson Creek	2320±70 2420±90 2430±85 2540±70 2550±90 2675±70 2940±70	S-2206 I-9861 I-9565 S-2208 I-9862 S-2205 S-2204	Jackson 1980, 1986

20	Rosebary Lake	------	------	Spence et al. 1986
21	Deep River	------	------	Mitchell 1963, 1990

Figure 2.2: Ontario Meadowood Early Woodland Sites



Meadowood Site Variability

Even though "...Archaic and Initial Woodland sites have been to a considerable extent, neglected" (Wright 1984: 291) prior to the 1980s, archaeological investigations have been extensive enough that four type sites have been identified for Meadowood Early Woodland in Ontario. Those site types are cemeteries, quarry sites, biface caches and extractive camps (Ellis et al. 1988: 13). The vast majority of extractive camps have been interpreted as fall-occupied nut harvesting and deer hunting sites. An exception is the spring/summer inhabited Ferris site (Fox 1984a). Evidence of a definitive Early Woodland base camp has yet to be located (Spence et al. 1990: 136; see Ellis et al. 1988 and Wilson 1993: 17).

Extractive Camps

An example of a fall-occupied extractive camp is the Billiard site near Hamilton. Two main loci were established, locus A in a shallow depression on a plateau and locus B at the top of the same plateau. A pit feature contained nearly half of the stone tools recovered from the site. No ceramics were recovered. A single point was recycled into a scraper/perforator. Peter Timmins (1992) believes the site was occupied by a small family or task group for short term use. Due to the presence of scraping tools and a large number of utilized flakes, locus A was likely a meat processing and mammal butchering area (Timmins 1992: 17) Also, due to the

small site size and the presence of butternut shells, Timmins suggests that the: "...Billiard site represents a fall occupied hunting stand with an associated processing area" (1992:5, 17).

The Ferris site at Inverhuron, is a Spring/Summer extractive camp discovered when a sand dune blowout exposed a collapsed Vinette 1 vessel. Also recovered were a limestone netsinker and a gray slate birdstone blank. The recovery of white tailed deer, bass, frogs or toads and freshwater clams indicate that the site was used during the summer. Charred wood fragments yielded a radiocarbon date of 2420 B.P. (Fox 1984a).

Biface Cache Site

A number of biface caches has been recovered from Ontario. Most known cache sites have been found by collectors (e.g. Moerschfelder and Thedford caches; see Fox 1981, 1984b). Recently, Archaeological Services Inc. excavated the Cashbrown site in Waterloo which yielded a number of cache blades that likely came from a shallow hearth feature. A lack of flaking debris suggests that the blades were manufactured elsewhere. Recovered from the surface was a skilfully crafted Meadowood projectile with serrated edges (Williamson 1988). The recovery of post moulds and lack of red ochre indicate that the site was probably not ceremonially significant.

Specialized Extractive Camp

The Slack-Caswell site is an example of a chert quarry site in Ontario. The quarry is located on an Onondaga chert outcrop on the northern shore of Lake Erie. Utilized by native populations from Archaic to Historic times, the site yielded Meadowood biface preforms as well as Meadowood style projectiles (Spence and Fox 1986). Another quarry site likely used during the Early Woodland has been located on Lake Erie near Cayuga (Jackson 1995).

Mortuary Activity Site

The Bruce Boyd site near Long Point is an example of an Early Woodland cemetery. Findings include 17 burial features holding 20 individuals. Individuals of both genders and all ages are represented. The population was subject to either cremation or bundle burial. Some interments received more grave goods than others and red ochre was present in just under half of the burials. Two caches yielding Meadowood points, cache blades, trapezoidal gorgets and other diagnostic artifacts were attributed to the Early Woodland period. Faunal remains recovered include the remnants of deer, dog or wolf, beaver, woodchuck, grey fox, wild turkey, small birds and many fish species. A number of Vinette 1 sherds were present on the surface, outside the burials. It is assumed that Bruce Boyd functioned as a burial site used in the spring by a large group that came together to exploit the rich environs and to bury their dead. A charcoal sample from Bruce

Boyd has been dated to 2470 B.P. (Spence et al. 1978, 1990).

Quebec

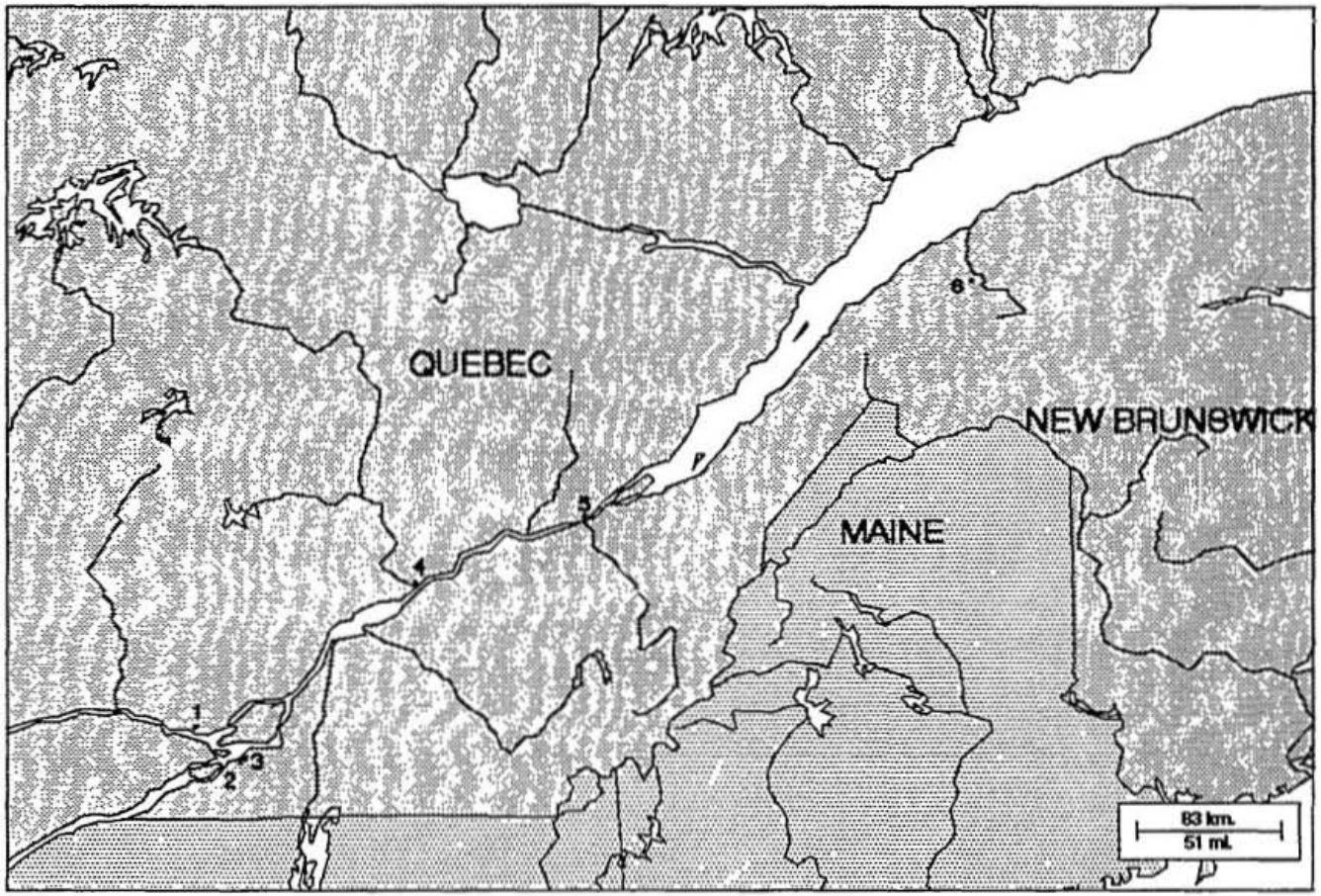
The recovery of Meadowood Early Woodland materials in Quebec demonstrates a broad geographical distribution extending from west of Montreal to the Outardes River in the region of Manicouagan (Clermont 1990: 7) and just north of the New Brunswick border at Temiscouata (Chalifoux and Burke 1995). All excavated Meadowood related sites identified thus far are either directly abutting, or near, the St. Lawrence River. Settlement types represented include mortuary activity sites and extractive camps. For a spatial distribution of sites, see figure 2.3 and table 2.3 for site listing.

Table 2.3: Quebec Meadowood Early Woodland Sites.

No.	Site	R.C. Date (BP)	Lab #	Reference
1	Oka	------	------	Chapdelaine 1990
2	Pointe-du-Buisson 4	------	------	Clermont and Chapdelaine 1982
3	Pointe-du-Buisson 5	2430±130	**	Clermont 1978
4	Batiscan	------	------	Levesque et al. 1964
5	Lambert/St. Nicolas	2700±80 2710±80 2900±70	** B-49955 B-38883	Chretien 1992
6	Temiscouata	------	------	Chalifoux and Burke 1995

**Laboratory sample number not provided

Figure 2.3: Quebec Meadowood Early Woodland Sites



Extractive Camps

University of Montreal excavations at the Lambert site, near Quebec City, have recovered two hearths providing evidence of a habitation component which may be representative of an extractive camp. One hearth contained a middle layer of hardened sand suggesting reuse. Also recovered from the feature were 3400 flakes, six preforms and four bifaces, all manufactured of local raw materials. A second hearth containing calcined beaver bone fragments indicates that the feature was used for cooking game. Chert debitage located around the hearth may demonstrate that tool manufacture was a significant activity at the site. Samples of wood charcoal from the features were dated to 2710 B.P. and 2900 B.P. (Chretien 1992).

The multi-component Batiscan site is located on a high terrace near Trois Rivieres. At the foot of a steep bluff, a cremation burial was exposed by wind. In addition, the presence of hearths containing fire-cracked rocks and flakes suggest that the site had a habitation component which probably represented a small campsite or extractive camp. An estimated date for the site is between 2800 and 3000 B.P. (Levesque et al. 1964; Wright 1979).

Mortuary Activity Sites

Near Montreal, at Pointe-du-Buisson 5, Norman Clermont found a Meadowood cemetery with four burial pits. The single

excavated burial pit held multiple cremations and carbonized wood dating to 2430 B.P. Clermont (1978) believes the three individuals received primary burial only to be dug up, cremated and reinterred with other band members at a later date. A crematory has not yet been found (Clermont 1978: 6).

In addition to the habitation component, the Lambert site has also yielded a number of features indicating a mortuary element. Excavated features include a cremation pit with calcined bone as well as a hearth yielding 180 Onondaga chert cache blades that were burned. Chretien (1992) believes the hearth was used for ceremonial purposes as it was likely a cache pit holding "ritually killed" blades. A third feature filled with rocks, black soil and clumps of red ochre is associated temporally with the latter ceremonial features (Chretien 1992).

Northeastern United States

In the New England States, prior to 1980, few Early Woodland (Meadowood) sites had been identified (Haviland and Power 1994). Since that time, the discovery of numerous habitation sites has greatly enhanced our knowledge of the geographic distribution and lifeways of Early Woodland populations (see Figure 2.4 and Table 2.4). However, cemetery sites located in Vermont still account for the majority of information known about the Early Woodland period in New England (Haviland and Power 1994: 87). Meadowood style artifacts have been documented from sites in Massachusetts

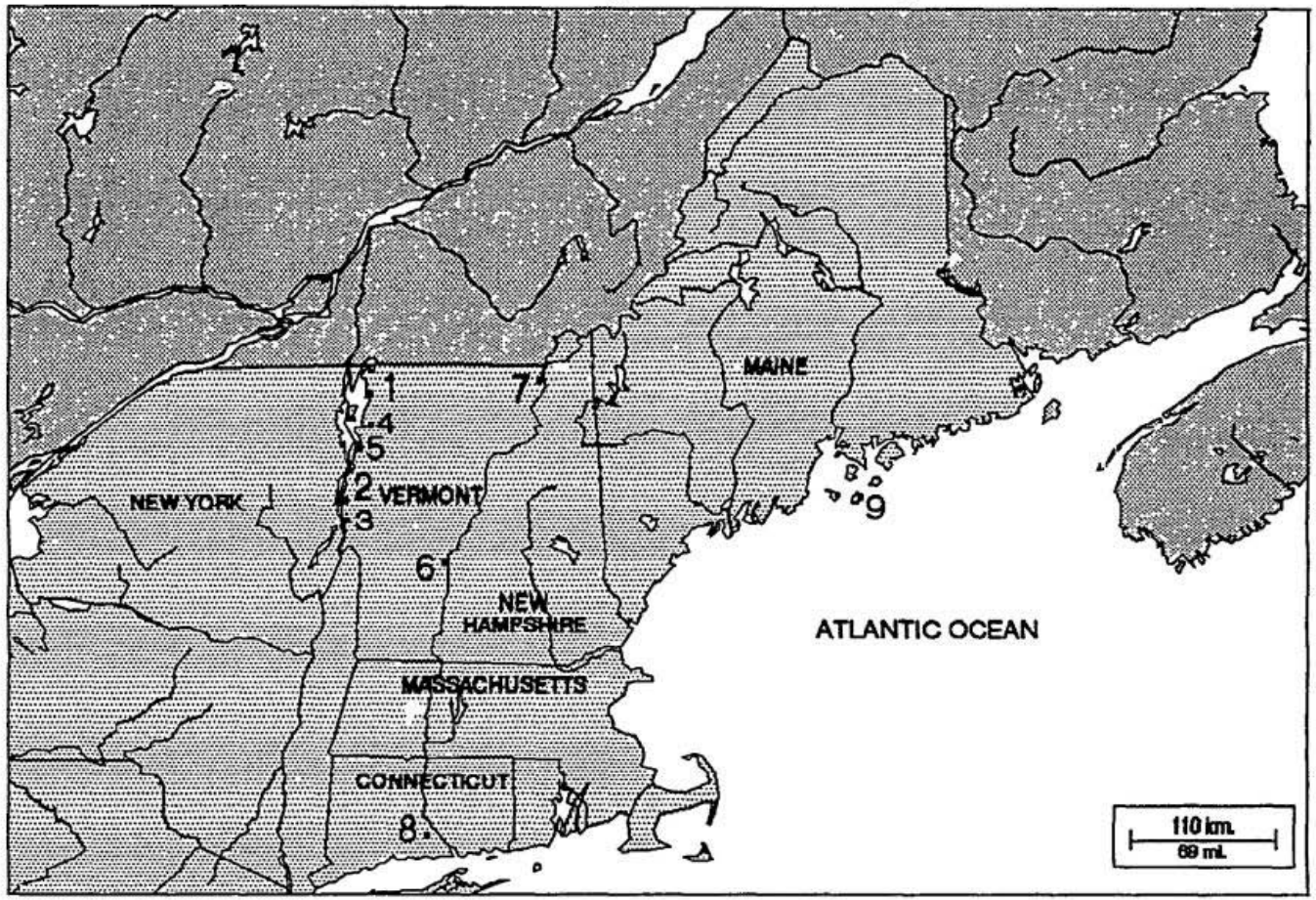
(Hoffman 1990: 194; Heckenberger et al. 1990: 139), Connecticut (Granger 1981) and Maine (Belcher 1989). In Maine, Vinette 1 pottery has been located at a number of sites (Bourque 1971: 10; Petersen and Sanger 1991: 118-119). The presence of early pottery has also been established recently in southern New Hampshire (Petersen and Sanger 1991: 118-119).

Table 2.4: New England Meadowood Early Woodland Sites.

No.	Site	R.C. Date (BP)	Lab #	Reference
1	Swanton	------	------	Loring 1985
2	East Creek	------	------	Loring 1985
3	Bennett	------	------	Loring 1985
4	Pearl St. Park	------	------	Haviland and Power 1994
5	Ewing	2765±135	**	Haviland and Power 1994
6	Skitchewaug	2720±70	**	Haviland and Power 1994
7	Canaan Bridge	2550±90	**	Haviland and Power 1994
8	Seward	------	------	Granger 1981
9	Knox	2020±70 2270±90 2720±90	B-20614 B-20261 B-17374	Belcher 1989

**Laboratory numbers are not provided by authors

Figure 2.4: New England Meadowood Early Woodland Sites



Extractive Camp

The sole excavated Meadowood Early Woodland component in Maine is on the Atlantic coast, at Pell Island on Penobscot Bay. At the Knox site (Belcher 1989), two hearths associated with Vinette 1 pottery yielded radiocarbon dates falling between 2020 B.P. and 2270 B.P. (see Table 2.4). Vinette 1 vessels decorated by interior and exterior cord wrapped paddle and basket paddle impressions were found in a "ceramic cluster" feature returning a date of 2720 B.P. The faunal assemblage associated with the Early Woodland component suggests that fishing was an important subsistence activity at the site. Sculpin, available in fall and winter, was most heavily exploited. Belcher (1989) speculates that the Early Ceramic occupants at this extractive camp fished in intertidal flats.

Biface Cache Site

Granger (1981) gives an account of a cache of 31 Meadowood style bifaces recovered from a disturbed site lying above a marsh on a tributary of the Connecticut River. At the Seward site the cache blades are all manufactured from Onondaga chert. Granger (1981: 70) points out that a number of Meadowood sites in New York are found in similar topographical situations, but at Seward there is no evidence of habitation by a Meadowood culture group.

Mortuary Activity Sites

Perhaps the most widely known and written about Early Woodland cemetery site in the Northeast is the Boucher cemetery (Heckenberger et al. 1990). Because the site is primarily associated with the Middlesex complex, it has been excluded from this study. The other Early Woodland cemeteries in Vermont were discovered in the late 1800s (Perkins 1873) and early parts of this century. Due primarily to poor excavation records, all that remains from most of these sites are artifact lists. The sites are clustered, in pairs, in the Champlain Valley.

Located in close proximity to Boucher, the Swanton site yielded a minimum of 25 and as many as 36 graves on a red and black stained sandy knoll that overlooks the Missisquoi River Delta. All burials appear to have been found associated with red ochre with the exception of two, which are cremations. A wide variety of copper, chipped and ground stone artifacts diagnostic to Meadowood and Middlesex Early Woodland were recovered during the course of excavation (Loring 1985; Haviland and Power 1994).

In sum, the application of Granger's settlement/site types to Early Woodland sites outside New York has met with limited success. In some areas, such as Quebec, few of Granger's site types were located. Later, this model will be compared with Meadowood data from the Maritimes. The next chapter describes and summarizes the Early Woodland period in

the Maritime Provinces.

CHAPTER THREE

THE EARLY WOODLAND PERIOD IN THE MARITIMES

Introduction

The Late Archaic-Early Woodland interface is one of the most confusing periods in the prehistory of the Maritime Provinces. Much like the period extending from 10000-5000 B.P. referred to by some archaeologists as the "Great Hiatus" (Tuck 1984; see Dincauze 1993 and Robinson 1992), the lack of a distinctive cultural tradition between 3400 and 2500 B.P. is perplexing (Davis 1991a; Rutherford 1990b: 329; Spiess et al. 1983; Tuck 1991: 51). The only materials associated with this Transitional period are small expanding stemmed projectile points (Allen 1980: 140), large scrapers (Rutherford 1989), bifacially flaked knives (Tuck n.d.) and chipped and ground stone adzes (Sanger 1979: 99).

Three distinct Late Archaic traditions are recognized in the Maritimes, including the Laurentian, Maritime Archaic and Susquehanna (Tuck 1991: 56). There are a number of competing hypotheses as to which, if any, of the three Late Archaic traditions existed into the Early Woodland period. Until recently, it was thought that the Maritime Archaic and Laurentian traditions disappeared from the archaeological record around 4000 B.P. (Tuck 1991: 51). The Susquehanna tradition likely represents an intrusive movement of bands originating from the Piedmont area of Pennsylvania around 4000 B.P. which lasted in Maine and southern New Brunswick until 3400 B.P. (Sanger 1975; Tuck 1991). Based on his

investigation of stemmed projectile points from Maine and New Brunswick, Rutherford (1989, 1990b) argues for the continuity of the Maritime Archaic or "Moorehead phase" people from Late Archaic into Early Woodland times. According to this model there was a resident population in the Maritime Provinces at the beginning of the Early Woodland period (ca. 3000-2000 B.P.) that was descended from the Maritime Archaic. Alternatively, an amalgamation of the Maritime Archaic and Susquehanna traditions may have occurred at the Oxbow site (Allen 1980: 156).

Prior to any description and analysis of Early Woodland sites and components from the Maritime Provinces, an issue of culture-historical nomenclature must be addressed. Archaeologists in Maine and the Maritimes utilize a variety of terms to account for the archaeological record after 3000 B.P. While the vast majority of researchers use the term Ceramic period (e.g. Bourque 1995: 169-170; Sanger 1987: 85-86) others describe this time frame as Woodland (Black and Turnbull 1986) or Maritime Woodland (Bishop and Black 1988), Late Period (Allen 1980) or Woodland Marine (Keenlyside 1984a). For New England, Dean Snow (1980: 262) has adopted the term "Early Horticultural", dating from 700 B.C. to 1000 A.D., to account for the period when most groups began to use pottery and adopt horticulture, and also to avoid certain conceptual difficulties associated with the term Woodland. However, archaeologists in the Maritimes have not designated their

sites as Woodland because there is no hard evidence to suggest that prehistoric native groups were practising a sedentary way of life and/or horticulture (Deal 1986a: 71-72, 1991: vii). Ethnohistorical data hint at the use of horticulture by native groups in some regions of the Maritimes during the protohistoric period (eg. Leclercq and Lescarbot in Leonard 1995). In Maine, some archaeologists "eschew" the Woodland label because: "...of its implications of...Adena-Hopewell ceremonialism" (Spiess et al. 1983: 99). Yet, the presence of excavated Meadowood and Middlesex (Adena) components and sites indicates that pan-continental influences found their way into the far northeastern seabord of North America.

Elsewhere in the Northeast, archaeologists have used the term Woodland to classify sites and cultures lacking evidence of horticulture or a sedentary way of life. For instance, in Ontario, Spence and others (1990) place the Meadowood complex under the Early Woodland period even though it is not until the Middle to Late Woodland transition (A.D. 700-900) that corn first entered Ontario (Fox 1990: 178) and became a dietary staple (Katzenberg et al. 1995). Similarly, in New York State Ritchie (1969) and Funk (Ritchie and Funk 1973) use the Woodland term for sites bearing Vinette 1 pottery even though maize horticulture was not utilized until Late Woodland Owasco times (Funk 1983: 349-350).

Within this thesis, what most archaeologists in the Maritimes call the Ceramic period will be designated as

Woodland to alleviate the plurality of labels in current culture-historical terminology (Leonard 1995). The Woodland concept, which was originally developed by McKern (1939), is suitable because it is recognizeable not only to the archaeological community in Maine and the Maritimes, but also to archaeologists outside the region (Leonard 1995).

Like the preceding Transitional Archaic period, the Early Woodland is also poorly understood in the Maritime Provinces. There are a number of explanations for this. First, archaeological activity in the Maritimes has been highly inconsistent (Connolly 1977: 3; Davis 1991a; Rutherford 1991). After Harlan Smith and W.J. Wintemberg (1929) excavated some shell middens at Merigomish Harbour and Mahone Bay in 1914, there was a break in archaeological work until the mid part of the century. In the 1960s, the only active fieldworkers in Nova Scotia were John Erskine (n.d.) and George MacDonald (1968) who excavated the Debert Palaeo-Indian site. It was not until the 1970s that archaeology became a truely professional endeavour in the region. In the mid 1970s, archaeologists were hired to teach and undertake fieldwork at Saint Mary's and St. Francis Xavier Universities (Turnbull 1979). Since the archaeological community in the Maritime Provinces is small in number, many sites and regions have not received proper attention (e.g., Preston 1991).

Second, natural processes such as soil erosion have reaped havoc on Maritime coastlines (Davis 1980; Keenlyside

1980; Simonsen 1978; Turnbull 1980). For instance, in 1979 Steve Davis and Dave Christianson surveyed parts of the Maritimes to assess the stability of previously known sites. In Passamaquoddy Bay, they found that coastal sites-such as Holt's Point, Teacher's Cove and Minister's Island-had lost one to two meters of cultural deposits in less than a decade (Davis 1980: 8). As a result, a seawall was built to preserve the Minister's Island site (Ferguson and Turnbull 1980). The effects of erosion on archaeological sites have long been recognized as Smith and Wintemberg noted destruction at a Nova Scotia shell midden in the early 1900s (1929: 7). Shoreline development has ruined sites and in some cases, has accelerated the rate of erosion (Simonsen 1978: 18). In addition, the rate of coastal submergence is another important factor affecting archaeological sites in the Maritimes. In some areas the coast is sinking at a rate of 30 cm per century (Davis 1980: 14). Severe storms may also eliminate substantial portions of coastal sites (Davis 1980: 14). Connected with coastal submergence are changes in sea level. Geological research suggests that for the last 2500 years, the rate of relative sea level rise has been around 20 cm per century in most parts of the Maritimes but in other places, such as the Minas Basin and Bay of Fundy (Scott and Greenberg 1983), it is as high as 1 meter (Stea et al. 1987). This rise in sea level has had a deleterious effect on archaeological sites in the Maritime Provinces.

Early Woodland Research in New Brunswick

Archaeological research in New Brunswick, for the most part, has been concentrated in the Northwest Miramichi River (e.g. Allen 1980, 1982, 1983; Turnbull 1976) and the Chiputneticook-St. Croix drainage/Passamaquoddy Bay regions (Black and Turnbull 1986; Black 1991, 1994; Deal 1984, 1985). Although a number of archaeological excavations and surveys have been done elsewhere such as the Grand Lake area (Foulkes 1981), Kouchibouguac National Park (Foulkes 1982), Macquapit Lake (Sanger 1973, 1991a), northeast coast (Martijn; and J. Buxton-Keenlyside in D. Keenlyside 1980) and recently at the Tobique River (Keenlyside 1995) and Shediac areas (Leonard 1991); most of our knowledge about New Brunswick prehistory comes from sites in the northeastern and southwestern corners of the province. Radiocarbon dates associated with excavated sites in both New Brunswick and Nova Scotia are found in Table 3.1, calibrated dates are in Table 3.2 and a geographical distribution of sites and findspots is in Figure 3.1.

Table 3.1: Early Woodland Sites in the Maritimes.

No.	Site	c14 Date (B.P.)	Lab. No.	Reference
1	Tozer	-----	-----	Allen 1982, 1983; Wintemberg 1937
2	Wilson/Hogan-Mullin/Howe	-----	-----	Allen 1982
3	Augustine Mound	2330±110 2950±75	RL-344 S-1655	Turnbull 1976 Allen 1995, pers. communication
4	McKinlay	-----	-----	Turnbull 1986
5	Gaugenn	2890±60	Beta-80068	Keenlyside 1995, pers. communication
6	Oxbow	2640±50 2600±60 2480±105	S-1605 S-1653 S-1805	Allen 1980
7	Mud Lake Stream	2470±110 2750±80	Beta-11205 Beta-23443	Deal 1985 Rutherford 1989
8	Partridge Island	2400±105	S-2215	Bishop and Black 1988
9	Minister's Island	2370±80	Y-1293	Sanger 1987
10	Mason	1960±70 2410±60	Beta-4026 Beta-4192	Klein 1983
11	St. Croix	2500±120 2620±290	Beta-49256 TOSL006	Deal et al. 1995
12	Rafter Lake	-----	-----	Davis 1986

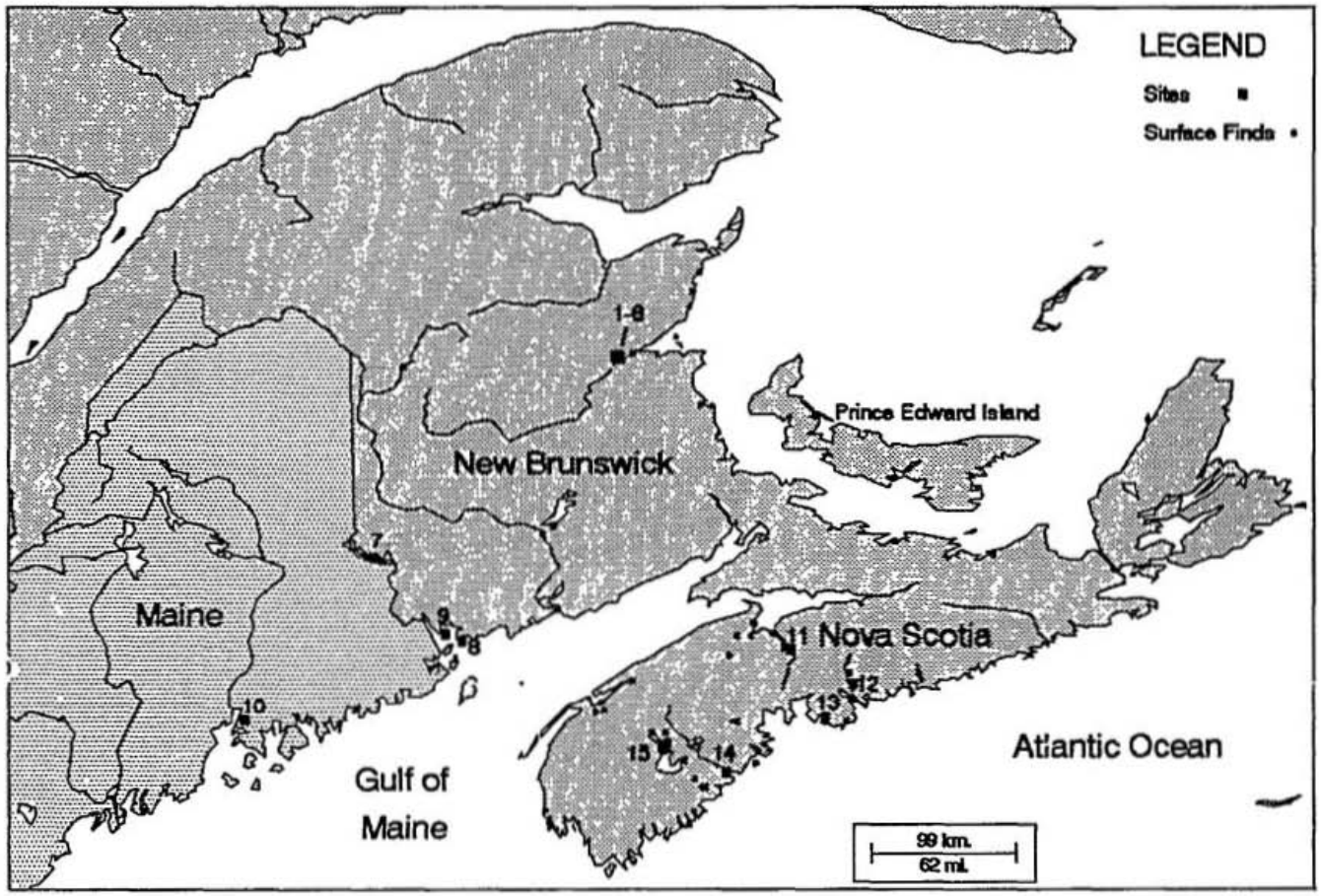
13	Skora	2260±100 2310±110 2440±120	B16806 B22149 S2280	Davis 1991b; Rutherford 1991; Bourque 1994
14	BaDd-4	-----	-----	
15	Eel Weir VI	-----	-----	Ferguson 1986

Table 3.2: Calibrated Maritime Early Woodland Dates.

Site **	Non-calibrated c14 Date (BP)	Range (BP) [one sigma]	Probability
Mud Lake Stream	2470±110	2715-2380	.53
	2750±80	2955-2777	.89
St. Croix	2500±120	2679-2469	.72
Augustine Mound	2330±110	2354	1.00
	2950±75	3215-3026	.82
Gaugenn	2890±60	3065-2954	.58
Minister's Island	2370±80	2493-2407	.36
Mason	1960±70	1954-1868	.55
	2410±60	2474-2408	.33
Skora	2260±100	2359-2119	.99
	2310±110	2399-2299	.35
	2440±120	2539-2359	.61
Oxbow	2480±105	2609-2469	.52
	2600±60	2783-2709	.65
	2640±50	2785-2738	.77
Partridge Island	2400±105	2509-2349	.58

**see Table 3.1 for Lab Numbers and References

Figure 3.1: Early Woodland Sites and Surface Finds in the Maritimes



Northeastern New Brunswick

The archaeological richness of the Miramichi River area undoubtedly rivals Passamaquoddy Bay. Surveys in the last thirty years have identified over 200 sites in the vicinity of Red Bank/Sunny Corner. The predominance of Woodland period sites suggests that the area was heavily occupied, and especially during the last 3000 years (Allen 1982). A number of sites has also been found accidently by landowners. One such site is Tozer, the easternmost of the Early Woodland sites in the Miramichi district.

In June 1928, Alan Tozer and his son Elwin accidently discovered an Early Woodland site near the Red Bank reserve at Sunny Corner (Allen 1982, 1983; Garlie 1992; Wintemberg 1937). The Tozer site is on a hillside terrace approximately 400 meters from the Northwest Miramichi river near the point where it joins the Little Southwest Miramichi. While removing soil for road making activities, Tozer discovered two distinct patches of red ochre separated by seven or eight meters of sterile soil. Within the two burial loci were ochre-covered cremations and grave goods. Among the artifacts are 17 triangular cache blades, a lanceolate biface, a stemmed projectile point, a copper awl and an almost intact ground slate gorget and other ground slate fragments (see plates 1-5). The cache blades appear to have been made from a bluish-gray material believed to come from the iron-rich deposits around Lake Superior/Lake Michigan (John Hamilton in Allen

1982). However, recent INAA and thin section analyses of one Tozer blade suggest that this is likely not the case. Instead the material may be local rhyodacites from the Paleozoic Dunnage terrane or zone (Julig and Long n.d.). The Dunnage terrane in New Brunswick is situated within close proximity of the Tozer site (Williams 1995: 26, figure 2.1). An examination by New Brunswick geologists may further our knowledge concerning the material from which the Tozer bifaces were produced.

The copper awl may have come from the copper deposits in the Lake Superior area (Allen 1983:3). A number of calcined bone fragments were recovered, but they are too small for identification. A bone fragment covered with red ochre indicates that the cremation did not take place within the grave. Likely, the cremation took place in a nearby crematory, similar to those at the Muskalonge Lake and Hunter sites in northern New York (Ritchie 1955).

Raymond P. Gorham, a local collector, acquired the Tozer artifacts and relayed information about the site to William Wintemberg, of the National Museum. In 1930, Wintemberg excavated some test trenches east of the burials and failed to locate any artifacts or features. The Historical Resources Archaeology Branch attempted to relocate the Tozer site in 1979 by setting up a trench opposite those of Wintemberg. As no additional features were discovered, it is likely that Alan Tozer removed the site entirely in 1928. The Tozer site is

believed to date between 3100-2800 B.P., at the beginning of the Early Woodland period (Allen 1983).

On a slightly raised terrace on the north bank of the Northwest Miramichi, approximately one kilometre upriver from the Tozer site, is the Wilson site. The Wilson site is a 200 meter long campsite or habitation area that was heavily disturbed by agricultural activities. Due to landscaping operations on the property, the Archaeology Branch conducted salvage excavations in 1975. Three years later, in 1978, Stephen Davis of Saint Mary's University conducted a field school at the site. Recovered artifacts indicate a 4000 year occupation extending from Late Archaic to historic times. Uncovered at Wilson were thin corner and side-notched point base fragments manufactured out of local rhyolites (except for a single specimen made out of quartz) cache blade fragments, double-ended and triangular scrapers and side-notched drills (see Table 3.3 and plate 6). These Meadowood-like artifacts were found in a small 50 meter area in the eastern part of the site. The Wilson site may have been occupied by the individuals who interred their dead at the Tozer site (Allen 1982).

Just east of Wilson, the smaller Howe site is located on a narrow elevated terrace. Only a small tributary separates this site from Wilson. Due to years of cultivation, the Howe site was extremely disturbed when the Archaeology Branch tested it in 1975. Excavations uncovered some Meadowood-like

Table 3.3: Early Woodland Artifacts from the Wilson/Howe Site.

Artifact Type	Artifact Number	L (mm)	W	Th.	Raw Material
Projectile Points	CfDk-2:584	-----	22.49	5.32	quartz
	596	-----	-----	6.43	lt. grey rhyolite
	822	-----	18.40 (neck)	6.53	brown rhyolite
	831	-----	30.02	5.45	lt. green rhyolite
Projectile Point/Drill	RPG-3	28.11	19.09	5.69	brown chert
Possible Biface/Cache Blade Frags.	457	-----	22.94 (base)	6.10	chert
	603	-----	21.51 (base)	5.23	grey chert
	606	-----	24.31	6.93	beige chert
Tip frag.	93	-----	19.52	6.29	beige/ grey chert
Double End Scraper	RPG-77	37.97	27.44	9.35	brown chert

stemmed bifaces.

Upriver from Wilson, a portion of the Hogan/Mullin site was investigated by Wintemberg in 1930. While there, Wintemberg recovered over 3000 artifacts including projectile points that appear to be characteristically Meadowood. Hogan/Mullin was also subject to investigations by the Archaeology Branch in 1975. Like other nearby sites, Hogan-

Mullin, a habitation area, was demolished by agricultural activity. Yet, the presence of two side-notched projectiles, including one specimen with a rectangular, box-like base, suggests the presence of an Early Woodland population.

In addition, the R.P. Gorham collection holds a number of artifacts that may be attributable to Meadowood Early Woodland. Specimens include a side-notched projectile made into a drill, three box-based side-notched projectile points and two other points that may post-date the Early Woodland period. These artifacts are catalogued as being from Red Bank and are believed to be from either Wilson, Howe or Hogan-Mullin (Pat Allen, personal communication 1994). This area, presumably, was Gorham's favourite collecting ground.

Two birdstones (see plate 7) found in south-central New Brunswick further suggest Meadowood influence in that area between 3000 and 2500 B.P. (Allen 1983; Turnbull and Allen 1988). Projectile points that are similar in size and form to other Early Woodland examples have been recovered by amateurs from Indian Point around Maquapit Lake, the Grand Lake area and near Tracadie in northeastern end the province (see table 3.4 and plate 8). In addition, three side-notched projectiles from New Brunswick Museum collections with an unknown findspot may be Early Woodland in origin. Of these two artifacts, two have boxed-bases. The George Frederick Clark collection also appears to have some stemmed and non-stemmed bifaces that may possibly be Meadowood diagnostics. The Clark collection is in

the possession of the late G.F. Clark's sister, Mrs. Kenneth C. Hoover of Woodstock, New Brunswick. While the Archaeology Branch has some of the collection photographed and documented, most of the artifacts remain undocumented. It appears that George Clark's main collecting grounds were centered around the Tobique and Saint John Rivers, and the Miramichi Forks. Due to time constraints, the entire collection was not visually examined by the writer.

A number of projectile points that may possibly be Early Woodland in origin have been found in excavated contexts at various locations in New Brunswick. At a predominantly Late Woodland site on Tabusintac Bay in northeastern New Brunswick, Albert Ferguson recovered a Meadowood-like projectile point base just below the sod layer at MacEachern's Point (A. Ferguson 1988: 17). Russell Harper excavated two narrow, Meadowood-like side-notched projectile points from Portland Point, at Saint John (Harper 1957: 31). David Keenlyside (personal communication, 1994) discovered a translucent side-notched point during the summer of 1993 at Odell Flats, on the Tobique River in northwestern New Brunswick. This projectile has a base that may have originally been straight but with some of the base removed, the basal aspect is concave. Tentatively, this stemmed biface may be identified as Early Woodland. David Sanger (1986: 11) refers to the Brown Collection from Grand Lake Stream that has several artifacts similar to his Middlesex materials from Minister's Island.

Table 3.4: Possible Early Woodland (Meadowood) Projectile Points from New Brunswick.

Site/Area	Artifact #	L (mm)	W	T	Raw Material
Hogan Mullin	VIII D75B	----	22	6.5	jasper/red rhyolite
	VIII D117C	38	22	5.5	gray/green rhyolite
RP Gorham Collection, Red Bank area	RPG-135	43.1	19.5	6.1	brown rhyolite
	RPG-235	49	20	6	lt. green rhyolite
	RPG-254	----	21.5	6	chert
Grand Lake area	WCD 27091	43.6	19.3	4.8	green chert
	WCD 27087	46	22	5	gray banded chert
Upper Jemseg	WCD 5697	44	18.6	5.7	gray chert
Maquapit Lake, Indian Point	NBM 5184	48	28	6	gray chert
MacEachern's Point, Tabusintac Bay	CiDf29b: 216	----	24.3	5.5	gray basalt (from Ferguson 1988: 15)
Tracadie region	Labelled 419	57.2	21	6.2	beige/pink chert
	Labelled A30	----	20	5.3	dark gray/black chert
Portland Point (BhDm-7)	1024	36.2	20.2	4.7	light brown chert
	329	----	20.3	5.5	mottled red and brown chert

Odell	from area #4	----	20.0	5.5	translucent chert
Various Spot finds from NB Museum Collections (Findspot unknown)	979.81.5	----	21.4	4.9	red jasper
	979.63.46 (biface frag)	----	27.9	5.6	brown chert
	x8000.169	----	24.4	5.4	gray chert
	x8000.122	----	23.1	6.2	gray/green chert

The Oxbow site, excavated by Pat Allen in 1978/79, is found on the Little Southwest Miramichi River near the Augustine Mound. The presence of neatly layered, undisturbed cultural deposits allowed Allen (1980, 1981) to devise a chronological framework for the late prehistory (Woodland period) of New Brunswick based on projectile point types and ceramic attributes. In the lowest layer, large, straight- and parallel-stemmed points recovered are considered ancestral toLate Archaic and Transitional types. These straight-stemmed points have been removed from the basal layers of a number of New Brunswick sites, such as Teacher's Cove in Passamaquoddy Bay (Davis 1978) and in Kouchibouguac National Park (Foulkes 1982). With the exception of the Oxbow and Augustine sites, straight-stemmed projectiles are not associated with ceramics. Ceramics that have been recovered are thin, grit tempered, and have undecorated rims with coarse exterior surfaces. One such sherd from the McKinlay site bears a trailed triangular motif (Turnbull 1986). A similar design is present on a vessel from

the Boucher site (Heckenberger et al. 1990). This ceramic type is different from Vinette 1, thought to be the earliest pottery utilized throughout the Northeast.

Stratigraphically above the straight-stemmed points are small expanding stemmed points dated to around 2600 B.P. (2640±50; 2600±60) (Allen 1981). These points were also part of the artifact assemblage from the Augustine Mound site fill. According to Allen (1980: 140-141), this point type was a sudden occurrence on New Brunswick Woodland sites and may have been manufactured by the Middlesex culture people. As a result, she perceives migration to be an acceptable explanation for these new traits in eastern Canada.

The Chiputneticook-St. Croix Drainage System/Passamaquoddy Bay

The Mud Lake Stream site (BkDw-5) is found on a spit of land on the eastern shore of Mud Lake Stream that drains into Spednic Lake. This multi-component site has yielded Late Archaic Susquehanna style materials but the most intense period of occupation occured during the Woodland period; particularly the Middle and Late stages (2000-400 years ago). During the 1983-85 excavations, Michael Deal (1985) recovered Meadowood-like materials from four features at the site. Feature 20 appears to be a Meadowood cremation burial that is semicircular in plan and shallow in profile with a depth of 20 cm. About half of the burial was eroded away at the beach face. Associated artifacts (see plate 9) are two side-

notched projectile points or notched bifaces, half a ground slate gorget, serrated biface or saw, a biface body fragment and three unifacial tools (Deal 1985: 132-133; 147-148). In close stratigraphic proximity with feature 20 were eight fabric-impressed pottery sherds similar to Vinette 1 (Deal 1986a: 72). Faunal remains from the feature include calcined bone fragments of "canid" probably dog (A. Spiess, in Deal 1986b, note 1), non-salmonoid fish and beaver. The lack of human remains may be due to the highly acidic soils at the site (Deal 1985: 148). Deal (1985: 147-149) suggests that the Mud Lake Stream burial (see plate 10) is similar to one found at the Bruce Boyd site in southern Ontario that contained animal remains but no red ochre.

Feature 23 appears to represent a cache of Early Woodland period artifacts including the fragments of nine Meadowood-style projectile points, 11 expanding stemmed formed biface fragments that may represent a crude style of Meadowood "cache blades" and two end scrapers (Deal 1986b: 23). A black, greasy stain was found at the bottom of this feature as well as in feature 18. Feature 18 is a fairly deep, irregularly shaped pit with the main soil component being a light brownish gray loam mixed in with fire-cracked rock and pottery fragments. Along with the latter materials, a number of other Meadowood-like artifacts were also recovered from the brownish gray loam. Underlying the feature fill was a black charcoal stain yielding a date of 2470 B.P. (Deal 1985: 141, 1986b:

21). Deal (1985: 141) suggests that the date is much earlier than can be accepted for the artifact content of this feature, and would seem to indicate that the black stained deposit is a remnant from an earlier occupation of the site. Feature 27 is an irregularly shaped deep pit with three stone cobbles found along the fringes. It was likely used as a hearth or roasting pit (Deal 1986b: 23). Artifacts found associated with the feature include a calcined barbed bone point and several small undecorated potsherds. A radiocarbon date of 2750 B.P. places the feature within the Early Woodland time frame (Rutherford 1989: 27, 35).

Passamaquoddy Bay

Jennifer Bishop and David Black's excavations at the Partridge Island site uncovered an Early Woodland component (Bishop and Black 1988). A thin, black, greasy organic layer containing few shells was intersected by two excavation units, and contained three features. One feature, representing a large pit or living floor, had charcoal yielding a radiocarbon assay of 2400 B.P. (Bishop and Black 1988: 24). Also within the confines of the former feature was a hearth containing fire cracked rocks and charcoal. A second basin-shaped hearth feature held charcoal, ash stained soil, fire-cracked rocks and heat-reddened soil. Faunal remains originating from the Early Woodland component are Atlantic cod, harbour pollock, seal and mink. Artifactual remains recovered include a

contracting-stemmed projectile point, a potsherd with trailed lines and the tip of a bone point (Bishop and Black 1988).

Early Woodland Research in Nova Scotia

Archaeological fieldwork in Nova Scotia has been concentrated in seven areas, namely, Yarmouth, the Minas Basin, Lake Kejimkujik/Lake Rossignol/Mersey River drainage, Gaspereau Lake, the Shubenacadie River drainage and the Halifax/Dartmouth area (Preston 1990, 1991), as well as parts of Cape Breton Island (Nash 1980) (see figure 3.1 and table 3.1). Although, a number of areas have not yet been surveyed, such as Guysborough County in the southeast and much of the interior parts of the province, the discovery of sites and spot finds by amateurs have enhanced our knowledge of prehistory in some of these regions. One such location is the Medway River drainage, where just four years ago, a resident located and excavated an important Early Woodland site (see below). In the last 25 years a much more thorough picture of native lifeways in the Middle and Late Woodland periods has been obtained by archaeological investigations. Early Woodland components are not as well represented and as a result, our understanding of the technology, settlement and subsistence practices, and religious ideologies of Native inhabitants after the Late Archaic is very fragmentary.

Halifax/Dartmouth Area

The Rafter Lake (BeCx: 3) site is located on a chain of lakes at the north end of St. Margaret's Bay, near Halifax (Davis 1986). During the 1977 excavations at Rafter Lake, the remains of what Davis (1986: 119) suggests is a semi-subterranean house feature with an interior pit hearth on the eastern end were discovered. This house feature is oval shaped and around 3.5 by 2.5 meters in size (Davis 1986: 119). Within the hearth was a Vinette 1 pottery fragment and a Meadowood-like stemmed biface (Kristmanson 1992: 58). Within his contiguous habitat model of settlement for precontact populations in the Maritimes, Davis classifies the Rafter Lake site as an interior site, in a riverine habitat, that was likely used for a single purpose, exploiting anadromous fish (Davis 1986: 207, 1991a: 98-100).

In addition, during the 1970s four side-notched Meadowood-like projectile points were collected around Enfield, north of Halifax on the Shubenacadie River. The whereabouts of these artifacts is unknown at present (Brian Preston, personal communication 1994).

Minas Basin Area

The St. Croix site was first reported in the 1960s by John Erskine and was relocated during the 1989 survey as part of the Minas Basin Archaeological Project (Deal n.d.a). The

site is located on the southeastern bank of the St. Croix River in the town of St. Croix. It extends for around 600 meters along the river and 60 meters away from the bank. The size of the site is comparable to a large Woodland village found nearby on the Gaspereau River called Melanson (Nash et al. 1991, Deal et al. 1995: 5). Unfortunately, most of the site has been badly disturbed over the last century. Because the site is at the head of tide, the inhabitants likely exploited spawning salmon and gaspereau in the spring and fall.

During the summer of 1990, Michael Deal and a crew from Memorial University excavated 17 meter squares in an undisturbed area. They found nine body sherds from a grit-tempered, fabric-impressed vessel (see plate 11). This vessel is the first Vinette 1 type to be discovered in situ in Nova Scotia. Even though Vinette 1 pottery is rare in the Maritimes, some stylistically similar sherds have also been collected along the Gaspereau Lake/Gaspereau River drainage (Deal and Butt 1991; Kristmanson and Deal 1993: 76; Deal et al. 1995: 8).

During the summer of 1993, an additional 15 square meters was excavated at St. Croix. Along with artifacts diagnostic to the Middle and Late Woodland periods, a side-notched Meadowood-like projectile point was recovered in the northeastern part of the site (see plate 11). This point is biconvex in longitudinal section and plano-convex in cross

section. The base is assymetric, convex and appears to have been chipped although one part may have been ground. Fine craftsmanship is demonstrated by the presence of pressure flaking on one face producing a pronounced medial ridge. Also displaying pressure flaking, the opposing face is only partially finished. Fine retouch is present on all blade edges starting midway up the point. The notches can be classified as wide and are 6 mm and 7 mm respectively. Other metric attributes are a length of 69 mm, width of 26 mm, and thickness of 9 mm. Although this point appears to be too large to be Meadowood, its shape and appearance suggests Early Woodland affinity. Produced from an exotic, milky white material that is strikingly similar to Ramah chert from northern Labrador, Deal and others (1994: 8) tentatively suggest that the point was more likely made from chert originating in southern Quebec. Perhaps the raw material came from the Mistassini region as quartzite artifacts have been found in northern New England (Denton and McCaffrey 1988: 148). This exotic material appears to have been utilized throughout the Woodland period in Nova Scotia as Rutherford and Stevens (1991) have identified Mistassini chert artifacts at the Cox-Swanson site (M. Deal personal communication, 1995).

In 1993, five more fabric-impressed sherds representing two vessels were recovered (Deal et al. 1995:8). A charcoal sample from a hearth feature (1990-2) was dated to 2500 B.P.,

which Deal and others (1995: 5) accept as a basal date for the site. Recently, a pseudo-scallop shell decorated vessel was dated by thermoluminescence to 2620 B.P. (Deal et al. 1995: 11). Such an early date for this type of pottery decoration is not as baffling as it may seem. At the Oxbow site, dentate stamped and pseudo-scallop shell ceramics were found in association with charcoal dating to 2640 B.P. (Allen 1980: 144). In addition, smoothed punctate decorated ceramics have been recovered from the Augustine Mound (Petersen and Sanger 1991: 123). Possibly, Native groups during the Early Woodland period were using and producing Vinette 1 as well as forms of decorated ceramics such as pseudo-scallop shell, dentate stamped and smoothed punctate contemporaneously (Petersen and Sanger 1991).

Lake Kejimkujik/Lake Rossignol/Mersey River Drainage

Almost 25 years of archaeological research at Kejimkujik National Historic Park by Parks Canada indicates that the area was heavily utilized by Native groups from the Late Archaic period to historic times (Ferguson 1986: 6). One of the most important sites is Eel Weir VI, located on a plain beside the Mersey River in interior southwestern Nova Scotia. This multi-component site found beside a stone eel weir may have been a fall and winter base camp (Ferguson 1986). The Mersey River system is a valuable source of landlocked salmon as well as anadromous and catadromous species. Gaspereau come up

river to spawn between the chains of lakes in the spring and "millions" of eels move towards the Atlantic to spawn each fall (Erskine n.d.a: 67). Evidence of an Early Woodland occupation is suggested by the recovery of Meadowood-like side-notched points and stemmed points with thinned bases (Ferguson 1986). Of the five Meadowood-like points, three are made from quartzite, with one each from tuff and agate (Ferguson n.d.). In terms of metrics, length ranges from 29 to 44 mm, width from 16 to 24 mm and thickness from 5 to 6 mm (see table 3.5). These dimensions are similar to those recorded for Early Woodland projectile points throughout the Northeast.

Table 3.5; Projectile Point Data from Eel Weir VI

Site	N	L**	S.D.	W	S.D.	Th.	S.D.
Eel Weir VI	5	36.00	7.54	18.33	4.04	5.33	0.58

**Measurements are in millimeters, only 3 full length projectiles were present (from Ferguson n.d.)

A similar fish weir has recently been reported from the Kennebec River drainage of central Maine. The Sebasticook fish weir has yielded a wooden stake dating to 2940±70 B.P. (Beta-60099) and a birch bark container dating to 2250±60 B.P. (Beta-70141, CAMS-11248) indicating an early and late Early Woodland presence at the site (Petersen et al. 1994).

Nearby, the Eel Weir VII and IX sites are located on a glacial terrace approximately 100 meters from the river. At Eel Weir VII, the recovery of two broad-stemmed points made of a rhyolite from eastern Nova Scotia may indicate an Early Woodland presence (Ferguson 1986: 29). At Eel Weir IX, test excavations by Brad Myers located a broad stemmed point which may also be diagnostic to the Early Woodland period and a number of quartzite flakes (Ferguson 1986: 31). Ferguson (1986: 29, 31) proposes that both sites may have been used during spring flooding by the occupants of the main campsite (Eel Weir VI) found below.

Lying across the Mersey River from Eel Weir VI is Eel Weir XII, where a park employee, Charles Hearne, found a substantial portion of an Early Woodland vessel when water levels were low. During a surface collection of the shoreline, a number of ceramic sherds and artifacts such as a side notched Early Woodland projectile point were retrieved (Ferguson 1994). Ferguson (1994) suggests the site was a major settlement that may have been occupied at the same time as Eel Weir VI.

At the north end of Lake Kejimkujik is the multicomponent Merrymakedge site which rendered material from all but the earliest prehistoric periods. Although no features were found during excavations, the artifact assemblage includes a well made side-notched projectile point that Ferguson (1986: 17) believes is diagnostic to Meadowood Early Woodland. This

point measuring 33 mm long, 20 mm wide and 6 mm thick was produced from quartzite (Ferguson n.d.). A large number of ceramics characteristic of Middle and Late Woodland suggests that the site may have functioned as a base camp during these later occupations (Ferguson 1986: 17).

At Ell Island, a side-notched projectile point which may date to Early Woodland times was also recovered by Charles Hearne in 1993. The area around the findspot has not been surveyed for archaeological resources (Ferguson 1994: 8). An Early Woodland projectile has also been recovered from Eel Weir X, the second site located on the eastern side of the Mersey (Ferguson 1986: 32). This projectile, from a disturbed context, is made of milky quartz (Ferguson n.d.).

BaDd-4

BaDd-4 was discovered in May 1992 by an avocational archaeologist/landowner on the Medway River drainage in southwestern Nova Scotia (R. Whitelaw, personal communication 1995). Although small in size, two features from this site yielded the largest in situ Meadowood artifact collection yet discovered in the Maritimes.

Feature 1 is a small, circular feature consisting of an artifact cluster. Diagnostic artifact types discovered include side-notched projectile points, large cache blade-like bifaces, a copper awl and gorgets. Since all artifacts were covered with red ochre, this feature likely represents a

Meadowood Early Woodland burial.

Feature 2 is a line of artifacts just under a meter long. The vast majority of artifacts recovered are formed unifaces, utilized flakes and non-utilized flakes. Red ochre was present on most specimens. It is stratigraphically situated below feature 1 suggesting separate events. This long, thin feature may have been a cache or some type of storage area.

Floral and faunal remains or other organic materials, such as charcoal, were not recovered but unstudied soil samples from feature 1 are in existence (R. Whitelaw, personal communication 1995). A number of artifacts such as side-notched projectile points, cache blades, abraders, birdstones, celts and hammerstones among others were located outside the features in undetermined context. Almost the entire collection of chipped stone artifacts is of local raw materials except for some medium gray to black materials foreign to southwestern Nova Scotia. However, the majority of indigenous materials are located well over 100 kilometres northeast in the North Mountain basalt formation and limestone outcrops at Scots Bay. The Medway River drainage is one of many areas in Nova Scotia that is little known archaeologically (Preston . 1990) and the discovery of BaDd-4 stresses the need for a systematic survey, or master plan, of archaeological resources throughout this area. A detailed preliminary report on BaDd-4 is located in Appendix A.

Prince Edward Island

A little over twenty years ago, William C. Noble stated that the "...archaeology of this small Maritime island province remains virtually unknown and unpublished" (1973: 59). Today, even though it seems that little has changed, a picture of Prince Edward Island prehistory is starting to emerge. A fluted point recovered from North Tryon, on the Northumberland Strait, suggests a Palaeo-Indian presence contemporaneous with Debert (Keenlyside 1984b). The recovery of Late Palaeo-Indian assymetric, triangular projectile points from a variety of locations on the northern part of the Island suggests cultural continuity between Palaeo-Indian and Early Archaic inhabitants (Bonnichsen et al. 1991; Keenlyside 1985). Likewise, an ulu dragged up by a trawler off the eastern coast of the Island may demonstrate the presence of a later Archaic population (Keenlyside 1984b).

Perhaps the most intensely investigated site has been the shell midden at Rustico Island, which after nearly a hundred years of testing was fully excavated by Parks Canada in the late 1980s (O'Grady 1993). Surveys by Richard Pearson in 1961 and 1962 uncovered 18 sites, including one at Oyster Bed Bridge that yielded a small, grit tempered potsherd devoid of decoration (Pearson 1966: 105) which may possibly be of Early Woodland origins. Recent research involves placing projectile points into a chronological sequence devised by Pat Allen (1980, 1981) for northeastern New Brunswick in order to

develop a temporal sequence for the Woodland period (Scott Buchanan, personal communication 1994). However, a cultural chronology has not been constructed for the entire duration of Island prehistory. Thus far, no Meadowood-like projectile points, cache blades or burials have been found on Prince Edward Island.

The Late Early Woodland Period in the Maritime Provinces

Middlesex Sites

Like the rest of the Northeast and Great Lakes regions, the appearance of Middlesex sites occurs in the late stages of the Early Woodland period. Some archaeologists maintain that Meadowood groups were so heavily influenced by Adena that they were the people responsible for the construction of Early Woodland burial mounds in the Northeast (Snow 1980: 268). Others believe the Middlesex complex is a completely different cultural horizon (Funk 1981: 95), although Middlesex overlaps in time and space with Meadowood in New York State (Funk 1983: 335). This temporal ambiguity may be present because of the bias of mortuary data over that from living sites in the Northeast (Loring 1985: 95). Adding to the confusion is the Gaugenn collection from northeastern New Brunswick. Consisting of tear-drop shaped bifaces which under normal circumstances are characteristic of Middlesex, charcoal from this burial site has yielded a radiocarbon date of 2890 B.P. (Keenlyside, personal communication 1995). Similar dates are

usually associated with Meadowood cultural components.

In a recent article, Rutherford (1990a: 177) suggests that the term Middlesex should not be used for Maritime Early Woodland burial mound sites because it implies an actual movement of Adena people into the region. However, some archaeologists recommend that the Middlesex label be used for sites with Adena-like artifacts and burial ceremonialism in eastern North America (Ritchie 1944; Spence et al. 1990). In fact, one Ontario site, the Killarney Bay 1 component on Georgian Bay, has been designated Adena because it may reflect the migration of a small group from Ohio (Spence et al 1990: 142). In short, Adena represents the culture group in its area of origin, the Ohio Valley, whereas Middlesex represents the presence of Adena-like artifacts and burials on sites where "their" ideas and materials were brought in via widespread exchange systems. Recently, Bourque (1994: 33) has labelled Adena-like sites east of the Champlain valley as the Boucher complex. In this thesis, sites yielding Adena-like mounds and artifacts will be called Middlesex Burial Tradition sites (see Turnbull 1986: 15-16 for a short discussion on terminology).

The next section will describe sites and surface finds characteristic of the Middlesex Burial Tradition from the Maritimes and Maine. Surface finds diagnostic of Meadowood Early Woodland from Nova Scotia are included as well.

Augustine Mound

The most fully excavated Middlesex site yet reported for the Maritime Provinces is the Augustine Mound site in the Miramichi River basin in northeastern New Brunswick. Joseph Augustine, Red Bank Band Chief, found the site on a terrace 15 meters above the river in 1972. Recovered from Augustine's test pits were four skeletons, over 1000 copper beads, a banded slate gorget, large stemmed spear points, bifaces and fabric. Three years later, Historic Resources were permitted to excavate the site. They discovered a mound one meter in height and 11.5 meters in diameter. Underneath this artificial, circular mound of gravel and sand were over 11 burial pits, with the largest located in the center (Turnbull 1976: 57). The complete excavation of four burial pits revealed the remains of over 20 individuals (Turnbull 1978: 16). Materials recovered from these interments were large stemmed points, banded slate gorgets and a blocked-end tubular pipe created out of Ohio fireclay. However, the majority of artifacts (99%) were produced out of local white quartz (Turnbull 1976).

McKinlay Mound

In the late 1970s, J.V. Wright discovered artifacts diagnostic to the Middlesex Burial Tradition while visiting the Museum of Mankind in London, England. Because the collection was labelled Red Bank, New Brunswick, it was

originally thought to be part of the Augustine Mound artifact assemblage as some of the site was disturbed prior to the inaugural investigation in 1972. After examination of the artifacts, Chris Turnbull (1986: 3) believes: "there is...no possible direct connection between the two sites. While it seemed implausible to credit two Middlesex sites in the same small area, it seems to be the case". The artifact assemblage consists of stemmed points, bifaces, scrapers, celts, blocked-end tubular pipes, banded slate gorgets, decorated and undecorated pottery closely related to Vinette 1, copper beads and a boatstone. While most chipped stone artifacts were produced out of local white "massive" quartz, exotic materials such as Flint Ridge chert from Ohio are present in the collection. All tubular pipes were manufactured out of Ohio fireclay (Turnbull 1986: 12).

Minister's Island

At the predominantly Late Woodland Minister's Island site on Passamaquoddy Bay, David Sanger excavated a multiple burial that likely consisted of 12 individuals. Human remains were poorly preserved and represented only by a number of teeth. Artifacts associated with the burials include large bifaces, chipped and ground celts, copper beads and the remains of textiles. Charcoal recovered by the original excavator, Richard Pearson, was dated to 2370 B.P. (Sanger 1987: 105). This date and artifacts suggest affiliation with the Middlesex

Burial Tradition.

Skora Mound

During the summer of 1986 Jan Skora, an architect with an archaeology background, recognized a stain on the top of a knoll that was partially removed by bulldozers involved in a road building project. This large knoll, overlooking Prospect Bay south of Halifax, contained five features, including burials. Initial excavations by S. Davis, M. Deal and B. Preston at an exposed burial in an oval pit yielded cremated and non-cremated artifacts such as celts (adzes), straight- and expanding-stemmed point fragments and human bone fragments. Dateable charcoal produced radiocarbon assays of 2260 B.P., 2310 B.P. and 2440 B.P. (Davis 1991b: 60). While another burial was destroyed by vandals, two of four burial features are possibly spills from primary cremations. A fifth feature in the mound floor, which originally appeared to be a burial pit, was filled with rocks and with no signs of in situ burning, the function of this feature is unknown (Davis 1991b). On the eastern part of the mound, a large, shallow basin-shaped pit yielding fieldstones and compacted soil is also thought to be a cremation pit (Davis 1991b).

Mason Site

Near Buckport, Maine, Warren Moorehead (1922: 46, 49)

excavated three Adena-like burials in 1912. Along with the graves, a number of Moorehead phase artifacts were uncovered. Materials from two graves were dated to 1960 B.P. and 2410 B.P. (Klein 1983: 633).

Miscellaneous Surface Finds and Other Information

Early Woodland Surface Finds

Over the years, a number of individual Early Woodland artifacts have been found by archaeologists and collectors from all over Nova Scotia. For instance, at Bear River, John Erskine found the remnants of two gorgets. One gorget was complete except for one end which was heavily worn perhaps for rubbing sinew or sharpening beaver teeth for knives (Erskine 1970: 24, figure 11). According to Erskine (n.d.: 38), George MacDonald discovered a gorget at Port Joli. A gorget was also found along the Mersey River drainage (Erskine n.d.a: 38). A fragmentary gorget was present in the Legge collection from the North River site near Gaspereau Lake (Erskine n.d.: 38; Michael Deal, personal communication 1995). In addition, two gorgets were also among the Nova Scotia Museum collection in the late 1800s. One rectangular specimen was discovered at Smith Cove near Digby (Piers 1890: 283) whereas the other gorget made from green banded slate was part of the Webster collection from around Kentville (Piers 1890: 284). A diamond-shaped gorget of greenish gray slate has also been recovered from the Lequille River area in the Kelsall

collection (Erskine n.d.a: 38).

A gorget fragment was also found in the Thomas Raddall (THR) collection. This gorget was collected from the Indian Gardens site by Dr. Thomas Raddall who surface collected the site for many years. The gorget fragment is 5 cm long, 4.2 cm wide and 5 mm thick and is made of slate with rust patches on the surface. According to Deal and others (1987), Indian Gardens was an important interior site on the Mersey River, particularly during the Late Woodland and Protohistoric periods.

A slate birdstone has been found in the Wagner collection from Indian Gardens (Erskine n.d.a: 43; Brian Preston, personal communication 1994). A birdstone has also been found recently near Lake Rossignol. It is in the possession of Jean Labrador of the Brookfield area (Brian Preston, personal communication 1994).

Middlesex artifacts have been found near Yarmouth, in southwestern Nova Scotia. In the collection of Wilbur Sollows, were two slate stemmed points that are leaf-shaped. These specimens were found on the west side of Barren Lake (Davis 1991d: 70, plate 5). In addition, the Hameon collection yielded two parts of a blocked-end tubular pipe found near Long Falls (Davis 1991d: 73, plate 5). During the last century a polished blocked end tube pipe made out of a light gray slate was found in Dartmouth, on the line of the canal (Gilpin 1873: 228, 230; Piers 1890: 285, 1912: 116).

A number of bifaces stylistically similar to large Meadowood cache blades has been recovered from the north side of Sherbrooke Lake by Peter Harvie (Brian Preston, personal communication 1994). Other artifacts in the Harvie collection (BeDd-1) include a modified fossil shark tooth, an obsidian biface, ground and polished celts and two fragments of ground slate, one of which may be an abrader.

Additional Sites With Possible Early Woodland Affiliation

Reverend Joseph Cambell (1876) refers to a burial mound at Kempt near Kejimkujik National Historic Park. When this mound was discovered in 1863, it rose four feet above the surface and was ten feet long and five feet wide. A Dr. Joseph Bond visited the area at the time and called it "an ancient Indian burying place" (Campbell 1876: 18). Although, no human remains were recovered, the artifacts found were believed to be from the Kempt mound. These artifacts are stemmed bifaces, celts (or adzes) and scrapers made from chert and slate (Campbell 1876).

Reverend George Patterson (1890) describes a burial at Big Island, near Merigomish, on the farms of Donald McGregor and James McGlashan. While ploughing, McGregor churned up a human skull with an arrowhead lodged in the front. McGregor also noticed a shallow, circular feature over 6 feet in diameter. Upon excavation, Patterson discovered the burial was 15 inches to 2 feet deep. Burial fill was a brown mould

mottled with decayed bone fragments. On the bottom of the pit, birch bark was covering the subsoil. Due to constant ploughing, it will never be known whether a mound was made over the remains. Artifacts found in association with the burial were a small axe with a sharply ground edge, projectile points including some leaf shaped specimens (Patterson n.d.) typical of the Middlesex complex, "rude" pottery fragments, small copper knives, an "imperfect" fish spearhead (i.e., likely a barbed bone point) and a stone pipe (Patterson 1890). Unfortunately, the Patterson collection, including the Big Island artifacts, was lost when the Nova Scotia Museum's archaeological collection was moved in the 1950s (Brian Preston, personal communication 1994). However, the catalogue of artifacts from the Big Island site still exists (Patterson n.d.).

Indian Point (BkCu-2) is a well-known site on a point of land at McNabs Bay, near Tatamagouche (Deal 1992: 4-5). The site consists of a low circular mound that appears to be man-made. Although, it is often referred to as a Micmac burial ground, the mound is similar to Middlesex Burial Tradition sites (Deal 1992). Artifacts recovered adjacent the mound include an adze and pieces of worked quartz. Except for possible erosion, the mound is believed to be in pristine condition and has tremendous research potential (Deal 1992).

John Erskine's excavations at the Reid site, near Halifax, unearthed some cremated human bone fragments. The

remnants of a child's cranium fragment and the occiput of an adult male were located in cooking pits at the camp's edge. Strangely enough, according to local tradition interments were done on a nearby island (Erskine n.d.b). The reader should be cautioned, however, that burials without diagnostic artifacts and dateable charcoal are difficult to affiliate with a known culture. For instance, Middle Archaic Morrill Point burial complex sites in Maine are characterized by red ochre and in some cases, cremated human remains (Robinson 1992). Deal and Rutherford (1991: 5) have reported ground stone rods from a variety of locations in southwestern Nova Scotia such as Gaspereau Lake, Lake Rossignol and sites in Digby and Hants Counties. Ground stone rods are characteristic of Middle Archaic assemblages in Maine (Robinson 1992). While burial sites like the Reid site may possibly be Early Woodland in origin, it is also possible that they may be much earlier as well.

Erskine (1960, 1970, 1971, n.d.b) also discovered two burials at Bear River which he believes to have dated to Late Archaic or Early Woodland times. One bundle burial was of a young girl, aged 7 or 8. A moose splint awl, that was presumably used as a toggle as part of it was polished, was found against her breastbone which indicates that she may have been wearing a cloak. Because she was wearing clothes, it is believed that she died in winter and had been placed on a scaffold prior to burial in the spring. There were no traces

of birchbark or a grave lining to be found. Erskine estimates this burial dates to around 2400 B.P. (Erskine 1970: 22). Her burial was beneath a feature interpreted by Erskine to be a "wigwam".

The second burial is located about a meter away and is stratigraphically above the latter burial. Discovered were the remains of a middle-aged woman and child. Small rib bones and two unerupted incisor milk teeth were found on the right breast. It appears as though the woman was buried in haste as the body was buried while in the state of rigour mortis. The burial was shallow and too short for the body but the knees were raised and the head and neck upright. A special area was dug for the right arm and a large rock placed on top as it did not fit into the burial pit. Red ochre was sprinkled on the mother and child. No artifacts were recovered with the bodies and there was no presence of a grave lining (Erskine n.d.b).

In summary, the evidence for Meadowood Early Woodland in the Maritimes consists of archaeological sites, features and spotfinds. Most Meadowood components are mortuary sites and extractive camps according to Granger's site types. After a critical exploration of archaeological terminology present in eastern North America, it was decided that the Woodland term was most suitable for Meadowood components. In the next chapter, Early Woodland data are synthesized so that a preliminary definition of Meadowood for the Maritime Provinces may be presented. This information is then used to develop a

possible explanation for the existence of Meadowood influences in the Canadian Maritimes.

CHAPTER FOUR

AN INTERPRETATION OF THE MEADOWOOD EARLY WOODLAND IN THE MARITIMES

Introduction

In the previous chapter it was pointed out that after twenty-five years of professional archaeology in the Maritime Provinces, the discipline is still young. Although a general cultural sequence is recognized, it is filled with gaping holes and discontinuities. One of those discontinuities occurs during the Early Woodland period with the presence of Meadowood-style artifacts commonly found on sites in the Great Lakes region. There are two main goals to be achieved in this chapter. First, I attempt to define Meadowood in the Maritimes with regards to settlement/subsistence patterns, material culture and temporal span of occupation. Second, I examine the possible mechanism, or mechanisms, that transmitted Meadowood cultural traits to the Maritimes.

Settlement and Subsistence Patterns

With the exception of BaDd-4, sites bearing Meadowood style artifacts are located inland, away from the coast. In addition, Meadowood surface finds are almost exclusively found on inland river systems, with the exception of the projectile point base at Tabusintac Bay (A. Ferguson 1988). While many sites are adjacent to major river systems, others are found on interior interlocking lake chains. River systems containing Meadowood sites include the Miramichi, St. Croix, and Mersey.

Sites on a chain of lakes include Rafter Lake and Mud Lake Stream. It appears that hillside and raised terraces were the most popular location for Meadowood sites in the Maritimes.

The two general types of Meadowood sites are ceremonial and habitation sites. Ceremonial sites are those that were likely used to inter the dead. BaDd-4, Mud Lake Stream and Tozer are the only Meadowood ceremonial sites yet found in the Maritimes. At these sites, small pit features were discovered bearing artifact clusters covered in ubiquitous red ochre. Cremated bone has been found at Tozer (Allen 1982, 1983; Wintemberg 1937) and calcined animal bones were identified from the burial feature at Mud Lake Stream (Deal 1985, 1986a). Since artifacts do not seem to show the effects of heat treatment or thermal alteration, these grave goods were not cremated with the individuals. While no living site is currently known in the vicinity of BaDd-4, a habitation site is located within a few kilometers from Tozer and Meadowood living features have been noted at Mud Lake Stream.

Habitation sites signify a place where people once lived or performed some kind of activity. Granger's (1978b) procurement, processing, manufacture and storage sites fit under the habitation category. Generally, one may infer function of a site from its location and perhaps from the function attributed to prior or later occupation. If that is the case, then a large number of the Meadowood sites in the Maritimes appear to be extractive camps or procurement sites;

locations used to acquire subsistence goods.

Unfortunately, many of the sites under study are also part of multicomponent sites dominated by Middle and Late Woodland occupations. The result is a small number of Meadowood Early Woodland artifacts often coming from an undetermined context, or not associated with a defined layer or feature. For instance, sites such as Wilson/Howe are stratigraphically mixed due to agricultural activity. Presently, the only single component Meadowood sites in the Maritimes are ceremonial sites. It is difficult to assess site type with so little data. For these reasons it is difficult to apply Granger's settlement/site types to Maritimes Meadowood sites at the present moment.

Little is known about settlement and subsistence patterns during the Early Woodland period. Unfortunately, economic data are poorly represented on sites in the Maritimes. However, some preliminary statements can be made concerning settlement/subsistence patterns. As indicated, many Meadowood sites are found on major rivers. Available evidence suggests that site location is inherently connected to economic activity. For instance, located beside the Eel Weir site, is a fish weir. This weir, a v-shaped arrangement of stones, is at a shallow rapids where the Mersey River enters a bay. Ferguson (1986) suggests the site may possibly have been a base camp occupied during fall and winter.

As mentioned earlier, a stake from the Sebasticook fish

weir complex in Maine was dated to the Early Woodland period. Fish drying racks in the form of stone cobbles were found on the ground nearby (Petersen et al. 1994). At the Knox site on Penobscot Bay, longhorn sculpin and cod were recovered from Early Woodland features along with Meadowood-like artifacts. These fish species are found in shoals and flats during spring and fall. Belcher (1989) suggests the Early Woodland population at the Knox site fished in shallow waters and used intertidal flat fishing methods such as hook and line, brush weirs, nets or harpoons. It is believed that deep water fish became more important as the water level rose during Middle Woodland times (Belcher 1989).

In the burial at Mud Lake Stream, the remains of non-salmonid fish and beaver were recovered and may represent offerings to the dead (Deal 1985: 148). If so, these species were undoubtedly of economic value to the inhabitants.

At St. Croix, the excavator believes the site was inhabited in spring and fall to exploit spawning fish (Deal et al. 1994). This is supported by the location of the site at the head of tide as at Melanson (Nash et al. 1991). During the period of heaviest occupation, the Middle and Late Woodland, the site may have functioned as a large campsite or village.

The evidence above suggests that fish were important in the diet of Early Woodland populations and fish weir technology may have been critical for procuring this resource.

Anadromous fish species, and likely catadromous eels were exploited during spring and fall spawning. The small number of Meadowood artifacts and features at these sites suggests that they were not used as base camps.

Although Davis (1986) has identified a semi-subterranean structure associated with a Meadowood projectile point and Vinette 1 pottery fragment at Rafter Lake, the issue of Early Woodland base camps has not been resolved. Presently, there are no bona fide Meadowood Early Woodland base camps present in the Maritimes. Archaeologists in Ontario, Quebec and New England have experienced a similar difficulty in constructing a settlement/subsistence pattern for the Early Woodland period. Perhaps this is not surprising as Lewis (1986) suggests the scarcity of Early Woodland base camps in the Great Lakes region is a function of the short time span of the period. Others have proposed a population decline during the Early Woodland (e.g., Mulholland, in Filios 1989: 91). In truth, the rarity of Early Woodland base camps has never been adequately studied. Perhaps base camps were not always as large and intensively occupied as some sites lead us to believe. It is also possible that a lack of surveys has left numerous base camps untouched and unknown in the Maritimes.

The available evidence suggests that a riverine/lacustrine adaptation focussing on anadromous fish species in spring and fall was likely utilized by groups during the Early Woodland period. It also appears that

terrestrial mammals may have been important as well. At Partridge Island, the remains of Atlantic cod and harbour pollock as well as sea mammal species such as seal and mink were recovered from the Early Woodland layer. Bishop and Black (1988: 30) suggest a brief summer/fall occupation of the site due to the inshore migration patterns of cod. They also suggest the possibily of a sedentary, year round existence at Partridge Island with occasional visits to the mainland for interior resources (Bishop and Black 1988: 32-33). However, Meadowood habitation sites are located in the interior and the participation in a maritime economy is debatable. It is possible that inland groups could have moved to the coast during summer to exploit fish and marine mammals. According to Sanger (1988: 83), harpoons and barbed points may imply marine adaptation. The presence of Meadowood sites strictly in the interior suggests dependence on inland resources, such as seasonally abundant fish and terrestrial mammals. These populations buried their dead at inland locations near habitation sites and on the coast. It is also possible that coastal habitation sites have not yet been found because of a lack of archaeological reconnaisance in the area or because the sites have been destroyed by coastal erosion. In terms of seasonality, when these populations buried their dead is a matter of speculation. It is highly unlikely that they interred their dead in winter, leaving spring, summer and fall within the realm of possibility. With regards to a seasonal

round, a pristine Meadowood component has yet to be discovered. Until one of these is located, and with good floral and faunal preservation, reconstructing a settlement/subsistence pattern for Meadowood in the Maritimes will remain a highly speculative venture.

Meadowood Early Woodland Technology

There are two categories of artifacts found on Meadowood Early Woodland sites in Canada's Northeast, namely, chipped and ground stone tools (see Table 4.1).

Table 4.1: Artifacts at Maritimes Meadowood Early Woodland Sites.

	Tozer	Wilson/HM/H**	Mud Lake Stream	St Croix	Rafter Lake	BaDd-4	El Weir VI
Proj. points (Pp)--side-notched		X	X	X	X	X	X
Pp--corner-notched		X					
Pp--stemmed	X						
Pp--bone			X				

Birdstone						X	
Unifacial Scrapers			X			X	
Bifacial Scrapers		X				X	
Pottery--Vinette 1			X	X	X		
Pottery--Non Vinette 1				X			
Abrading Stone-Grooved						X	
Spokeshave						X	
Celts (adzes)						X	
Drills--side-notched		X					
Graver						X	
Bone-awls		X?					
Caches Implement						X?	
Fragmentary-non usable artifacts						X	
Strike-a-lights						X?	
Hammerstones						X	
Cache Blades/fragments	X	X	X			X	
Copper Awl	X					X	
Copper--flat pieces						X	
Gorgets	X		X			X	
Biface Blade/Knife	X		X				
Crude Bifaces			X			X	
Bipolar Cores						X	
Pestles						X	
Total Diversity	5	6	8	3	2	19	1

**Wilson/Hogan Mullin/Howe

Chipped stone tools are represented by stemmed bifaces, otherwise known as projectile points. These points are finely

made and characterized by narrow to sometimes wide side-notches. Also characteristic of Meadowood in the Maritimes are side-notched points with rectangular or square bases. This boxed base projectile point style is also known from Meadowood sites in Quebec (Levesque et al. 1964: 53, plate 11; Clermont and Chapdelaine 1982: 60, plate 18), and New York (Granger 1978: 393, plate 16; Ritchie 1944: 62, plate 75; Ritchie 1969: 186, plate 64). Typically thin, these bifaces are considered by some researchers to be the first arrowheads used by native cultures in the Northeast (Wright 1994).

Other chipped stone tools are represented by well made non-stemmed bifaces. This tool type is also known as the cache blade, mortuary blade, quaternary blank and preform. In some assemblages, these are similar in size and may vary in others. Some cache blades are extremely small, whereas others are large in size. Generally thin, most of these blades are very exquisite and finely made while some are fairly crude. Bases are typically straight to convex and lateral edges are slightly convex. Although most specimens are biconvex in cross-section, some are plano-convex.

Formed unifaces, or scrapers, come in a variety of shapes; including oval, rectangular and triangular, and they are typically small. Some scrapers may be of the thumbnail variety. Unifacial endscrapers predominate in some collections although side scrapers are also present. Double end scrapers are also present at one Meadowood site. There

are a number of uncommon artifact forms that occur at one or a few sites. A well-made, side-notched or hafted drill was found at the Wilson site. Bipolar cores were among the artifact assemblage at BaDd-4. Knives may be represented by retouched/utilized flakes. In addition, some bifaces have serrated margins which may indicate their probable use as prehistoric saws.

Ground stone tools from this period include pecked, polished and ground stone celts (i.e., adzes or axes). While most specimens appear to have been used, the bit end on one adze is finely polished and has a sharp working edge suggesting the artifact was not utilized. Pecked and polished pop-eyed birdstones are distinctive of Meadowood material culture. Bar type birdstones are also present in the Maritimes.

One- and two-hole slate gorgets are present on several Meadowood sites. Shapes include trapezoidal and rectangular with excurvate edges. Tangs are found on the ends of some gorgets and incised lines are located on the ventral aspects of a number of specimens (Tozer and BaDd-4). Two gorgets from burial contexts found in a highly fragmented state indicates that these artifacts may have been subject to a cremation fire. On the other hand, entire gorgets were recovered from burial contexts at BaDd-4. An abrader was present at BaDd-4, which may have been part of a gorget broken during manufacture.

Grinding implements such as pestles or mullers have also been recovered. These elongated implements have a rounded end that exhibits peck marks. The presence of a red substance in the pecked area hints that these tools may have been responsible for grinding red ochre. Unpitted pebble hammerstones are also found on Early Woodland sites. Wear was located on just about every possible edge on the specimens from BaDd-4.

Meadowood Early Woodland Pottery

Early Woodland pottery is known throughout the Northeast as Vinette 1, and are associated with Ceramic Period 1 (C.P.1) of Petersen and Sanger's (1991) ceramic sequence for Maine and the Maritimes. This pottery is fabric-impressed, coil-constructed, pointy-based, elongated and conoidal-shaped. First identified in New York by Ritchie and MacNeish (1949), Vinette 1 may have originally developed in the Middle Atlantic region (Custer 1987). Vinette 1 vessels have not been recovered in large numbers in the Maritimes. Nevertheless, this early pottery has been found at Mud Lake Stream in New Brunswick, and St. Croix, Rafter Lake, Gaspereau Lake and Melanson in Nova Scotia (Kristmanson and Deal 1993). Much of this pottery consists of small coil fragments.

Recent research indicates that Vinette 1 may not be the only pottery utilized by Early Woodland populations in the Maritimes. Investigations by Archaeological Services in New

Brunswick have recovered plain, undecorated pottery from the basal layers of the Augustine Mound and Oxbow sites. Pseudo-scallop shell and dentate stamped ceramics dated to 2640 B.P. also came from Oxbow (Allen 1980) and a pseudo-scallop shell vessel was dated to Early Woodland times at St. Croix (Deal et al. 1995).

Meadowood Early Woodland Copper Artifacts

Copper artifacts consist primarily of awls. These awls were originally square shaped in cross-section, elongated and thin. Unlike some sites in the Great Lakes region (e.g., Ritchie 1969; Williamson 1980), no hafting materials were present on awls from the Maritimes. Two flattish copper pieces of unknown function were recovered from BaDd-4. The origin of native copper to formulate these artifacts is currently unknown. The five likely copper sources are Michigan, New Jersey, Seal Lake, Labrador, Fox Island, Newfoundland and Cap d'Or, Nova Scotia (Monahan 1990: 12). Monahan (1990: 12) suggests that copper artifacts from sites associated with long distance trade networks, that occurred in North America from Late Archaic through Middle Woodland times, are more likely to be made out of Lake Superior/Michigan copper than local sources. A lack of debris from tool manufacture at Cap d'Or may further indicate that that location was not exploited during prehistoric times (Wright 1994: 63). Although Wright (1994: 63) maintains that the

technical know how for making tools of native copper did not exist east of the Ottawa Valley, the premise that copper was exploited locally cannot be totally rejected without a trace element analysis of copper artifacts and sources from the Maritimes.

Meadowood Early Woodland Bone Artifacts

The single bone artifact attributable to Meadowood is a calcined bone point with two barbs recovered from Mud Lake Stream (Deal 1985).

Meadowood Early Woodland Raw Material Usage

The primary raw materials utilized by Early Woodland Meadowood populations were from local sources. In New Brunswick, the majority of Meadowood Early Woodland materials in the Northwest Miramichi area is of local rhyolites (Allen 1982). Likewise, Early Woodland lithics were manufactured primarily of regional cherts, some with a chalky surface due to patination. The same is true in Nova Scotia where well over 90% of the collection from BaDd-4 was of local slates, chalcedonies, jaspers and felsites. In addition, some Meadowood artifacts were made of quartz, the most popular raw material used during the Middle and Late Woodland periods. However, exotic materials are present on Maritimes Meadowood sites. A few artifacts from BaDd-4 may be of Onondaga chert. The large, side-notched Meadowood projectile point from St.

Croix is thought be of Mistassini chert from Quebec.

Early Woodland Timeline

With regards to a timeline for Meadowood sites in the Maritimes, we have only four dates. Based on these uncalibrated dates Meadowood traits existed in the region from 2750 B.P. to around 2470 B.P. If the standard error is considered, this artifact type was present in the Maritimes from 2830 B.P. to 2360 B.P., a period extending for almost 500 years. Using calibrated dates (see Table 3.2; also see Stuiver and Becker 1986) at the one sigma level, Meadowood occupation in the Maritimes ranges from 2955 to 2469 B.P., also a 500 year time-span.

Most uncalibrated Middlesex dates suggest an occupation after 2400 B.P. However, some anomalies exist. One organic sample from the Augustine Mound was dated to 2950 B.P. and a collection of Middlesex-like artifacts from the Gaugenn site was dated to 2890 B.P. In addition, six Middlesex dates overlap with Meadowood when the upper range of the standard deviation is taken into account. The range of non-calibrated dates indicates that the chronological relationship between Meadowood and Middlesex is indefinite at present and may not become apparent until more radiocarbon assays are completed in the future. Although calibrated dates place Middlesex later than Meadowood, the two dates from Augustine Mound and Gaugenn are too early to be Middlesex. However, because Meadowood is

considered older and distinct from Middlesex in other parts of the Northeast, Meadowood and Middlesex are regarded here as separate cultural entities. In addition, calibrated dates from the Oxbow and Partridge Island sites ranging from 2785 to 2349 B.P. suggest the presence of an indigenous population during the Early Woodland.

Meadowood: An Exploration of Explanatory Mechanisms

Artifacts found out of place, intrusive to a specific geographic area, are an enigma to archaeologists. Researchers have attributed the presence of material culture to explanatory mechanisms such as in situ development, diffusion or migration. For the last half century migration hypotheses have, for the most part, been discounted by archaeologists in favour of in situ models of cultural development (Snow 1995). However, in accordance with the ongoing trend towards accepting population movements as a viable explanatory mechanism in prehistoric archaeology (Rouse 1986; Anthony 1990; Snow 1994, 1995), this account of the presence of Meadowood style artifacts and sites in the Maritimes will assess the integrity of a migration model.

Almost 40 years ago Irving Rouse (1958) outlined five ways of identifying migrations in the archaeological record. The five procedures are:

1. Identify the migrating people as an intrusive unit in the region it has penetrated,

2. Trace this unit back to its homeland,

3. Determine that all occurences of the unit are contemporaneous,

4. Establish the existence of favorable conditions for migration,

5. Demonstrate that some other hypothesis, such as independent invention or diffusion of traits, does not better fit the facts of the situation (Rouse 1958).

Sanger (1975: 73) has since added a sixth method of recognizing migrations:

6. Establish the presence of all cultural subsystems and not an isolated one such as the mortuary subsystem.

Each of these criteria for migration will be applied to the Early Woodland sites bearing Meadowood-like artifacts in the Maritime Provinces.

1. There is no doubt that Meadowood artifacts are intrusive to the Maritime Provinces. Unlike other areas such as southern Ontario where there is a "stylistically evident predecessor" to Meadowood (Fox and Williamson 1989: 10), this does not appear to be the case for Nova Scotia or New Brunswick. For instance, Allen's (1980: 143) Woodland projectile point sequence from the Oxbow site does not include side- or corner-notched points until 1600 B.P. Similarly, side- and corner-notched points from southwestern New Brunswick arise around 1000 B.P. (Rutherford 1991: 106). Prior to the Middle and Late Woodland periods, narrow to

contracting stemmed points are the norm (Allen 1980; Rutherford 1991). Meadowood style artifacts such as side-notched projectile points, cache blades, gorgets, birdstones and copper awls are not present in the Maritimes until the Early Woodland period.

A riverine/lacustrine settlement pattern likely used by Meadowood Early Woodland populations has no precedent in the Maritimes with the exception of the Laurentian Archaic whose influence on later cultural development is thought to be insignficant (Tuck 1991: 57). Meadowood sites are found at interior rivers and lakes, with the exception of BaDd-4. Maritime Archaic, or Moorehead phase, living sites are located on the coastal areas of Maine where they subsisted primarily on marine resources. Susquehanna tradition subsistence appears to be more generalized than Maritime Archaic and not as marine oriented (Tuck 1991). Susquehanna tradition sites are situated on the coast and in the interior. Although some researchers (e.g., Rutherford 1989, 1990b) have attempted to bridge the gap between the Late Archaic and Early Woodland, it is still largely unknown which tradition, or both, are the ancestors of the later occupants.

After an absence of almost 600 years, red ochre cremation burials appear once again in the Maritimes around 2800 B.P. (Rutherford 1990a) associated with Meadowood materials rather than Susquehanna. Three general suggestions for burial ceremonialism in the Northeast are environmental stress (Tuck

1978), increasing population and the onset of warfare/disease (Rutherford 1990a). With regards to Meadowood, we are without evidence to indicate that any of these proposals account for the reappearance of burial ceremonialism during the Early Woodland.

2. The homeland of Meadowood groups is situated in northwestern New York and southern Ontario. The greatest concentration of sites and the outcrops of Onondaga chert are located in these areas.

3. It appears that all occurences of this manifestation are contemporaneous. The mean of uncalibrated radiocarbon dates for Meadowood Early Woodland sites in the Maritimes is 2585 B.P. and the mean for Ontario is 2566 B.P., 2762 B.P. for New York, 2685 B.P. for Quebec and 2541 B.P. for New England.

4. With regards to establishing favourable conditions for a migration, palynological research suggests the period extending from 3400 to 200 B.P. was an age of closed temperate hardwood-hemlock forests (Bradstreet and Davis 1975: 17; Mott 1975: 286). This forest type includes a region encompassing southern Ontario and the Upper St. Lawrence River through to the Maritimes (Bradstreet and Davis 1975: 15, figure 6). However, it does not include New York State and parts of New England which is believed to be in the southern Appalachian oak and oak-hickory-pine forest zone (Bradstreet and Davis 1975).

From the data presented, it appears as though the

conditions may have been favourable for a migration from southern Ontario to the Maritimes. Indeed, other researchers have suggested that the geographic extension of the Lake Forest biome from the northern Great Lakes region to the Maritimes would have facilitated an eastward population movement (Luckenbach, Clark and Levy 1987: 15).

For the purpose of simplicity, Sanger's sixth test of migration will be dealt with next followed by a discussion of other factors, such as diffusion or interaction, and in situ cultural development which may explain the presence of Meadowood materials in eastern Canada.

6. Unlike Middlesex, Meadowood is represented by much more than just a mortuary subsystem. Meadowood habitation sites are present as well as burial sites. Although artifacts and features are few in number, the location of sites suggests function which allows for the preliminary construction of a settlement/subsistence pattern. Thus far, cultural subsystems represented on Maritimes Meadowood sites include mortuary, technology, as well as a preliminary settlement and subsistence pattern.

5. This section will deal with the application of diffusion and in situ development models to Meadowood Early Woodland. The vast majority of archaeologists in the Northeast support a pattern of in situ development or some form of diffusion, whether that be exchange or interaction networks, to account for the presence of Meadowood materials and sites in their

respective areas (Granger 1978a, 1978b; Fox and Williamson 1989; Fox 1981, 1984b; Williamson 1988; Williamson and Fox 1989; Clermont 1990; Chretien 1992, 1995; Chalifoux and Burke 1995; Spence, Pihl and Murphy 1990). The presence of Meadowood materials and sites in the Maritime Provinces is still largely unknown in the Northeast. The presence of two collections of Meadowood-like cache blades, from BaDd-4 and Tozer, provides an interesting comparison with collections from New York, New England, Ontario and Quebec. To this end, a brief overview of Early Woodland exchange networks will be provided followed by a study of Maritime Early Woodland cache blades and how they apply to events in the Northeast.

As pointed out earlier, Granger (1978b) was the first investigator to propose a model of exchange in his analysis of settlement patterns of Meadowood groups in the Niagara River area of northwestern New York. In short, he suggests that Onondaga chert was collected by a small task group during the summer, brought back to the base camp during the late summer/early fall where it was made into formal cache blades and in turn, taken to a mortuary site in spring where a number of local bands would socially interact, exchange goods and bury their dead. If a surplus of cache blades was present, Granger (1978a) suggests that they were "retired" in the graves of the deceased in order to sustain the value of the commodity. Once the ceremonies were over, the local bands would disperse with a new supply of cache blades to exchange

with neighbouring partners who did not have access to outcrops of Onondaga chert. In other words, the manufacture and redistribution of cache blades is intertwined with the seasonal round of Meadowood groups.

While Loring (1985) is in general agreement with Granger's economic interpretation for Meadowood, he also suggests that the latter view overlooks the profoundly religious or ceremonial significance of Early Woodland burial practices. Economy and religious significance are closely related (Loring 1985: 106). Aggregations at ceremonial sites not only reaffirm group identity but also allows the transmission of ideas and materials. Since a sedentary way of life seemed to be developing in northwestern New York, expanding use of regional resources and the reduction in access to these resources by territorial boundaries may signify specialization in obtaining, manufacturing and circulating these goods (Loring 1985). In order for these things to be accomplished, advanced sociopolitical mechanisms had to be in place to distribute the cache blades to peripheral areas.

Yves Chretien (1995) has recently introduced a four level "Meadowood Interaction Sphere" model. The following is a summary of this model. The first level of participation includes the main region of distribution of Meadowood artifacts, namely, the area around Lake Erie and Lake Ontario. The latter groups are those in regular contact who do not have

access to Onondaga chert sources. The chert acquired at this level is in rough form which may reduce the chance of having specialized flintknappers as group members. The second level of participation includes more than one intermediary and starts approximately where the St. Lawrence River leaves Lake Ontario. Onondaga chert was readily available to those groups situated on the St. Lawrence, such as the Early Woodland population at Pointe-du-Buisson near Montreal, and chert may have arrived in large, rough form. It appears as though Meadowood influence was strong as artifacts are similar to those in New York. The third level of participation is signified by a decrease in the level of influence and the distance of sites from the core area. Tools of Onondaga chert arrive in a finished form and when present, flakes are minute. Since the number of Meadowood artifacts decreases, although tools are more apt to have a double function in a domestic and ideological sense, their main function appears to be essentially ideological. Since local people are making their own style of domestic artifacts they may be recognized as a distinct cultural identity.

The fourth level of participation concerns groups on the periphery that are in contact with level three groups. These far outlying groups rarely acquire Onondaga chert tools and as a result, raw material is not as influential as artifact form. Meadowood sites at Quebec areas such as Temiscouata, Lake St. John, Outardes River, and Abitibi may be classified in a

similar fashion. The Early Woodland populations in these regions were making Meadowood-like tools out of local materials. Therefore, at this level, it is primarily ideas that arrive at the periphery rather than actual artifacts. Influence from the west is also strong enough to encite small scale production of cache blades used in funeral ceremonies as offerings.

Many Meadowood researchers view the cache blade as the most diagnostic Meadowood artifact (Granger 1981; Fox and Williamson 1989; Williamson 1988). Studies of Meadowood cache blades from southern Ontario (Fox 1981, 1984b; Williamson 1988; Fox and Williamson 1989; Williamson and Fox 1989), New York (Granger 1981) and Quebec (Chretien 1995) suggest the presence of semi-specialized craftsmen in Meadowood culture. Chretien's investigation has identified a cluster of sites with blades that are nearly identical with respect to length and width. In a sample of cache blades from 25 Meadowood sites throughout the Northeast, the blades from 16 sites fall between 25-29 mm wide and 50-65 mm long (Chretien 1995: 191). The blades from the 9 remaining sites are outliers. In similar studies, collections that are markedly different from the norm may have been made by a knapper with less skill (Williamson 1988: 11) or may indicate a temporal divergence (Fox 1984b: 8). Similarly, Chretien (1995: 192) explains disparate cache blade assemblages by arguing that they were made by different craftsmen.

Meadowood Early Woodland sites in the Maritimes have yielded two assemblages of cache blades. The data for the Tozer and BaDd-4 blades are presented in table 4.2.

Table 4.2: Meadowood Cache Blade Metrics from Maritime Sites.

Site	Length (mm)	SD.	Width	SD.	Thickness	SD.
Tozer (17)	81.01	12.68	27.12	2.52	7.20	0.48
BaDd-4 (12)	62.92	34.29	25.75	10.08	7.17	2.25
BaDd-4 (3)	119	10.44	42	4.36	10.67	1.15
BaDd-4 (9)	44.22	4.12	20.33	1.73	6	0.71

Compared with other Meadowood Early Woodland cache blade assemblages (see table 4.3 and figure 4.1), the Tozer blades are highly divergent and those from BaDd-4, at a glance, appear to be similar to the "Meadowood norm". While the Tozer sample is similar to others in width, the blades are longer than the Nanticoke assemblage from southern Ontario, making the Tozer blades the longest on record for Meadowood. The BaDd-4 assemblage may be subdivided into two parts; large blades and small blades (see table 4.2). These data are presented underneath the average or mean calculations for the 12 blades. The average length of the 3 large blades is 119 mm while 44 mm is the mean length of the 9 small blades.

Therefore, a standard deviation of 34.29 on the average length for all the blades clearly indicates that these blades are not within the typical parameters for Meadowood cache blades (see Granger 1981). In addition, the average width of the 12 blades from BaDd-4 has a high standard deviation score of 10.08 and mean widths of the large and small blades are highly divergent from the cluster.

Table 4.3: Meadowood Cache Blade Data.

No.	Site (N)	Lgth (mm)	Wid (mm)	Reference
1	Moerschfelder (28)	61.9	25.8	Fox 1984b
2	Cashbrown (9)(13)	58.1	26.8	Williamson 1988
3	Bruce Boyd (21)	56.4	25.7	Fox 1984b
4	Barber (11)	64.5	26.3	Fox 1984b
5	Liahn (37)	68.5	29.4	Fox 1984b
6	Thedford (128)	61.5	28.8	Fox 1984b
7	Hoover (38)	62.1	27.3	Fox 1984b
8	Nanticoke (9)	80	27.6	Williamson 1988
9	Sinking Ponds (17)	57.5	25.4	Granger 1981
10	Riverhaven II (76)	41	23.5	Granger 1981
11	Scaccia (9)	48.4	24.9	Granger 1981
12	Morrow (42)	53	28.1	Granger 1981
13	Oberlander II (72)	57.2	27.3	Granger 1981
14	Buffalo G (18)	62.3	25.2	Granger 1981
15	Muskalonge Lake (131)	71.7	29.9	Ritchie 1955

16	Hunter (48)	57.6	28.6	Ritchie 1955
17	Nahrwold II (7)	53.1	26.6	Granger 1981
18	Vinette (12)	59.3	23.1	Granger 1981
19	Irondequoit Bay (22)	67.8	26.2	Granger 1981
20	Rene Menard (33)	54.2	26.4	Granger 1981
21	Seward (31)	75.7	28.1	Granger 1981
22	Nine Mile Swamp (15)	49.3	23.8	Granger 1981
23	Macauley Complex (36)	59.8	25.1	Granger 1981
24	Smith Brook (499)	55.6	25.4	Chretien 1995
25	Pointe-du-Buisson 4 (11)	57	29.3	Clermont and Chapdelaine 1982
26	Pointe-du-Buisson 5 (21)	57.6	28.8	Clermont 1978
27	Lambert/St. Nicolas (106)	60.7	27.2	Chretien 1995
28	James Bay (48)	55.7	25.1	Chretien 1995
29	Hodges	37.9	19.6	Binford 1963a
30	Eastport	51.1	24.1	Binford and Papworth 1963
31	Pomranky	41.6	22.3	Binford 1963b
32	Tozer (17)	81.01	27.12	Allen 1982
33	BaDd-4 (12)	62.92	25.75	

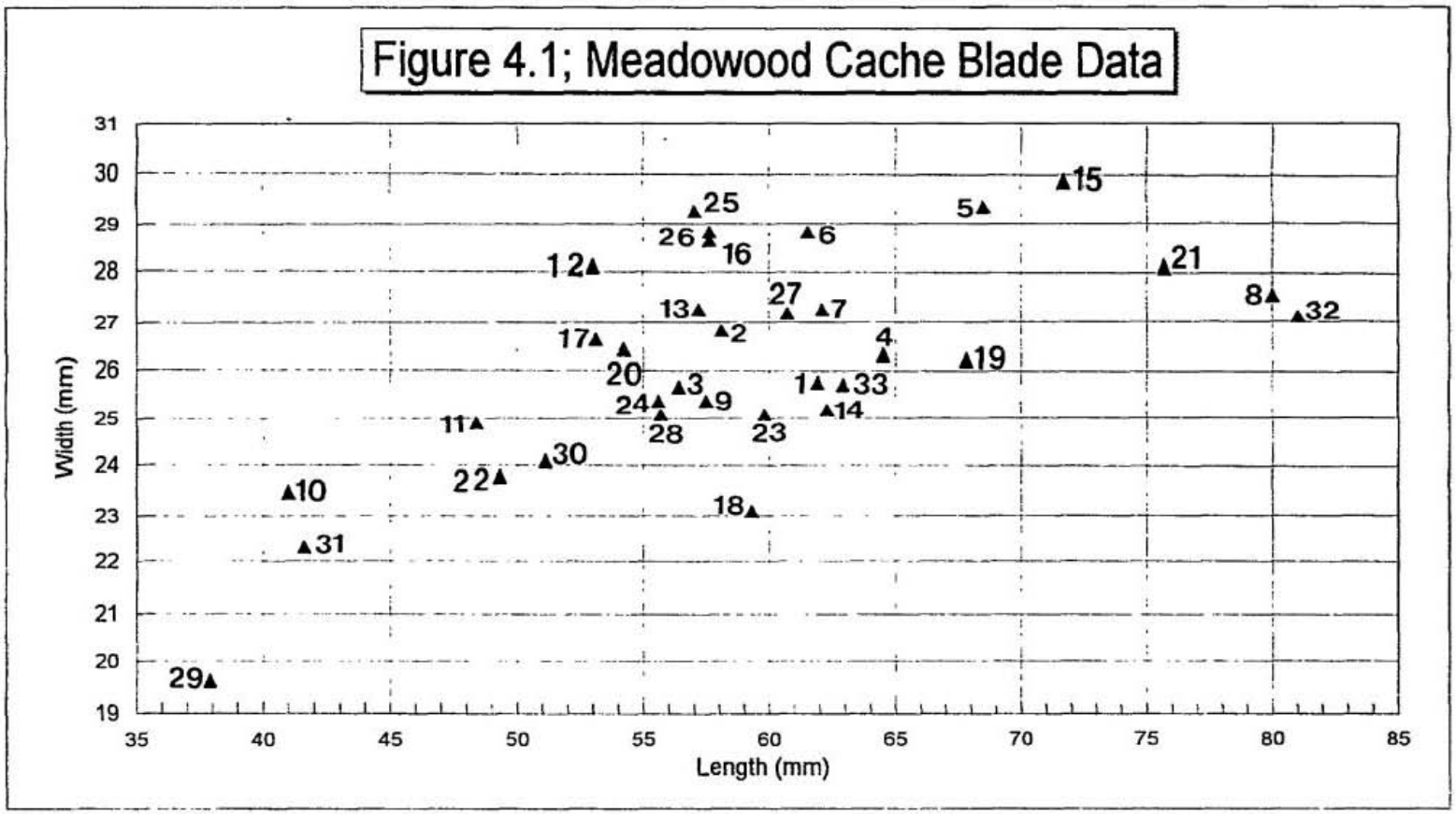


Figure 4.1; Meadowood Cache Blade Data
Width (mm)
Length (mm)
31
30
29
28
27
26
25
24
23
22
21
20
19
35
40
45
50
55
60
65
70
75
80
85
25
26
16
6
15
5
12
21
27
8
32
13
7
2
17
4
20
19
3
1
33
24
9
14
11
28
23
30
22
10
18
31
29

A number of reasons may account for the heterogeneity of Maritimes cache blades. First, perhaps the only Meadowood groups with craft specialists were those situated close to Onondaga chert outcrops. Craftsmen undoubtedly had specific abilities and differential production standards. In fact, Chretien (1995) has proposed that semi-specialist cache blade producers were part of the social structure of Meadowood culture and society. Possibly the groups in New Brunswick and Nova Scotia may not have been as proficient at producing cache blades because tool making was not as specialized. Second, the raw materials utilized may not have the same qualities that allow for the fine percussion and pressure flaking techniques employed in southern Ontario and New York State. Third, accurate information about the production of cache blades may not have arrived in the Maritimes due to remoteness from the Great Lakes region. Fourth, perhaps the size of cache blades was less important than form (M. Deal, personal communication 1996).

Chretien's concept of an interaction sphere for Meadowood is intriguing and his level four appears to be a viable explanation for the presence of Meadowood materials in eastern Canada. Not only are Meadowood sites in the Maritimes on the periphery of Granger's core area, but Meadowood-like artifacts are typically manufactured out of local materials, the probable exceptions being projectile points from St. Croix and BaDd-4. Also, the cache blades from BaDd-4 and Tozer

represent some of the only cache blades in the Maritimes which were recovered in ceremonial contexts. Therefore, to some degree, the fourth level of participation in the Meadowood interaction sphere seems applicable to the Maritimes Early Woodland.

Unfortunately, the Meadowood interaction sphere model does not account for the discontinuities in technology, settlement and subsistence patterns and mortuary ceremonialism discussed earlier. If the Meadowood interaction sphere was the only mechanism by which materials were coming to the Maritimes, archaeologists should be finding stemmed Early Woodland projectile points in direct association with "intrusive" Meadowood materials. Thus far, there has been virtually no mixing of Meadowood and other Early Woodland components at sites, with the exception of a Late Archaic stemmed projectile point with the cache blades at the Tozer site (Wintemberg 1937; Allen 1982, 1983).

The data presented so far seem to indicate that a migration hypothesis may be useful in accounting for the presence of Meadowood in the Maritimes. Rouse's first four criteria seem to fit the evidence for a migration of Meadowood into the Maritimes. With regards to Rouse's fifth criterion, an hypothesis of <u>in situ</u> development is not convincing because of the discontinuities presented. Nevertheless, diffusionary arguments like the Meadowood interaction sphere concept are convincing, but alone may not totally account for the presence

of Meadowood materials. The Maritimes Meadowood data have also met Sanger's additional criteria.

Another line of evidence yet to be considered is linguistics. Studies by historical linguists may also be useful for interpreting archaeological data (Rouse 1986; Sutton 1991). Although some archaeologists (e.g. Bourque 1995: 258) recommend that historical linguistics be left out of archaeological interpretation due to its highly speculative nature, in this thesis linguistic data will "...be weighed as a single facet of a diverse evidential base..." (Luckenbach, Clark and Levy 1987: 25).

The main language spoken by Native groups in the Maritimes at the time of Contact was Eastern Algonquian; represented by Micmac and Maliseet languages. The origin of Eastern Algonquian is unknown. A number of archaeologists cite a Late Archaic origin for Algonquian. Sanger (1975: 73), and Turnbull and Allen (1988: 254) believe the Eastern Algonquian groups present today arrived with the migration of Susquehanna populations from the middle Atlantic region, Seeber (1982) suggests the Laurentian tradition and Snow (1980: 233) proposes that his Lake Forest (Laurentian), Maritime Archaic, and Mast Forest (Susquehanna) adaptations all may have spoken Algonquian. Biogeographical research suggests a Palaeo-Indian origin for Algonquian language as speakers south of the ice mass during Wisconsin glacial maximum may have migrated north as the glacier receded (Rogers

1985; Rogers et al. 1990).

Alternatively, historical linguists argue that Algonquian languages arrived in the Maritime Provinces during the Woodland period. Based on vocabulary reconstruction and glottochronology, Stuart Fiedel (1987; 1991: 12, 19) suggests Eastern and Central Algonquian diverged from Proto-Algonquian between 600 B.C. and A.D. 700. His glottochronological analysis indicates that Micmac is "exceptionally divergent" from other Algonquian languages suggesting an early split from the Proto-Algonquian ancestral community (Fiedel 1991: 20). Two patterns of linguistic dispersal are proposed. An initial wave may have occurred between 1100 B.C. and 220 B.C. and a second wave happened sometime between 150 B.C. and A.D. 700. The three most plausible Proto-Algonquian cultures are Meadowood, Adena and Point Peninsula. However, Fiedel (1991) believes Point Peninsula best fits the picture.

A separate glottochronological analysis by Luckenbach, Clark and Levy (1987: 10) also indicates that Micmac may be older than other Algonquian language divisions with a suggested divergence date of 943 B.C. Under this hypothesis, the proto-Algonquian population diverged from the ancestral homeland of southern Ontario by 1200 B.C. and expanded eastward as Proto-Eastern Algonquians by 900 B.C. The archaeological manifestation responsible for this expansion may have been migrating Meadowood and/or Middlesex groups (Luckenbach, Clark and Levy 1987: 20).

However, one linguist proposes that Algonquian was spread by language switching in resident populations (Denny 1989, 1991). According to Denny (1991:5), Proto-Algonquian language was transmitted east with Middlesex ceremonialism to the North Beach tradition people (700 B.C.-A.D. 1) by diffusionary influences. Algonquian language was then spread to the Maritimes by North Beach populations, who are believed to be the Proto-Eastern Algonquians (Denny 1991: 5). This model of Algonquian expansion is in accord with the already existing in situ hypotheses of cultural development in the Great Lakes region.

The evidence presented so far, then, including the Rouse/Sanger criteria for a migration and linguistic data, suggests Meadowood groups from the west may have migrated to the Maritime Provinces and resided beside indigenous populations who were using stemmed projectile points. Allen (1980: 141) has already proposed an eastward migration of Meadowood groups which were then assimilated by locally evolving Late Archaic groups. Whether or not Meadowood groups were easily influenced by indigenous populations is a matter of speculation but has interesting ramifications for concepts directly associated with human movements. According to Rouse (1986: 176), a population movement occurs when a migrating group enters an area and displaces or absorbs the indigenous population whereas immigration happens when small groups move into an already occupied area and are assimilated by Native

inhabitants. Perhaps residing close to the core area was too competitive for some Meadowood groups, and obtaining Onondaga chert too costly, so they left their home region to find a less heavily populated area where control over lithic resources was not as intense. It has been suggested that an increasing population during the Early Woodland period in the Great Lakes region may have experienced demographic packing pressure (Spence et al. 1990: 137; Loring 1985: 103). Undoubtedly, the increase in population and resulting territorial boundaries was a source of anxiety for some groups. However this may not have been the case for all Meadowood groups, particularly those with control of Onondaga chert outcrops and exchange networks.

There are a number of possible routes by which Meadowood influences made their way into the Maritimes. The most obvious means of entry is the St. Lawrence River system where smaller outbranching rivers connect with other major waterways such as the Saint John River and Miramichi River systems. Further, Meadowood influences may have travelled through the interior forests of northern New England and across the Gulf of Maine to southwestern Nova Scotia. Collections from southwestern Nova Scotia (Davis and Sanger 1991; Sanger and Davis 1991; Sanger 1991b; Deal and Rutherford 1991) containing Late Archaic Susquehanna tradition artifacts suggest close ties with Maine. Artifacts at a number of Late Woodland sites in Maine are produced out of Nova Scotia raw materials

(Bourque 1994: 34; Bourque and Cox 1981: 16; Erskine 1960: 358; Spiess et al. 1983: 100). This should not be surprising as the distance from Mount Desert Island on the central Maine coast to Yarmouth is 160 km (Davis and Sanger 1991: 173-174). Evidence of watercraft in eastern North America goes back to the Late Archaic period (Brose and Greber 1982) and large ocean travelling canoes were in existence during the Contact period (Sanger 1991b: 59). The point is that there was contact between Native groups across the Bay of Fundy/Gulf of Maine from Late Archaic times onward. Undoubtedly, similar interactions during the Early Woodland period would have allowed Meadowood influences to enter Nova Scotia via the ocean. Another possibility is the interaction or movement of people around the Bay of Fundy to the Minas Basin area. In any case, it appears that Meadowood influences were restricted to southwestern Nova Scotia as Meadowood materials have yet to be recovered east of the Shubenacadie River.

The excavation of Middlesex mound burials and subsequent recovery of artifacts manufactured of exotic materials has convinced some archaeologists of a migration of Adena peoples from the Ohio Valley to the Maritimes (Allen 1980: 141; Keenlyside 1984a: 8). Rutherford (1990a) rejects the migration hypothesis because Adena habitation sites have not been found in the area. He argues the presence of a single cultural subsystem, such as mortuary ritual, cannot be accepted as confirmation of migration in itself (Rutherford

1990a: 173). Because of a lack of evidence, or by default, some investigators accept a diffusion model to account for the presence of Adena material culture and burial ceremonialism in the Maritimes (e.g., Rutherford 1990a; Turnbull 1976).

The viewpoint presented here does not accept migration as the only possible explanation for Meadowood materials in the Maritimes. During the Early Woodland, the existence of a pan-continental trade network cannot be ignored. There is no doubt that outside influences reached the Maritime Provinces by some type of diffusionary process such as exchange or an interaction sphere. It is possible that these explanatory mechanisms, interaction sphere and migration, were acting contemporaneously some of the time and independently at other times.

Other researchers facing similar difficulties in explaining the presence of intrusive materials in their particular regions have suggested a number of possible solutions. For instance, Petersen (1990: 37) suggests a combination of broad based social interaction networks, migration and trade to explain the presence of Saint Lawrence Iroquoian ceramics in northern New England during the Late Woodland. Likewise, Wright (1994: 49) envisions broad ranging seasonal rounds and "hand to hand transactions" to account for the presence of materials transported over long distances. Direct procurement is another possibility suggested by Wright (1994: 45; see Ellis et al. 1988: 15). Ericson and Baugh

(1994: 6) assert that an "alien" group moving into an already occupied region would require "resource entitlement", or some type of reciprocal exchange agreement, in order to exploit chert sources in the home group's territory. However, if the tightening of territorial boundaries was as severe as Loring (1985) suggests during the Early Woodland period, direct procurement of Onondaga chert by outlying groups may not have been possible.

The main difficulty in developing a more definitive explanation for Meadowood in the Maritimes, is a lack of evidence. At the present moment all we can say with any assurance is that Meadowood materials are present in the Maritime Provinces of New Brunswick and Nova Scotia. The lack of evidence is concentrated in three areas. First, it is unclear who the antecedents to Early Woodland populations in the Maritimes were. Because we know so little about the Transitional Archaic, we cannot say if Meadowood was an <u>in situ</u> development or not. According to the existing cultural sequence in the Maritimes, Meadowood materials and economic patterns do not appear to develop out of the Late Archaic. Second, we know very little about the indigenous Early Woodland population. The only concrete evidence available consists of a few artifact types, primarily projectile points and ceramics, and their geographic distribution (Allen 1981). The relationship between Meadowood and the indigenous Early Woodland population is unclear and restricts us from making

any definitive conclusions about how Meadowood made its way to the Maritimes and how this manifestation affected the original inhabitants. Third, like other areas (e.g. Loring 1985; Haviland and Power 1994), the majority of data on Meadowood come from mortuary sites. As a result, constructing a settlement pattern, or comparing it to Granger's model for New York, is extremely difficult.

To sum up, the archaeological and linguistic evidence suggests that small Meadowood groups possibly migrated to the Maritime Provinces during the Early Woodland period, carrying with them a preference for a riverine/lacustrine settlement and subsistence base, Meadowood material culture and religious ceremonialism. In addition, the pan-continental exchange network, or interaction network, rooted in the Late Archaic may also be partly responsible for the presence of Meadowood materials in the Maritimes.

CHAPTER 5

CONCLUSION

The purpose of this thesis was to identify and describe Early Woodland components, sites and surface finds in the Maritimes, define Meadowood for the Maritime Provinces and attempt to explain how Meadowood traits were transmitted to that area. Once thought to be solely a Great Lakes area manifestation, some recent and not so recent discoveries show that Meadowood extends far past Quebec and the New England States into the Maritime Provinces. Radiocarbon and thermoluminescence dates suggest that the Meadowood time-line ranges from 3000 to 2400 B.P. in the Maritimes.

A preliminary definition of Meadowood Early Woodland in the Maritimes is based on evidence of settlement and subsistence patterning and material culture. Site locations on terraces beside major river systems and faunal assemblages indicate a settlement/subsistence pattern highly dependent on anadromous and catadromous fish species during fall and winter. Mortuary sites may be found at nearby inland locations or on the coast. Meadowood material culture is represented by an artifact inventory similar to Great Lakes area Meadowood Early Woodland sites including, distinctive side-notched projectile points, cache blades, notched drills, formed unifaces produced of local raw materials, slate gorgets, birdstones, copper awls, pecked and polished celts and Vinette 1 pottery.

Granger's settlement model and site types devised for

Meadowood in northwestern New York were found to be unsuitable for the Maritimes. Thus far no other region has all the site types that accompany Granger's model. This may be attributed to a lack of intensive survey and excavation projects focussed on a discrete area such as the Niagara "Frontier" region. If Granger's settlement types exist in other areas, it may be true that "Only as various representatives of settlement types are excavated systematically can the settlement system be understood" (Granger 1978b: 3).

The second part of the thesis tries to explain how Meadowood traits entered the Maritimes. The principle method utilized was Rouse's (1958) five criteria for identifying migrations in the archaeological record. While it is possible that a migration may indeed have occured, we do not have enough evidence to discount a diffusion (i.e. interaction sphere) hypothesis. While Rouse's migration criteria apply to some of the evidence, they do not preclude other possible scenarios such as exchange or interaction.

Based on the currently available evidence, it is not possible to identify one single mechanism that adequately explains how Meadowood was transferred to eastern Canada. Instead, it is suggested here that an eastward population movement and an interaction sphere, spreading ideas and chert resources, may have been operating simultaneously.

Finally, there are a number of reasons why the analysis is limited in that more explicit conclusions have not been

forwarded. First, the short history of professional archaeology in the Maritimes has inevitably resulted in the neglect of certain time-periods. For instance, the Late Archaic/Early Woodland interface and non-Middlesex Early Woodland are examples. Although, the only bona fide Meadowood components are found on mortuary sites, finds from habitation sites and spotfinds indicate that Meadowood influence was strong indeed, especially in the Miramichi and St. Croix River areas and southwestern Nova Scotia. Second, the Maritime Provinces has not experienced urban development on the same scale as other parts of Canada. Increasing population has allowed archaeologists in some regions, such as the Greater Toronto area, to develop a secure cultural sequence through environmental assessment surveys and excavations. Third, Maritime coastal regions have been subject to geological processes such as erosion which have been dramatically reducing the number of archaeological sites.

Perhaps some solutions to these unanswered questions about the significance of Meadowood influence in Maritimes prehistory lie in the unexcavated portions of the Mud Lake Stream and St. Croix sites. The large number of Meadowood spotfinds in southwestern Nova Scotia hint that surveys of river systems, such as the Mersey and Medway, will locate a number of sites that may aid in our understanding of cultural dynamics during the Early Woodland period in the Maritime Provinces. Until these further steps are taken, our

understanding of the eastern vestiges of Meadowood will remain limited.

Appendix A

BaDd-4: A Preliminary Report

Introduction

The BaDd-4 site was discovered in May 1992 by an avocational archaeologist on the Medway River drainage, located around 150 kilometers west of Halifax in southwestern Nova Scotia (R. Whitelaw, personal communication 1995). The site represents one of the more significant early Early Woodland components yet discovered in the Maritimes. BaDd-4 has yielded more artifacts in situ, in addition to two features, than any other Early Woodland site in Nova Scotia, providing evidence that may partially fill in the chronological gap between the Late or Transitional Archaic and the Middle Woodland periods in Maritimes prehistory. The Medway River drainage is one of many areas in Nova Scotia that is little known archaeologically (Preston 1990). The importance of this site stresses the need for a systematic survey, or master plan, of archaeological resources throughout the Medway River area.

Natural History of the Medway River Area

In southwestern Nova Scotia, rock formations underlying glacial till consist of granite, quartzite, slate and schist. At BaDd-4, the underlying rock formation is quartzite (Cann and Hilchey 1959: 13, figure 5). Most of the Medway River drainage is classified in the Quartzite Headlands

geomorphological category (Simmons et al. 1984: 704-705) that extends along the Atlantic coastline from Long Harbour to Medway Harbour as well as in a section of Guysborough County. Surface drainage in the Quartzite Headlands is poor mainly because it is restricted by bedrock or compacted parent material. Glacial till deposits vary in thickness and are usually less than 3 meters deep with little coastal sediment present (Simmons et al. 1984: 705). Large areas are barren consisting of bog, with low relief due to burned out spots and hardpan (Simmons et al. 1984: 706). Due to a rocky landscape, numerous areas, particularly near the coast, are unsuitable for farming. The areas most suitable for agriculture are located inland, in the central region of southwestern Nova Scotia (e.g. Annapolis Valley). These areas are underlain by slate, on drumlins, where soils are deeper, less stony and better suited for water retention (Cann and Hilchey 1959: 11). In general, the topography around the Medway drainage ranges from long to undulating slopes (Cann and Hilchey 1959: 31).

The soil type found around the Medway drainage is an olive coloured sandy loam parent material called Danesville Sandy Loam (Cann and Hilchey 1959: 29). The gleyed ferro-humic podzol soils (Simmons et al. 1984: 187) are shallow and rocky. They are heavily mottled and highly acidic. Imperfect natural drainage is prevalent with Danesville soils (Cann and Hilchey 1959).

While Loucks (1962: 142) classified Nova Scotia's

Atlantic shore in the Spruce-Fir Coast Zone, Hosie (1969: 22) has placed the Canadian Maritimes, with the exception of northern New Brunswick, in the Acadian Forest Region. Forest cover consists of various species such as white spruce, black spruce, balsam fir (Loucks 1962: 142), larch, alders, maple, birch and poplar (Simmons et al. 1984: 706).

A cool and humid climate on the Atlantic coast; with many bogs and conifers; offers a suitable habitat for hare, lynx, red squirrel, moose, marten, beaver and deer mouse (Simmons et al. 1984: 255). Harbour seals are present along the Atlantic coast between Louisbourg and Shelburne. In particular, seals are located on inlets, islets and reefs (Simmons et al. 1984: 290) all year round except in winter when they migrate out into the ocean due to ice accumulations close to shore. Seals are mostly found around islands off the coast, such as those off Medway Harbour.

The three main river drainages in Queens county; namely the Broad, Medway and Mersey Rivers; have abundant fish resources. The Medway River is one of Nova Scotia's most productive salmon rivers. Other fish species present in the Medway River drainage are American eel and American shad. Located nearby is Blueberry Pond (Wagner's Lake) that contains speckled trout. Striped bass is also available in Medway Harbour and along the coastline. The Medway River is a canoe route utilized by outdoorsmen in modern times and undoubtedly by indigenous populations during the prehistoric era (Simmons

et al. 1984).

The shoreline between Liverpool and the Medway River is exceedingly rocky. Due to mild winters the mouth of the Medway is a significant wintering area for a number of bird species. This area is on the migration route for waterfowl and shorebirds. Species present include Canada geese, black duck, scaups, oldsquaw, common eider, loons, scoters and red breasted mergansers (Simmons et al. 1984: 707).

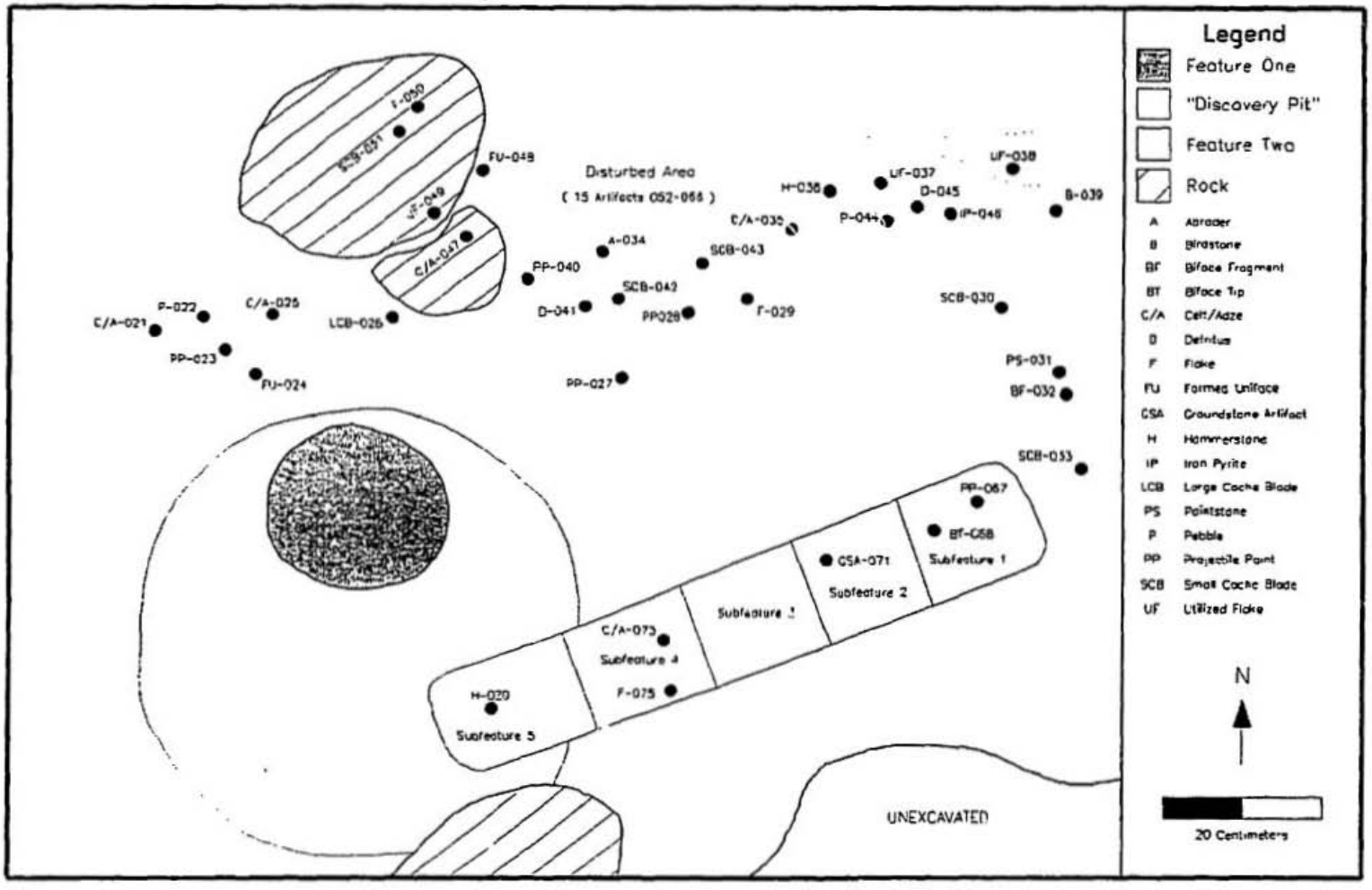
The BaDd-4 Site

During the spring of 1992, while digging a flower bed, a landowner discovered large collection of Early Woodland (ca. 3000-2000 B.P.) artifacts in a small area now believed to be a burial/cache. The site was carefully excavated with artifacts and features recorded on a plan map (see figure A.1). After learning of this find, Brian Preston, the Curator of History at the Nova Scotia Museum, and Stephen Davis, Saint Mary's University, promptly borrowed the collection. Preston and Davis test pitted the area immediately surrounding the flower bed but were unsuccessful in locating any other artifacts or features. In all likelihood, the entire site has been excavated.

According to Davis (personal communication, 1994), the area around the site has been landscaped for property development. However, the site is located on a 10-12 meter terrace that has not been disturbed. The site is surrounded

on three sides by water. There is a stream to the south, a brook to the north and the ocean is located just to the east of the site.

Figure A.1: BaDd-4: Plan View



Features

Two features have been identified at BaDd-4. Feature one is refered to by the excavator as the "discovery pile". This circular feature is approximately 20 cm long and 25 cm wide (see plate 12). The 22 artifacts within this feature were found in a tight cluster. The latter includes a copper awl and two thin pieces of copper, two trapezoidal gorgets, two large cache blade-like bifaces, two smaller cache blade-like bifaces, four side-notched projectile points, a crude biface, a large celt, three utilized flakes, a quartz core and three flakes (see plate 13). Most of the artifacts were covered with red ochre and it appears that none were burned. While no faunal or human remains were discovered, the excavator has collected two samples of black soil from the feature (R. Whitelaw, personal communication 1995). Palaeoethnobotanical analysis of the soil may reveal some floral remains which will allow speculation on the time of year this site was utilized. Although the soil is highly acidic, animal bones and cremated human remains may also be recovered.

Feature two was uncovered in the eastern portion of the "initial excavation unit" (refered to by the excavator). The excavator indicates that this feature is a line of flakes (or "chip heaps") approximately 76 cm long and 15 cm wide (see plate 14). This feature was arbitrarily divided into 5 units for excavation (R. Whitelaw, personal communication, 1995), which are refered to here as subfeatures 1-5. The majority of

artifacts are represented by chipped stone tools such as formed unifaces, utilized flakes and unutilized flakes. Like artifacts from feature one, the effects of thermal alteration, or potlidding, are not present. In stratigraphic terms, feature two is situated several centimeters below feature one and oriented towards the northeast. It appears to have been placed independently of feature one. After the line of artifacts was fully exposed, each subfeature was excavated layer by layer (i.e. after layer one was removed from subfeature 1, layer one would then be taken out of subfeature 2, and so on). The largest artifacts from the uppermost level of the subfeature were included in the plan map for the purpose of orientation. Although some of these artifacts (such as the hammerstone, H-020, in subfeature 5 [R. Whitelaw, personal communication 1995]) are stratigraphically above the line of artifacts, they are included in the tally of materials from the feature. The number of materials recovered from each section are highly variable (see Table A.1). For instance, subfeature 3 contained only nine artifacts while subfeatures 2 and 4, on either side, held 122 and 133 artifacts respectively. In total, 293 artifacts, or 82% of the entire assemblage were recovered from this feature. A number of artifacts in this feature were blanketed with red ochre.

Table A.1: Artifact types in Feature Two**

	SF1-15	SF2-122	SF3-9	SF4-133	SF5-14
Side-notched projectile points	2	1			
Cache Blades		1		2	
Biface Tips/Fragments	1	1		2	
Formed Unifaces	3	38	4	20	2
Utilized Flakes	1	16	1	16	1
Miscellaneous		1		4	
Unutilized Flakes	8	59	4	83	6
Detritus				2	1
Bipolar Cores		1		2	
Cores				1	
Iron Pyrite		3			1
Paintstones					1
Red Ochre					1
Celts				1	
Hammerstones					1
Ground Stone Artifact		1			

**SF1-15 is short for SubFeature 1, and there were 15 artifacts in that particular area

Located just north of feature two is an area that was likely disturbed during landscaping activities during the previous summer (see figure A.1; and plate 15). The fifteen artifacts recovered from this area were found at a higher level than those found nearby. The artifacts recovered

include a pebble, piece of red/brown conglomerate, red ochre, adze/celt, non-stemmed biface (cache blade), utilized flake, formed uniface, flake and two possible pestles, two biface tips and three side-notched stemmed bifaces. The sole artifact thought to have been found in situ was a utilized flake, discovered at the eastern end of this disturbed zone.

Raw Materials

Chipped stone artifacts at BaDd-4 are represented by a wide variety of raw materials (see Table A.2). Although most raw materials are indigenous to southwestern Nova Scotia, many may have originated from the Minas Basin area, approximately 140 km northeast of the Medway River. Around 15 percent of the artifacts were made from Halifax formation slate deposits that are found throughout the southwestern part of the Province including the Medway River area. Also present is a medium gray to black chert that is not indigenous to the area. This raw material is reminiscent of Onondaga chert from the Great Lakes region. The principal raw materials utilized by Early Woodland peoples at BaDd-4 will be described in the following section and their geographical distribution is illustrated in Figure A.2.

Table A.2: Raw Materials at BaDd-4.

Raw Material	Number of Artifacts	Percent (%)
North Mountain	100	30
Scots Bay Chert	48	15
HFS	37	11
HFS with magnetite	18	5
Rough Maroon Chert	21	6
Milky Quartz	20	6
Felsite	16	5
Jasper	16	5
Brown Chert	14	4
Quartzite-like	5	2
Onondaga (??)	5	2
Other	28	9
TOTALS	328	100

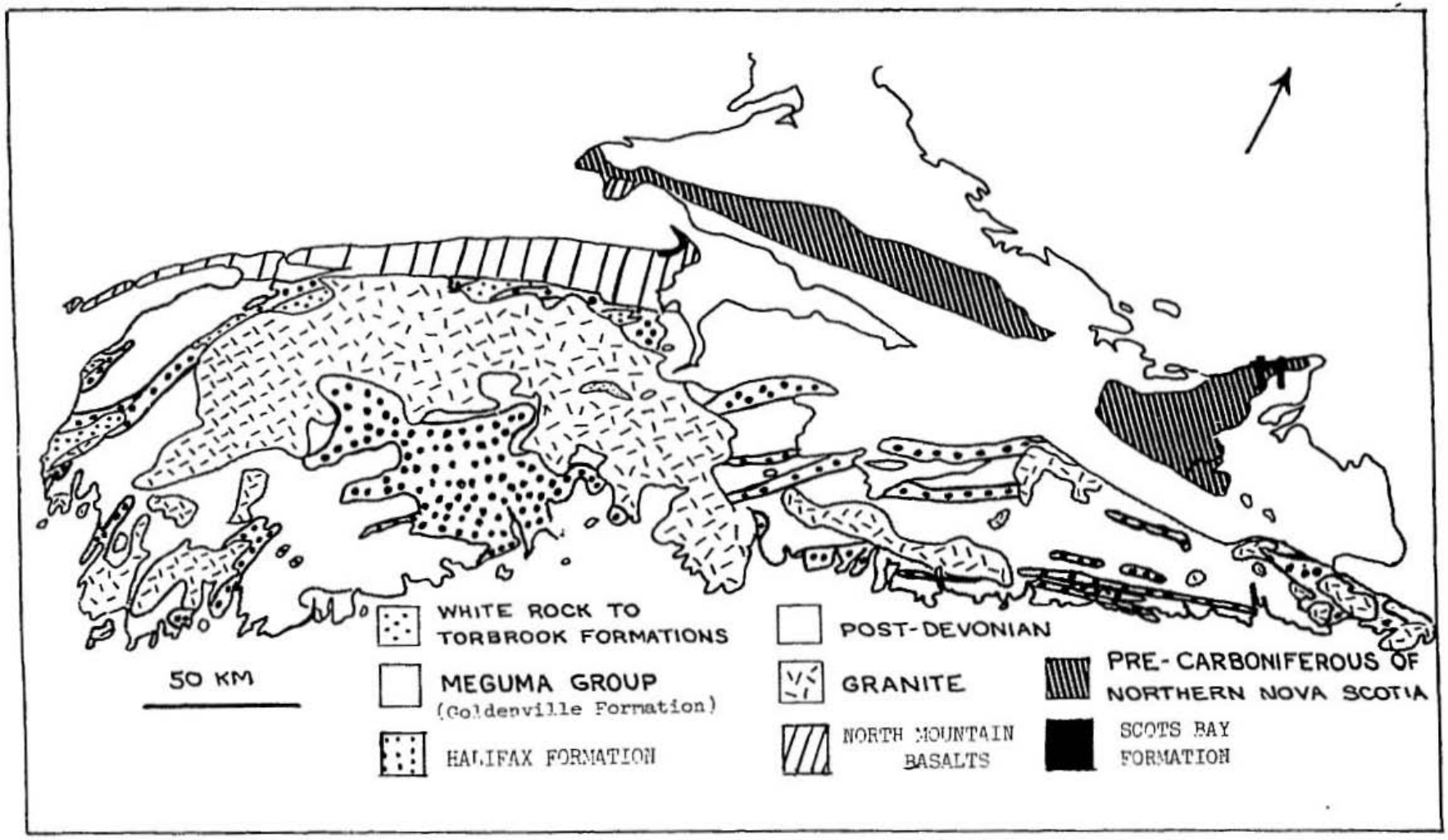


Figure A.2: Raw Material Distribution in Southwestern Nova Scotia

Halifax Formation Slate

The southern Upland physiographic region of southwestern Nova Scotia is made up of three rock types including granite, greywacke, and slate (Roland 1982: 161). Sedimentary strata, named the Meguma Group by geologists, are divided into two groups: the Goldenville and Halifax formations. While the former consists mainly of quartz rocks, the latter is mainly slate (Durstling and Mossman 1994: 38). These slates are found in a variety of colours including green, gray, bluish black and sometimes a rusty brown after weathering due to the presence of iron pyrites. Slate outcrops are most prevalent in Annapolis, Lunenberg and Queens Counties (Roland 1982: 163).

North Mountain Basalts

The North Mountain basalt belt extends from Cape Split, on the Minas Basin, along the Fundy shore to Digby Neck. These Mesozoic age basalts, characteristically dark gray to black igneous rocks, consist of vesicular cavities containing chalcedony, jasper, quartz and other secondary minerals (Dostal and Dupuy 1984: 246-247). A well known chert outcrop is located near Ross Creek where the material is a brownish-caramel colour (Deal n.d.b). The specimens from BaDd-4 have exposed a wide variety of North Mountain materials. One variety is a whitish to light beige material with some light pink speckles evenly distributed over the surface. A second

variety is similar to Ross Creek materials which are somewhat darker than the latter variety. A third type is a dark brown colour. In some instances, it was difficult, if not impossible, to differentiate between North Mountain and Scots Bay materials. Pinkish red speckles are present in both North Mountain and Scots Bay chalcedonies. Light pinkish coloured chert was virtually unclassifiable. In addition, tiny quartzite cavities, or inclusions were present in artifacts and nodules of both North Mountain and Scots Bay chalcedonies. It is not surprising, then, that some varieties of these raw materials are macroscopically similar because Scots Bay chalcedonies are derived from the North Mountain basalt formation (Sanger 1991b: 55). In order to distinguish North Mountain from Scots Bay materials heavy sampling of these chalcedonies from a number of outcrops is required to obtain their chemical signatures to compare with chemical signatures of artifacts. Instrumental Neutron Activation Analysis (INAA) chemically characterizes raw materials and artifacts so identification is attainable. For instance, Julig and others (1992) have distinguished three similar raw materials found on sites in northern Ontario that were at one time placed into a single category by default.

Scots Bay Chalcedony

Outcrops of Scots Bay Chalcedony are found along Scots Bay and Cape Split on the Blomidon Peninsula. Scots Bay

chalcedonies occur as replacement nodules in limestone/siltstone or are imbedded in limestone deposits. Nodules are found scattered on beaches of prominent coves (Deal n.d.b), and are typically red, reddish brown and brown in colour. Materials originating from bedded deposits are characteristically a blue-gray colour. Similar chalcedonies formed contemporaneous to those at Scots Bay are located on the other side of the Bay of Fundy at Cape D'Or and in the jasper deposits at Isle Haute (Deal n.d.b).

Whiterock Quartzite

The Whiterock formation is distinguished by quartz arenites and felsic volcanic rocks. Distributed unevenly in pockets from the Minas Basin area to Yarmouth, this late Ordovician to Middle Silurian formation consists of two layers of quartzite separated by black slate. Underneath lies the Halifax Formation. These quartzites are detached from the Bay of Fundy by North Mountain basalts (see Schenk and Lane 1982: 2). They have a grainy texture and range in colour from beige with red striations to maroon. Whiterock quartzites are primarily associated with Middle and Late Woodland sites in Nova Scotia. However, some of the ground stone tools from BaDd-4 may have been made from this raw material.

Onondaga Chert

This Middle Devonian age raw material is associated with

the Onondaga escarpment, a limestone body that underlies southwestern New York State, adjacent southern Ontario and northern Pennsylvania. Onondaga chert is most abundant in western New York and east of Syracuse (Jarvis 1990: 4). According to Wright (1994: 60), a recently discovered outcrop of Onondaga chert was quarried by prehistoric populations near Watertown, in northern New York, only 120 km from the St. Lawrence River. Onondaga chert occurs as nodules, and ranges in colour from light to dark gray, bluish gray, brown or black and is often mottled with a variety of these colours present. Often the patina, coloured yellow, buff and even pink in some cases is lighter than the chert. Surface lustre is dull to waxy in character. Although the chert is located in four members of the Onondaga formation, they are indistinguishable macroscopically (Eley and von Bitter 1989: 18; Jarvis 1990: 3).

Artifact Analysis

The artifact assemblage from BaDd-4 can be divided into two categories: chipped and ground stone tools. Present in the collection is a total of 357 artifacts, 328 of which are manufactured by percussion and pressure flaking techniques and the remaining 29 are ground, pecked and/or polished stone tools as well as native copper artifacts. The chipped stone tool category is divided into ten artifact types and the ground stone category into eight types.

Chipped Stone Tools

Stemmed Bifaces (see plate 16)

The collection consists of 14 stemmed bifaces, most of which were manufactured out of locally available slate, from the outcrops of the Halifax Formation (see figure A.2; or Durstling and Mossman 1994: 38). Some points made from Halifax Formation slate (HFS) have inclusions of magnetite present (HFSM) (Greg Morris, Saint Mary's University, Department of Geology, personal communication 1994). Of particular interest is one stemmed biface, of a light to medium gray chert that is exotic to southwestern Nova Scotia. The material is very similar in colour and texture to Onondaga chert from the Great Lakes region. This well made thin, side-notched projectile is almost identical to a specimen from the Bruce Boyd site in southern Ontario (see Spence et al. 1990: 130). Some of the specimens made out of slate are very similar in size to the one of Onondaga chert. In fact, it is possible that the population that left the points there were replicating the Onondaga point with their own local raw material.

Some of the stemmed bifaces are very well made. The Onondaga chert example is finely crafted, with symmetrical flaking and one blade edge displaying pronounced retouch appears to be in the process of being made into a cutting instrument. This is not surprising as Granger has aptly

demonstrated with his Meadowood lithic production sequence that formal tools are transformed into functional instruments (Granger 1978a,b; 1988). Pressure flaking along the lateral margins has produced a medial ridge along the longitudinal aspect; which is a trait of Meadowood cache blades and projectile points (Williamson 1988).

Basic metrics taken for the stemmed bifaces are summarized in Table A.3. The length ranges from 34-63 mm, base width ranges from 15-23 mm, the neck width has a range of 13-18 mm and thickness ranges from 4-6.5. Just over half (57%) of the stemmed bifaces are produced out of HFS and HFSM. The remaining six (43%) are manufactured out of various unidentified chert types, with exception of the one believed to have been formulated out of Onondaga chert.

Table A.3; BaDd-4 Projectile Point Metrics

N	Length (mm)	Maximum Width	Base Width	Neck Width	Thickness
14	48.69	22.29	21.25	16.23	5.75

Large Non-Stemmed Bifaces (see plate 17)

Three large bifaces are present in the collection. The mean length is 119 mm, average maximum width is 42 mm, base width is 36 mm and thickness is 10.67 mm. Blade edges range from convex to straight as does the base. In cross section the large bifaces range from biconvex to concave/convex and plano-convex. Two of the bifaces were manufactured out of

Halifax formation slate and the last one of a chalky, light green chert. Red ochre is present on the chert biface which has one side almost weathered white that displays unfinished flaking. Two were well flaked with serrated and thinned blade edges.

Small Non-Stemmed Bifaces (see plate 17)

Nine small bifaces are present. Most blade edges are convex. The majority of cross sections are plano-convex whereas longitudinal sections range from biconvex to biplano, to plano-convex and concave/convex. The general shape of bases range from concave to convex to straight. Five of these small bifaces were manufactured with Halifax formation slate with magnetite inclusions. Single bifaces were manufactured of Halifax formation slate, Scots Bay chalcedony, whitish chert with reddish/brown inclusions and rough, light brown chert. These bifaces are very similar in size, particularly in width and thickness. Just over 50% are the same length, while three specimens vary significantly in length and thus increase the standard deviation (i.e., giving these blades a high degree of variability).

Crude Bifaces (see plate 18)

These bifaces are crudely flaked and are definitely not cache blades. The three bifaces are manufactured of slate and have straight to convex blade edges. One, plano-convex in

cross-section, has a straight base and a striking platform still evident on the base. As well, cortex is present on one face and the tip is missing. The second specimen that is biconvex in cross-section with a thinned concave base has red ochre present. The third specimen has staight to convex blade edges, is biplano in cross section and has a convex base. Displaying assymetrical flaking, some edges are flaked whereas others are not. This specimen also has red ochre present. Average dimensions for these bifaces are a length of 56.33 mm, width of 31.33 mm, base width of 26.33 mm, and a thickness of 9 mm.

Biface Tips and Fragments (see plate 18)

Four biface tips are found in the collection. The average thickness is 6.5 mm. With the exception of one, all tips were produced out of a raw material ranging from brown, to caramel and light brown in colour which may indicate a close affinity to North Mountain. The other tip was produced out of a rough textured gray/brown material. Half the tips are plano-convex in cross-section with incomplete flaking on one face whereas the others are finely flaked and bi-plano in cross-section. It is not inconceivable that the latter two came from cache blade-like bifaces.

Three biface fragments were recovered at BaDd-4. The first specimen has a width of 29 mm and thickness of 7 mm. Made out of slate, this specimen is extremely crude other than

preliminary edge thinning on one face. With angular fractures at both the distal and proximal ends, this is undoubtedly a body fragment. Enough of the body was present to reveal convex blade edges and cross-section. The second specimen is made out of a beigish pink raw material with red specks and quartzite inclusions which are indicative of Scots Bay chert. Because of size, the only measurement taken was a thickness of 8 mm. The third crude biface fragment has a visible striking platform and displays incomplete flaking. Made of North Mountain material, this specimen is 10 mm thick.

Formed Unifaces (see plate 19, 25)

The formed unifaces category represents around a fifth of the artifacts recovered at the site. Two different classes of formed unifaces are present in the assemblage; designated here as group 1 and group 2. Group 1 unifaces are defined by a primary working edge located on the distal end of the tool, opposite the striking platform. Group 2 unifaces have their working edge on a lateral margin in relation to the tool's longitudinal axis or the striking platform. The vast majority of formed unifaces recovered at the site are of the group 1 variety.

Group 1 unifaces are represented by 65 specimens (see plate 19). A few specimens exhibit bifacial flaking and may have originally been cache-blade-like bifaces that were reworked into scraping tools. While many specimens are

roughly circular-shaped, others are square, rectangular and sub-triangular. Many Group 1 unifaces are small and a number of them may be classified as thumbnail scrapers. A large number of unifaces have a lateral edge that was subject to systematic retouch suggesting that they were likely dual function tools. Ranges include a length of 13-43 mm, a width of 13-28 mm, a thickness of 3-11 mm, an edge height ranging from 2 to 12 mm, an edge span of 4-26 mm and finally an edge angle of 50 to 90 degrees. Table A.4 contains average metrics for Group 1 Unifaces.

Table A.4; BaDd-4 Group 1 Uniface Metrics

N	Length (mm)	Width	Thickness	Edge Height	Edge Span	Edge Angle
65	21.26	20.48	6.15	5.02	19.14	73.66

Use wear on the working edge was superficially examined. While some specimens appear relatively untouched, and thus not utilized, others seem to have been functionally utilized and may be examples of fractures similar to those illustrated by Hayden (1979). Since no specimens appear to be hafted, perhaps these unifaces were glued into hafts and then used (Deal 1985: 110).

Group 2 unifaces are represented by four specimens (see plate 25). All unifacially flaked, these come in a wide variety of shapes such as circular, rectangular and sub-triangular. In terms of raw materials, one is of banded

slate, another of banded felsite and the remaining two appear to have been produced out of a couple varieties of North Mountain basalts. While two specimens have secondary working edges present on either a distal or lateral margin, the other two have retouched/utilized edges. Metrics taken are located in Table A.5. Length measurements range from 16 to 36 mm, width ranges from 13 to 26 mm, thickness ranges from 3 to 7 mm, edge height ranges from 2 to 6 mm, edge span ranges from 18 to 23 mm, and the edge angle has a range of 40 to 80 degrees. Overall, the Group 2 unifaces are a little bigger and thinner than those in Group 1.

Table A.5; BaDd-4 Group 2 Uniface Metrics

N	Length (mm)	Width	Thickness	Edge Height	Edge Span	Edge Angle
4	24.75	21.25	5.75	4.5	19.5	62.5

Retouched/Utilized flakes (see plate 20)

This artifact category is represented by 43 specimens. These tools were specifically examined to establish the raw material by which they were made and the area of use wear. There are three general categories defining the area that was retouched/utilized. Group 1 are tools that are unifacially flaked with evidence of retouch on the distal margin. Group 2 tools are unifacially worked as well, but use wear is present on one or both of the lateral margins. A total of

four group 1 specimens are present. Metrics are found in Table A.6. Measurements taken for length range from 19-28 mm, width means span from 15-22mm, thickness has a range of 3 to 6 mm, edge height ranges from 1 to 2 mm, edge span means span from 10 to 12 mm and edge angle records range from 40-60 degrees.

Table A.6; BaDd-4 Group 1 Utilized Flake Metrics

N	Length (mm)	Width	Thickness	Edge Height	Edge Span	Edge Angle
4	24.00	18.25	4.75	1.5	10.5	50

The 21 group two specimens have a length ranging from 16-52 mm, a width ranging from 13-44 mm, a thickness ranging from 2-8, an edge height extending from 1 to 4 mm, an edge span ranging from 5 to 23 mm and an edge angle spanning 20-80 degrees (see Table A.7).

Table A.7; BaDd-4 Group 2 Utilized Flake Metrics

N	Length (mm)	Width	Thickness	Edge Height	Edge Span	Edge Angle
21	25.29	21.95	4.76	1.87	13.24	47.54

Group 3 specimens exhibit bifacial retouch and have use wear present on one or more tool margins. The range of the artifacts classified under Group 3 include length 16-49 mm, width 10-38 mm, thickness 2-8 mm, working edge height of 1-5,

working edge span of 11.5-27 mm and an edge height ranging from 30-80 degrees (see Table A.8).

Table A.8; BaDd-4 Group 3 Utilized Flake Metrics

N	Length (mm)	Width	Thickness	Edge Height	Edge Span	Edge Angle
18	25.33	21.06	4.78	2.17	17.38	51.1

The most numerous category of raw materials present were North Mountain chert, followed by Scots Bay chalcedony. The remainder of the raw materials, represented by felsite, jasper, slate, quartzite, brown and black chert, rough maroon chert and quartz, are almost equal in number.

Bipolar Cores (see plate 21)

Three artifacts have been tentatively identified as bipolar cores. These wedge-like artifacts all display a battered platform on the upper margin with crushed lower edges, which are characteristic traits of bipolar cores (Hayden 1980: 3). They are generally rectangular to round in form and appear to be made from pebbles. The average length for the three specimens is 17.3 mm, with a width of 17 mm and the thickness is 7 mm. One specimen displaying heavily battered edges was made from a clear quartzite-like material whereas the other two were manufactured out of North Mountain chert. Bipolar cores are commonly found on Woodland sites in the Maritimes (i.e., Sheldon 1991; M. Deal, personal

communication 1995). According to Hayden (1980), bipolar cores were employed while skinning and gutting game animals as well as gutting and preparing fish.

Miscellaneous (see plate 21)

Five artifacts have been classified as miscellaneous. One specimen has a scraper edge on the distal margin as well as on two concave portions. The two concave portions appear to have heavily worked scraper margins that result in a spur-like point. This tool may have been used as a graver or spokeshave, and an end scraper. Dimensions for this multipurpose tool are a length of 15 mm, width of 23 mm, thickness of 4 mm, working edge height of 4 mm, working edge span of 21 mm and an edge angle of 80 degrees.

One tool has a number of worked faces that were used as scraper edges and a heavily worn lateral margin. Also present are a number of retouched areas. Underneath, there appears to be a graver. At the opposite end of the striking platform, the tip has been removed indicating that the artifact may have been an awl and scraper.

Another specimen has a primary scraper margin on a lateral face of the distal end. The scraper face appears to have been made on what was once a graving spur. Dimensions for this scraping/graving tool are a length of 20 mm, width of 13 mm, thickness of 5 mm, working edge height of 3 mm, working edge span of 12 mm and an 80 degree edge angle.

Heavily retouched on the distal end, a fourth miscellaneous tool has a single notch on the proximal face. This tool may have originally been a projectile point or preform that was remade into a small end scraper. The artifact is 19 mm long, 17 mm wide, and 6 mm thick. Dimensions recorded for the working edge are a 5 mm height, edge span of 16 mm and an edge angle of 50 degrees.

The fifth miscellaneous artifact displayed fine retouch along a lateral margin suggesting the tool may have functioned as a blade. Both the dorsal and ventral faces were bifacially retouched. A few flakes were removed from the distal margin and then abruptly stopped before a true scraper edge was obtained. The artifact is shaped like a preform. Maximum length is 26 mm, width is 22 mm and it is 10 mm thick.

Four of these multipurpose artifacts appear to be made of North Mountain chert and the fifth may be Scots Bay chalcedony.

Cores (see plate 21)

Two cores are present in the collection. One is of slate with magnetite inclusions which may have originated from a bedded deposit. Rectangular in shape and very thick, the main face is steeply angled and flake scars tend to overlap and thus are present over the entire artifact surface. The second specimen is a milky quartz core that is round and may have been a nodule or pebble. It is very assymetric, or biconvex

in cross-section. Red ochre is present on the artifact.

Detritus

For the purpose of this study, detritus are materials that show little flaking, are thick or chunky and without a defining shape. Cortex is present on some of the five specimens. Materials are represented by a sandstone-like pebble, a brown rock with red ochre, slate, quartz and rough maroon chert.

Flakes

The BaDd-4 assemblage consists of 165 unutilized flakes of which the vast majority, 160 or 97%, came from feature two. Due to time constraints, these flakes have not received extensive analysis other than identification of the raw material from which they were made. A quick observation indicates that a wide variety of flake types, in various shapes and sizes are present.

Just over a third of the flakes (56) were represented by North Mountain materials with a percentage of 34% (see Table A.9). Twenty-two flakes of Scots Bay chalcedony were recovered. Almost equally represented among the flake sample were rough maroon chert, quartz, felsite and jasper. Considering that a large number of stemmed and non-stemmed bifaces were made out of Halifax formation slate, the local material is poorly represented in the flake category with ten

percent of the total. However, a number of finished artifacts were made of slate which may indicate that artifacts were manufactured at a nearby quarry. Brown chert flakes were also found in small quantities at BaDd-4.

Table A.9: BaDd-4 Flake Totals

Raw Material	Number of Flakes	Percent (%)
North Mountain	56	34
Scots Bay	22	13
HFS	17	10
Rough Maroon chert	16	10
Quartz	15	9
Jasper	13	8
Felsite	10	6
Brown chert	8	5
Others	8	5
TOTALS	165	100

Ground Stone Tools

Celts (see plate 22)

Eight celts were discovered at BaDd-4. Like Sanger (1973: 21, 28), this category includes adzes and axes, although more specimens may have functioned as adze-like woodworking tools. Quantitative data taken include an average length of 123.63 mm (s.d. 37.63), mean width of 65.13 mm (s.d. 9.79) and a thickness of 24.63 mm (s.d. 5.85). One artifact, in particular, skewed the data to a significant degree. It

appears that only the poll end is present on this particular artifact. On one side, the body appears to have been ground and polished whereas the other margin is not present until near the poll. This celt may have been made of slate. Red ochre is present in pockets on both sides of the body.

Overall, some specimens do not appear to have been used at all whereas others exhibit heavy use wear. For instance the bit end of one small celt has been finely ground and polished to produce a sharp cutting edge that does not appear to have been functional. On the same specimen, the edges appear to be pecked. Although two specimens have some areas that may have been flaked, the predominant method of fashioning these tools were by grinding, pecking and polishing. On some specimens, the poll end is a round shape and presents a rough surface with evidence of battering. Raw materials used to formulate these artifacts range from quartzite to hornfels to slate. Red ochre is present on almost all the celts.

Birdstone (see plate 23)

Recovered just outside the disturbed area, is the tail end of a birdstone. The surface of this artifact has been finely pecked and manufactured out of what is likely a quartzite. Dimensions for the fragmentary birdstone are a width of 22 mm for the body and 35 mm at the tail and a thickness of 30mm. The bottom part of the tail has been

ground smooth. This specimen is almost identical to one of Ritchie's from the Morrow site (1969: 193, plate 69: 6).

Abrader (see plate 23)

An abrader-like tool made out of a dark gray/black slate has also been recovered near the disturbed area. This implement is 114 mm long, 32 mm wide and 9 mm thick. The presence of half of a drilled hole on one of the edges suggests that the manufacturer may have originally been trying to make a gorget. In fact, the dimensions of this artifact are similar to other archaeologist's data for gorgets (see Granger 1978b). The ventral (top) face has a slight groove on the longitudinal axis that is heavily polished which may indicate heavy rubbing or use. The dorsal surface is uneven and partially polished. In addition, there are many striations present in the longitudinal axis which suggest that the artifact was used for sharpening awls (Ritchie 1969: 193).

A second, flat, specimen with one side smoothed by grinding or polishing may have functioned as an abrader. Both top and bottom surfaces are pecked although one margin appears to have been incompletely pecked. Red ochre is present on the pecked area of the latter margin. This specimen is 58 mm long, 40 mm wide and 9 mm thick.

Gorgets (see plate 24)

Two trapezoidally shaped gorgets were recovered from

Feature one. The first specimen was made out of dark gray mudstone with beige or light brown coloured banding. Shiny gray specks on the artifact surface likely represent inclusions of magnetite. Three tangs are present on the ends with one missing. Surface polish is present on one face with the other side unevenly and incompletely polished. Red ochre is present on one corner. Metric attributes indicate the artifact is 72 mm long, 63 mm wide and 6 mm thick. Although three sides are particularly smooth and flat, some oblique scratches or incisions are present. The fourth side is uneven with some flakes removed, especially around a corner. The one hole present slants towards the right.

The second gorget is made from a dark, blackish gray homogeneous slate. Two tangs are present on one end. The surface is polished fairly evenly on one face whereas the opposite face displays unfinished surface polish with a large chunk having been removed. In fact, some flakes have been taken out of the sides of the polished face. Quantitative data for the gorget include a length measurement of 74 mm, a width of 73 mm and a thickness of 6 mm. Two holes are present with a white material (limestone?) present on the interior surface. These holes are positioned in close proximity to each other as they are only 8 mm apart. Red ochre is not present on the artifact. Incised lines run vertically along the end with tangs and extend for almost the entire width. Some incised lines run for the entire length as well. Short,

uneven vertical incisions are also present along the sides.

Hammerstones (see plate 23)

One spheroid shaped red hammerstone has been found around five centimeters above subfeature 5 inside the perimeter of feature one (see figure A.1). This specimen is 73 mm long, 58 mm wide, 33 mm thick and weighs 193.8 grams. Battering or wear is evident on almost all possible surfaces. The middle part of the ventral and dorsal faces, and both ends show signs of tremendous battering as do both edges. However, one edge in particular has been heavily utilized whereas the opposite one has only a few pecks suggesting less extensive use. There is no evidence of further modification on this non-fragmentary tool and a few small striations are present on the surface.

The second specimen is a long and fairly thin specimen that is made from hornfels (Greg Morris, personal communication 1994), a light gray rock with whitish specks, a product of the contact between Meguma sediments and granites. The length is 127 mm, width is 38 mm, thickness is 23 mm and weight is 181.7 grams. Both ends are heavily battered and the edges have been utilized to some degree. Two large grooves are present on opposite sides of edges which may indicate that hide laces or something small was being softened. The area beside one of the grooves on one edge, bearing similar use wear, appears to have been utilized for the same reason. A

number of longitudinal striations are also present on both faces, which may be abrasion marks. A groove on the longitudinal axis around 12 mm wide that is very smooth and polished may indicate some use as an abrader. This tool, then, may have had a dual function as an abrader and a hammerstone.

Iron Pyrites/Paintstones/Red Ochre (see plate 25)

Five heavy, rectangular shaped stones may represent a small quantity of iron pyrites. These stones are a bright orangish-red colour and the material easily comes off on one's hand. One specimen has striations on the surface which may indicate use as a strike-a-light or part of a fire-making kit.

Two dark pink stones that may represent paintstones are present in the collection. Respective weights for the stones are 15.4 grams and 23.7 grams. On the former, a kidney shaped stone, some red ochre is present in some grooves or small striations that are found on the surface. Two main striking facets are opposing each other. With regard to the former, one main striking facet is present and two surfaces appear to have been pecked. The presence of facets suggest these stones provided pigment or paint for the cache.

Red Ochre is represented by a small, bright red pebble with a rough texture. A red powdery material easily rubs off the surface.

Pestles (see plate 23)

Two specimens may be possible pestles. The first specimen is a long thin ground stone artifact made out of dark gray hornfels. It is 125 mm long, and 21 mm wide with a thickness of 23 mm. However, the artifact is only 12 mm thick in some spots as it appears that one side was ground. The artifact is dark gray except for the ground down part which is a light gray colour. The texture of the handle is rougher than the rest of the pestle as well. The very end of the thicker area has been very worn and has many peck marks present. On the lateral edges, depressed ridges are present along the longitudinal plane with peck marks throughout. The presence of a reddish powdery substance in some peck holes suggests that this instrument may have been used to grind down red ochre.

The second specimen, made of light gray quartzite, is plano-convex in cross-section with the bottom side that is flat to slightly concave. Two rough edges converge to a point, an area where a reddish brown substance is present (presumably red ochre). This roughened edge extends halfway down the lateral aspect and not on the opposing edge which leads me to believe that weathering was not responsible for the rough edge. At the point or tip, the edge appears to have been battered which may indicate a grinding implement. Quantitative data recorded are a length of 107 mm, a width of 32 mm, a thickness of 18 mm and a weight of 78 grams.

Copper Artifacts (see plate 23)

Three copper artifacts have been recovered, all from feature one. First is a copper awl that is 63 mm long, 6 mm wide and 6 mm thick. Much of the awl is covered with a powdery green substance indicative of corrosion; perhaps copper chloride (Cathy Mathias, personal communication 1995). The junction of two faces indicate that in original form, this awl was square shaped in cross-section. The function of the other two copper artifacts is difficult to determine. These pieces are relatively flat and very thin with thicknesses of 3 and 4 mm respectively. They are round with lengths of 32 and 42 mm and widths of 24 and 28 mm. One specimen has two opposing edges that have been worked although the rest of the artifact has not.

Appendix B

Photographs of Maritimes Early Woodland Artifacts and Sites

B.1 Plate 1; Tozer Site Cache Blades (12) and Lanceolate Biface (Top Row, 1st artifact on left)

B.2 Plate 2; Tozer Site Cache Blades (the remaining 5)


15 CM.

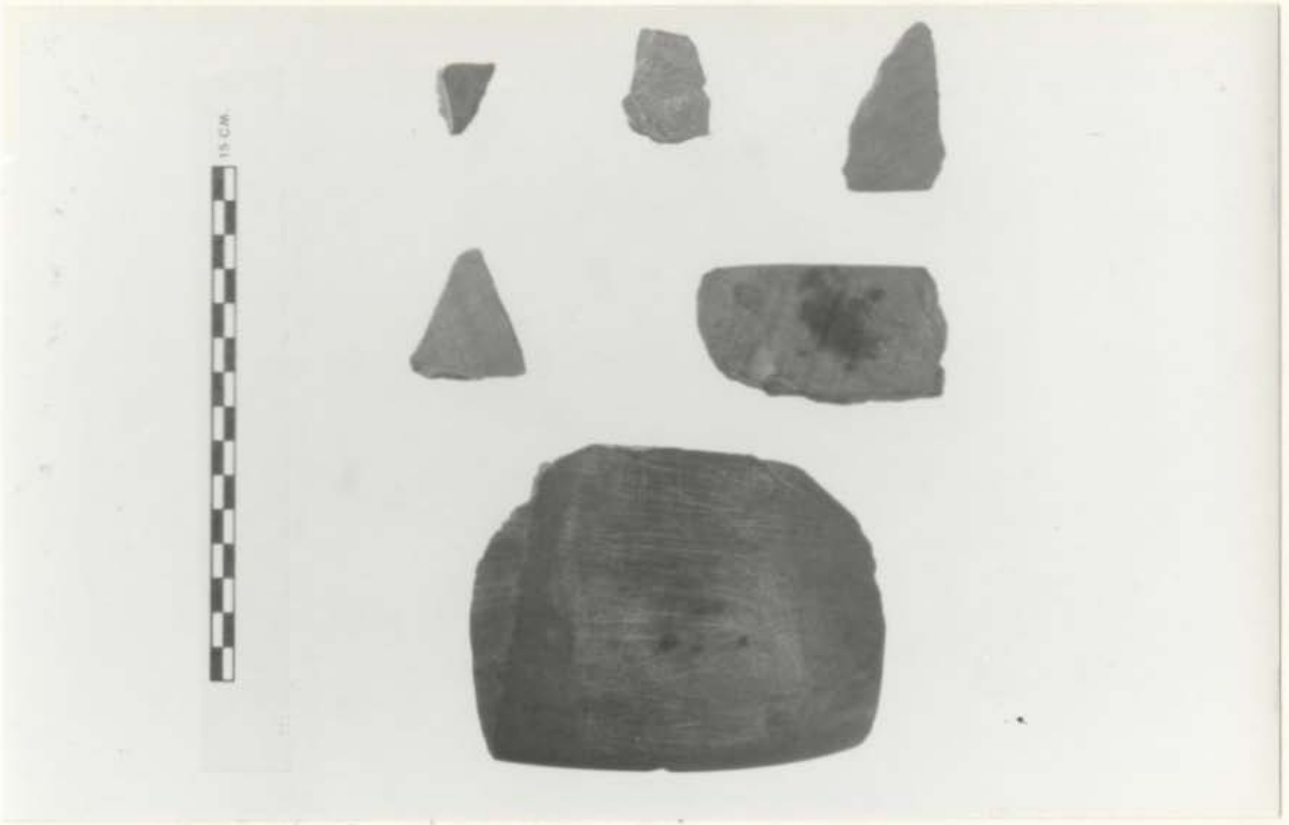

15 CM.

B.3 Plate 3; Tozer Site Gorget Fragments

B.4 Plate 4; Other Tozer Site Artifacts

Top Row: Calcined Bone Fragments

Bottom Row: Gorget Fragments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B.5 Plate 5; Awls from the Northwest Miramichi River Area

Left: Wilson site Bone Awl

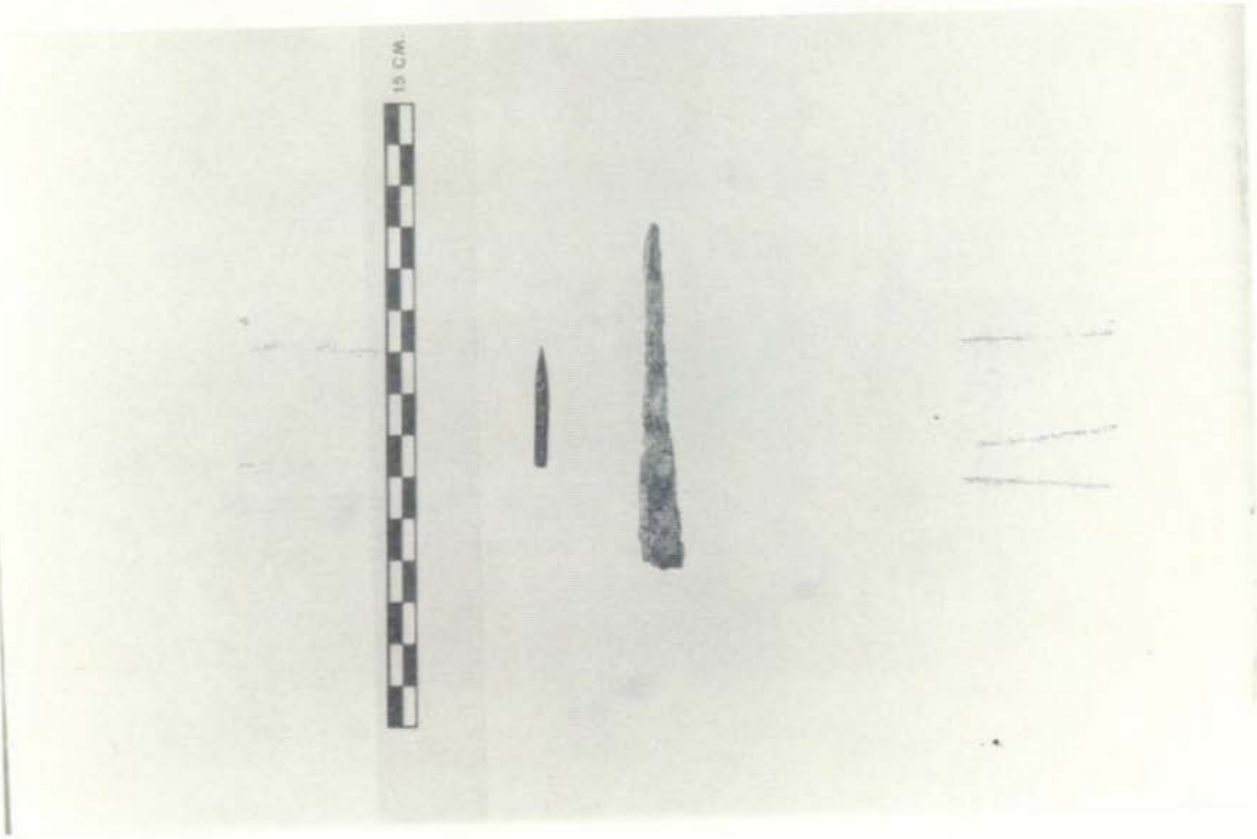
Right: Tozer site Copper Awl

B.6 Plate 6; Selected Artifacts from the Wilson Site (from left to right)

Wilson site double end scraper

Wilson site side-notched drill

4 projectile points from RP Gorham collection--presumably from Wilson/Howe site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15 C.M.

B.7 Plate 7; Pop-eyed birdstone from Southwestern New Brunswick (exact findspot unknown)

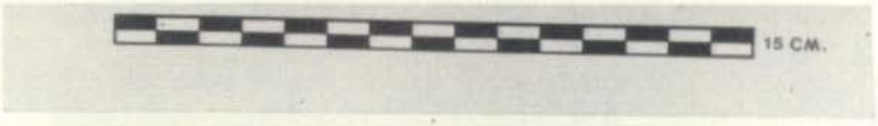
B.8 Plate 8; Early Woodland Artifacts from Various Locations in New Brunswick (from left to right)

Biface (cache blade) fragment from New Brunswick

2 projectile points from the Tracadie region

1 projectile point from the Upper Jemseg area

1 projectile point from the Grand Lake area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B.9 Plate 9; Meadowood artifacts from Mud Lake Stream

B.10 Plate 10; Burial Feature (20) at Mud Lake Stream

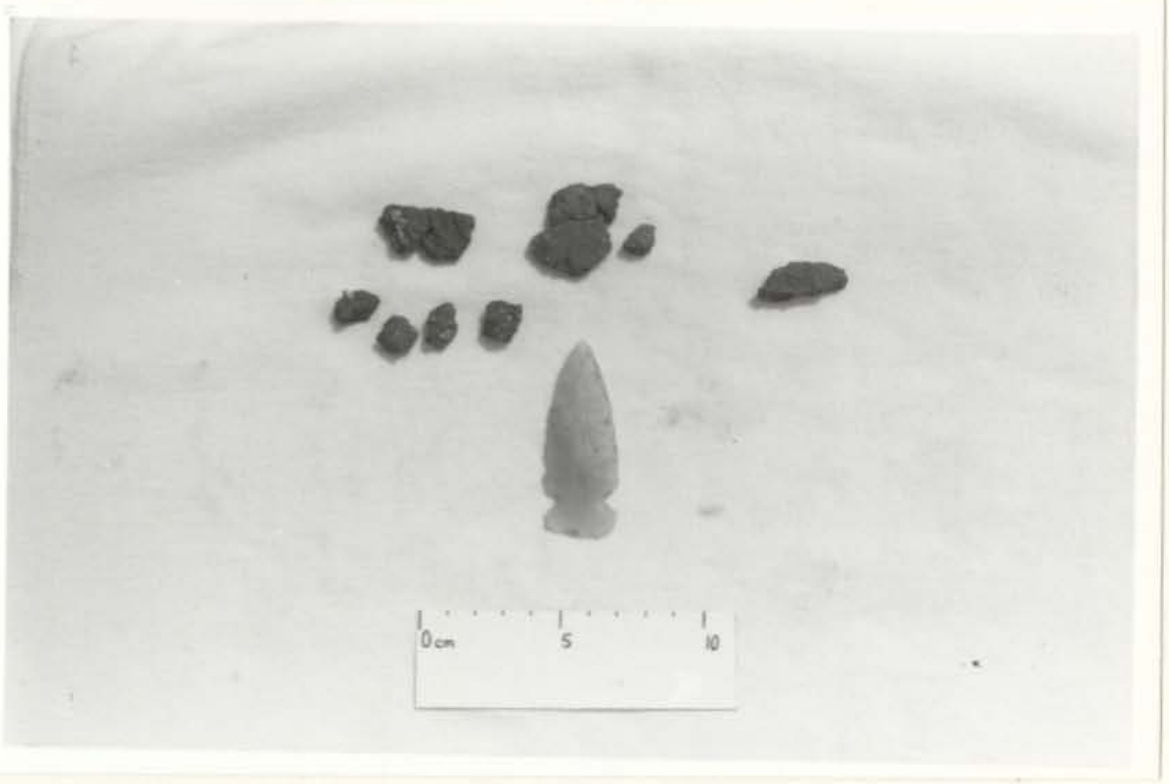

15 C.M.

B.11 Plate 11; Early Woodland Artifacts from the St. Croix Site

Top: Vinette 1 Pottery Fragments

Bottom: Meadowood-like projectile point

B.12 Plate 12; The BaDd-4 Site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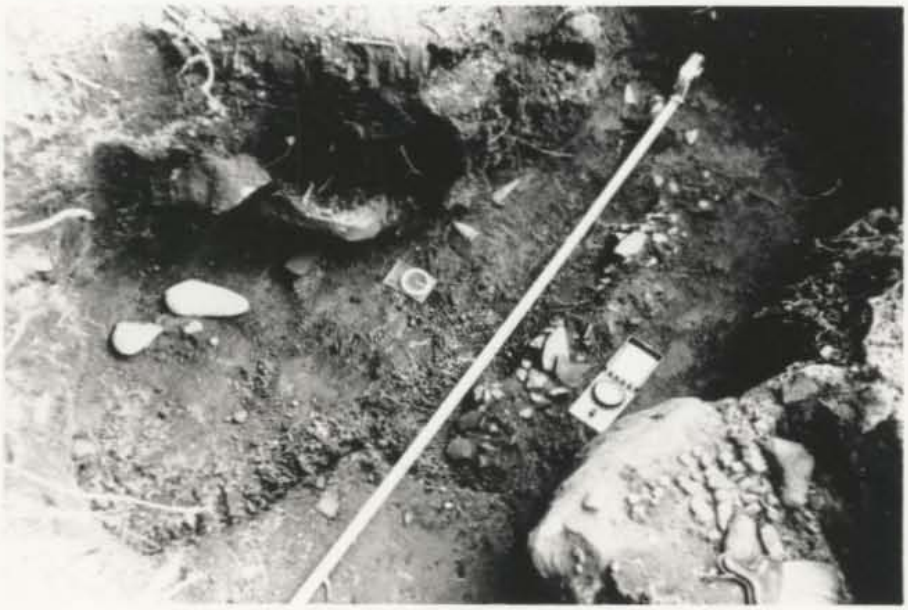
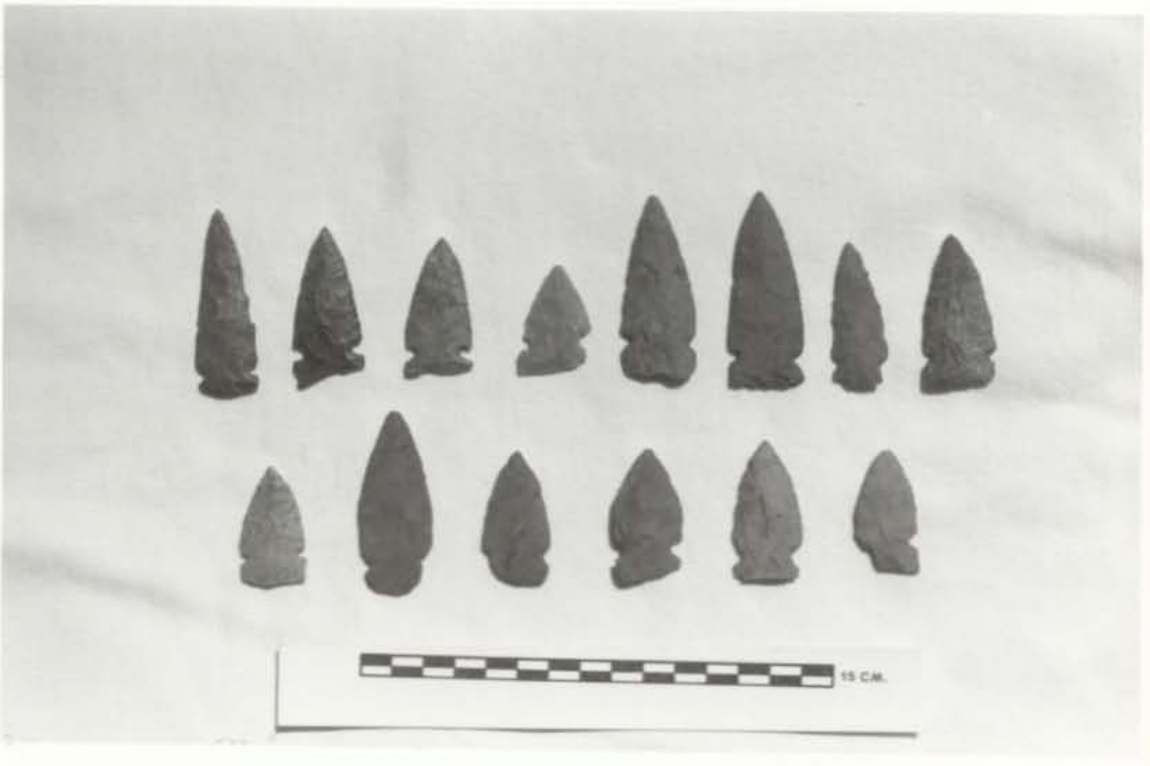
B.13 Plate 13; BaDd-4--Artifact Cluster from Feature 1

B.14 Plate 14; BaDd-4--Line of Artifacts from Feature 2



B.15 Plate 15; BaDd-4--Artifacts from the Disturbed Area

B.16 Plate 16; BaDd-4--Meadowood Projectile Points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B.17 Plate 17; BaDd-4--Bifaces

3 Large Cache Blades

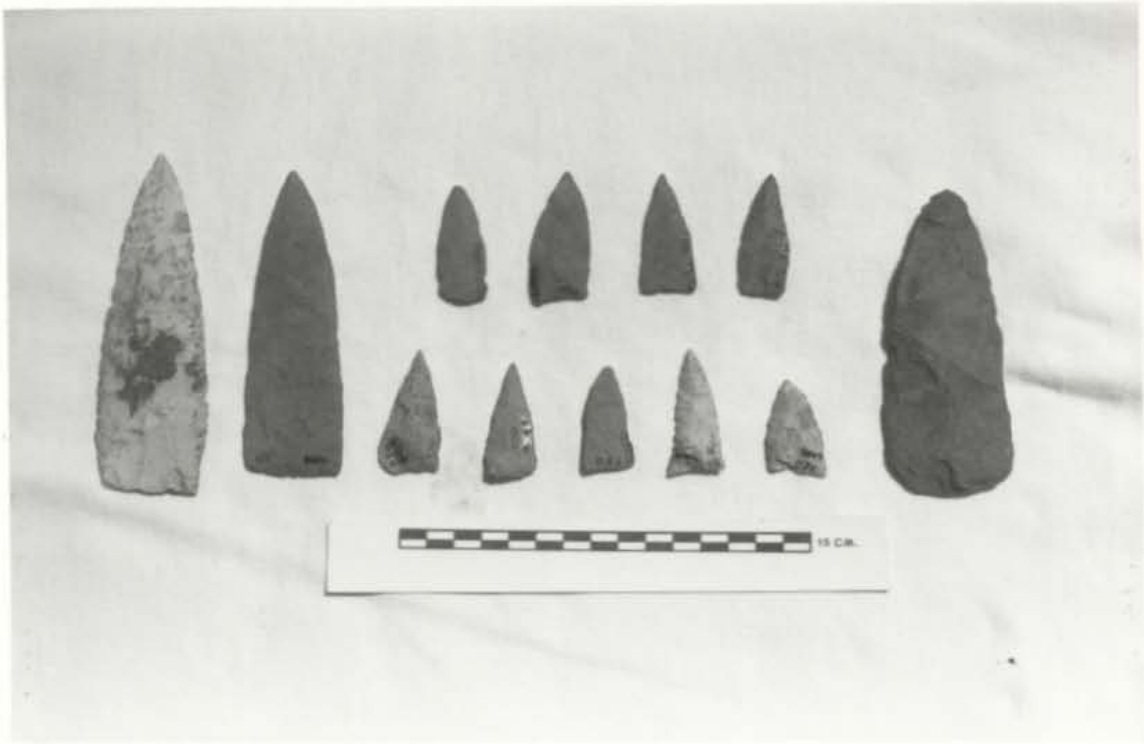
9 Small Cache Blades

B.18 Plate 18; BaDd-4--Assorted Artifacts (from left to right)

Top Row: Biface Tip Fragments

Bottom Row: 3 Crude Bifaces

3 Biface Fragments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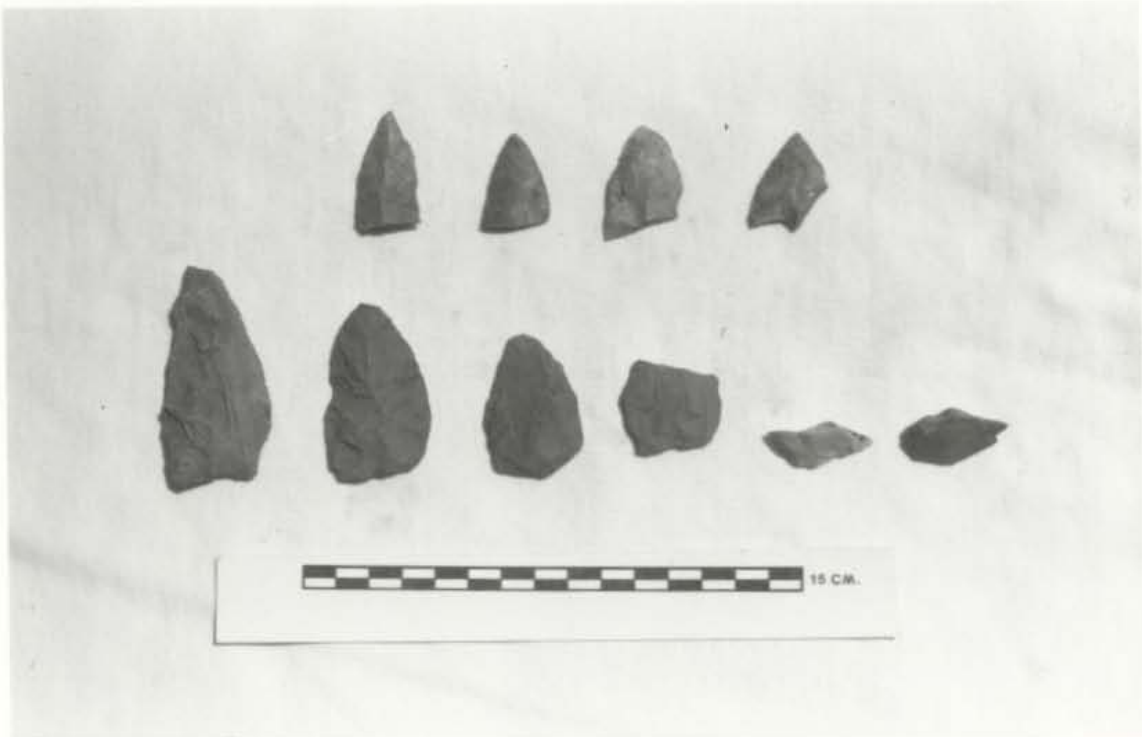
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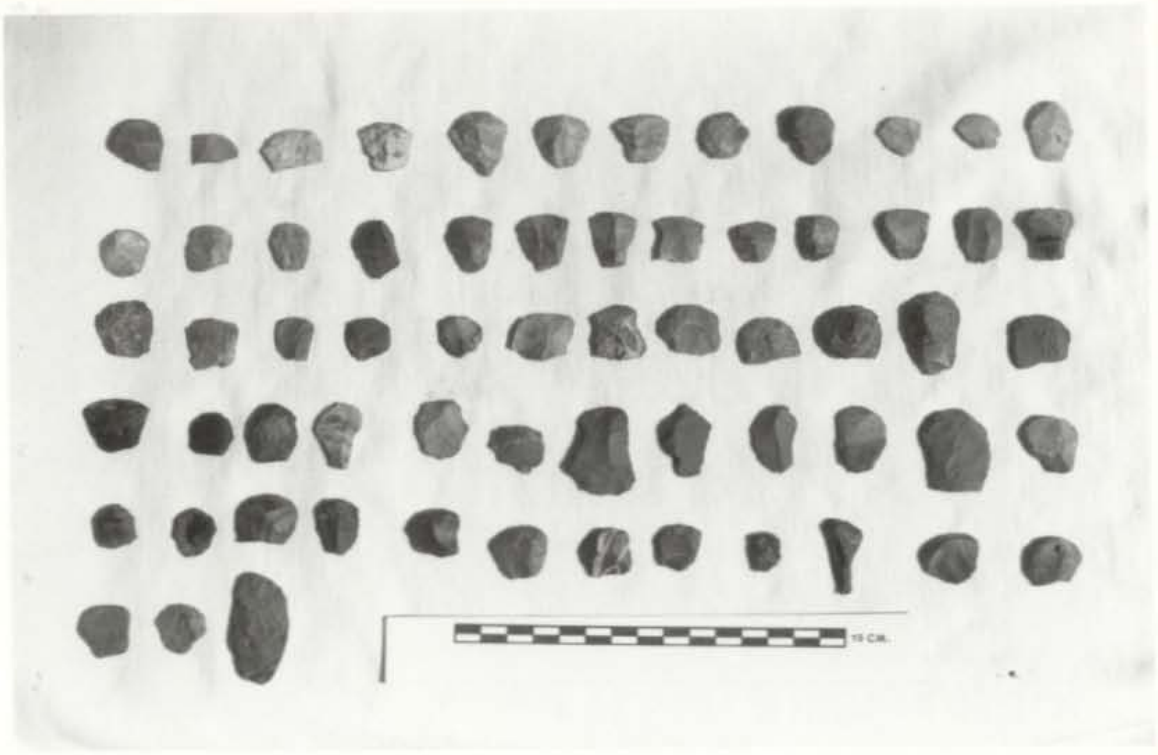
B.19 Plate 19; BaDd-4--Group 1 Formed Unifaces

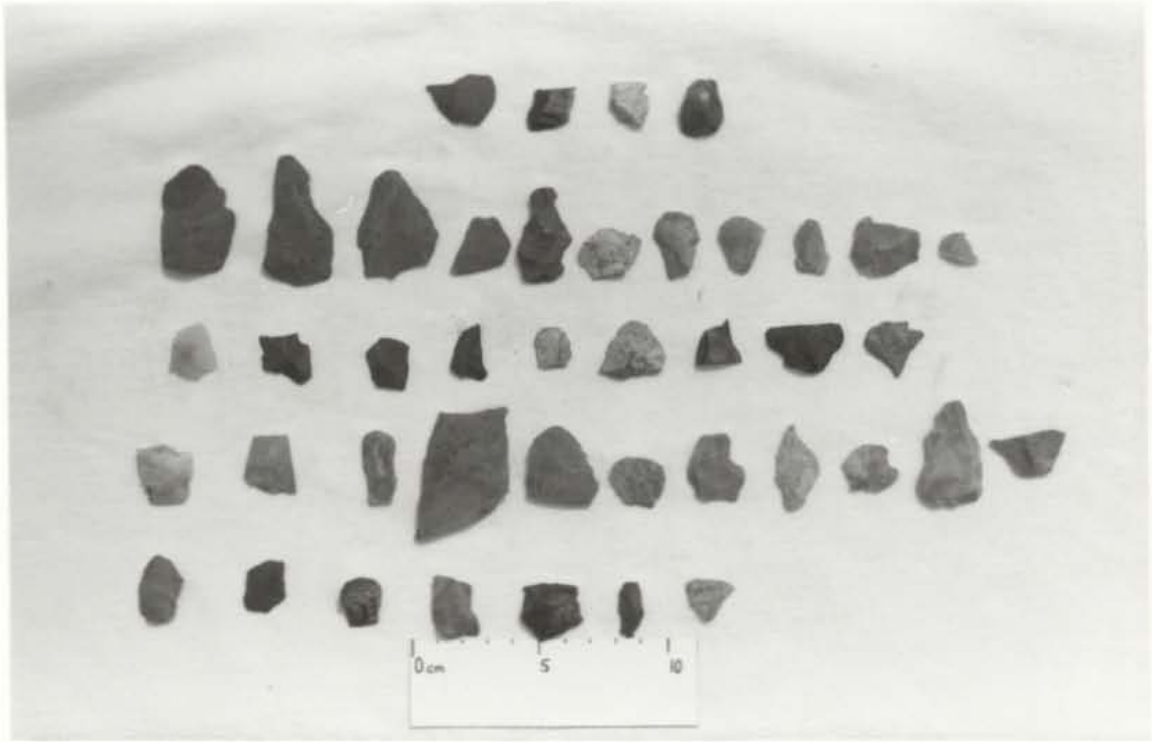
B.20 Plate 20; BaDd-4--Utilized Flakes

Top Row: Group 1 Utilized Flakes

Middle Two Rows: Group 2 Utilized Flakes

Bottom Two Rows: Group 3 Utilized Flakes

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B.21 Plate 21; BaDd-4--Assorted Chipped Stone Artifacts

Top Row: Bipolar Cores (first 3 artifacts)

Cores (last 2 artifacts in row)

Bottom Row: Miscellaneous Artifacts

B.22 Plate 22; BaDd-4--Celts

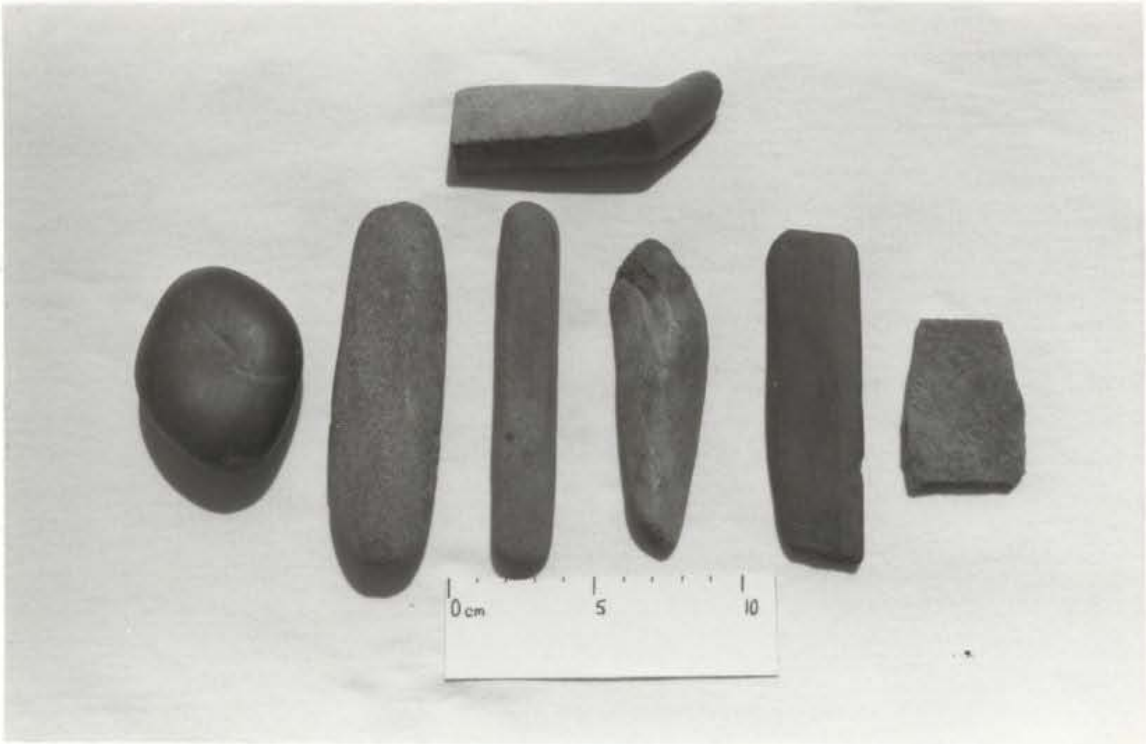

15 CM.

B.23 Plate 23; BaDd-4--Assorted Ground Stone Artifacts (from left to right)

Top Row: Birdstone

Bottom Row: 2 Hammerstones, 2 Pestles, 2 Abraders

B.24 Plate 24; BaDd-4--Gorgets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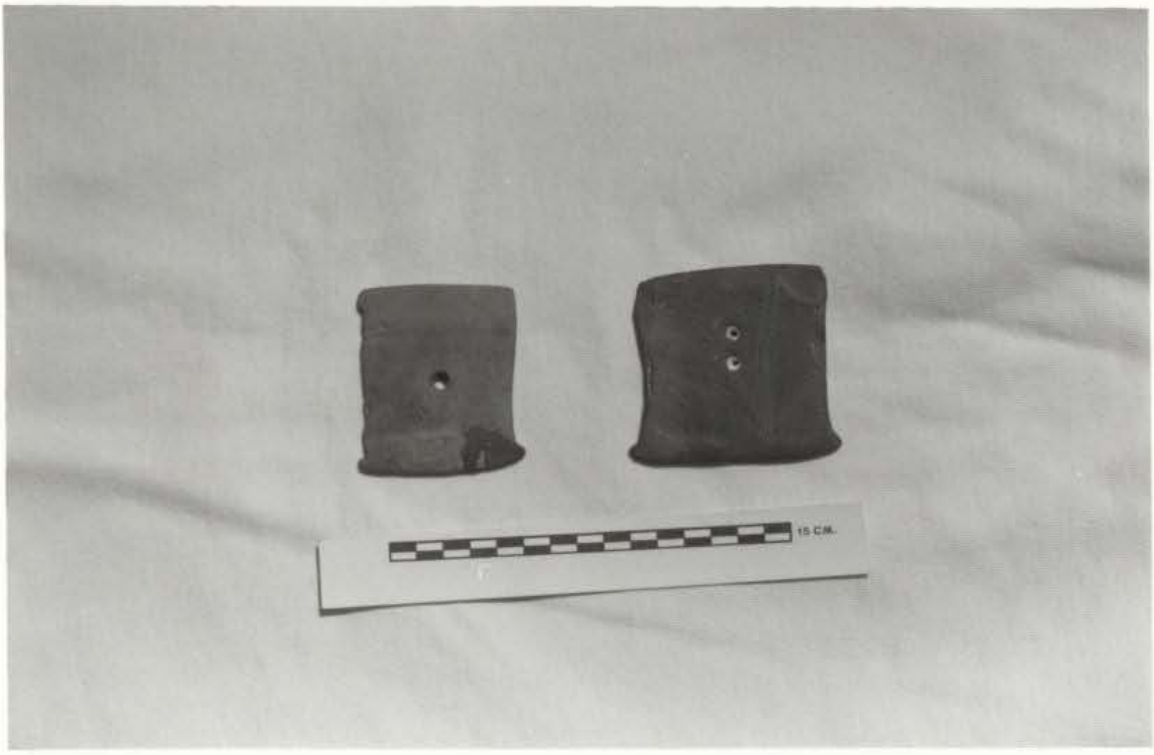
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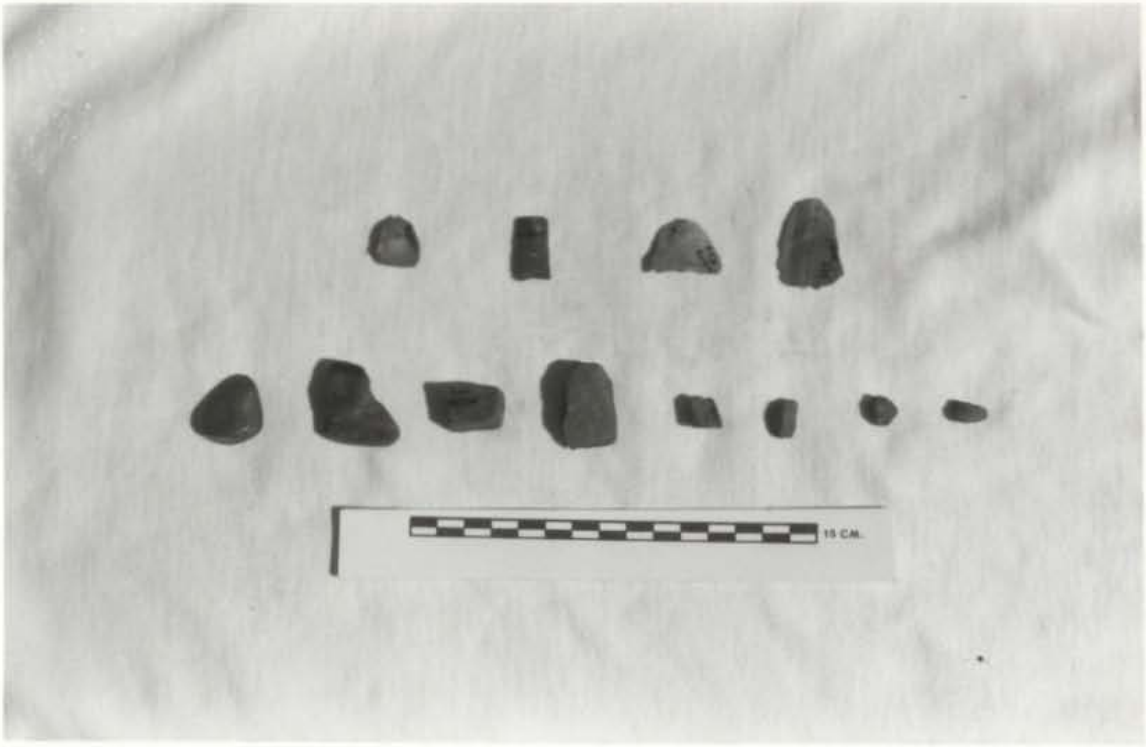
B.25 Plate 25; BaDd-4--Assorted Artifacts (from left to right)

Top Row; Group 2 Formed Unifaces

Bottom Row; 2 Paintstones, 5 Iron Pyrites, 1 Red Ochre nodule

B.26 Plate 26; BaDd-4--Copper Artifacts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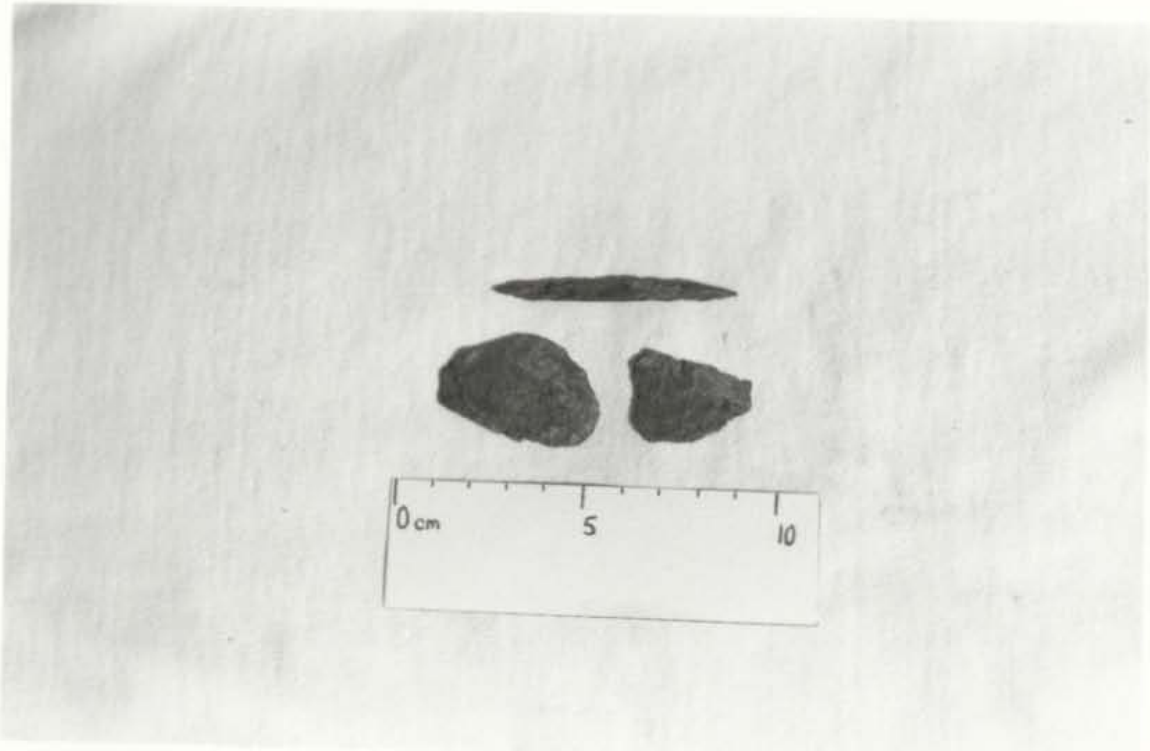
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