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United States Department of the Interior
National Park Service

National Register of Historic Places Multiple Property Documentation Form

This form is for use in documenting multiple property groups relating to one or several historic contexts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. For additional space use continuation sheets (Form 10-900-a). Type all entries.

A. Name of Multiple Property Listing

Androscoggin River Drainage Prehistoric Sites

B. Associated Historic Contexts

Early and Middle Archaic
Susquehanna Tradition
Ceramic Period
Early Contact Period

C. Geographical Data

The Androscoggin River Drainage Prehistoric Sites multiple property document encompasses those prehistoric sites located [redacted]

[redacted]

[X] See continuation sheet

D. Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this documentation form meets the National Register documentation standards and sets forth requirements for the listing of related properties consistent with the National Register criteria. This submission meets the procedural and professional requirements set forth in 36 CFR Part 60 and the Secretary of the Interior's Standards for Planning and Evaluation.

Signature of certifying official — Date: 9/21/92

Maine Historic Preservation Commission
State or Federal agency and bureau

I, hereby, certify that this multiple property documentation form has been approved by the National Register as a basis for evaluating related properties for listing in the National Register.

Signature of the Keeper of the National Register — Date: 11-14-92

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Section number C Page 2

[redacted]

The local bedrock geology includes predominant pelite and interbedded pelite and sandstone of the Carrabassett and Seboomook formations, respectively. The precipitous drop at Rumford Falls lies along the boundary of the intrusive Littleton formation which is a muscovite-biotite granite and tonalite combination. Other bedrock attributable to the Hildreth formation and the Perry Mountain formation lies nearby the project area. These latter formations consist of interbedded pelite, sandstone,a nd limestone (and/or dolostone) and interbedded pelite and sandstone, respectively (Osbert et al 1985).

Surficial deposits in the river valley include predominant Holocene alluvium, that is, sediment deposited in the past 10,000 years after the late Pleistocene glaciation. However, late glacial sediments are specifically present in the Logan Brook area where glacial lake sediments include some combination of silt, clay, and sand. Other limited deposits of ice contact glaciofluvial deposits, including sand, gravel, and silt, are present on the north side of the project area near Rumford Center. Glacial outwash deposits are present in the Split Brook area to the northwest of Rumford Center. The local area beyond the river valley is clearly dominated by late Pleistocene glacial till which covers nearly all areas above the modern floodplain (Thompson and Borns 1984). This area was free of glacial ice by ca. 13,000-12,000 B.P. The late marine invasion that covered a large portion of Maine during this general period did not reach the Rumford area since it only extended to the area around Jay in the Androscoggin River drainage.

The general climate in the Rumford area is typically cold during the long winters and mild in the summer; the northern climatic division for Maine encompasses the project area. The average annual temperature is 39° F; the January and July averages are 10° and 64° F, respectively. The average annual precipitation is 92.7 cm (36.5 in) and snowfall averages 259 cm (102 in) each year. Frost-free days average 111 in the northern region.

Local biotic communities exist near the boundary of the Transition Hardwoods-White Pine-Hemlock and Northern Hardwoods-Hemlock-White Pine vegetation zones, while the Spruce-Fir-Northern Hardwoods zone lies nearby in higher elevations to the north and west. The Transition Hardwoods zone fosters a dominant combination of beech, yellow birch, white birch, aspen, red maple, and sugar maple, with white pine and hemlock predominant among the conifers. Beech, yellow birch, sugar maple, and red maple dominate in the less diverse Northern Hardwoods-Hemlock-White Pine zone, with lesser amounts of hemlock and white pine present, as the name implies. Game species in both zones would include a variety of large mammals, such as white-tailed deer, moose, woodland caribou, and black bear, and a variety of smaller species. The Spruce-Fir-Northern Hardwoods zone is characterized by a still more reduced number of species, typically including predominant spruce and balsam fir, with lesser amounts of the hardwoods enumerated above. Typical game species would include those mentioned above, but the more northerly species (e.g., moose and caribou) would have been favored (Westveld et al 1956).

The evolutionary development of local and regional biota was undoubtedly of some importance to human populations during the Holocene epoch. Conditions have varied from tundra and spruce-fir parkland soon after deglaciation in the late Pleistocene to about 9500 B.P. (7500 B.C.), to mixed

hardwood-conifer forests during postglacial climatic optimum, ca. 7500 B.P. (5500 B. C.) to 4500 or 4000 B.P. (2500-2000 B. C.). Near-modern conditions were established thereafter, with an increase in conifers from 2000 B.P., as cooler conditions prevailed (Bradstreet and Davis 1975; Davis el al 1980). Faunal communities have also unquestionably changed during the Holocene, such as the impediment of the annual salmon spawning run by man-made dams downstream from Rumford Falls, which has occurred in the very recent past. Of note, seasonal concentrations of Atlantic Salmon and other Anadromous fish species once reached Rumford Falls which was the limit of their annual spawning run up the Androscoggin River.

Gulf Island Area

Topography within the Gulf Island area ranges from low elevations of 63 m (206.6 ft) a.m.s.l. on the river in the Deer Rips head pond and from 80 m (262.4 ft) a.m.s.l. on the river in the Gulf Island head pond up to elevation limits of 83 m (270 ft) a.m.s.l. Local topography includes Sand Hill at 127 m (416 ft) a.m.s.l. and Clark Mountain at 221 m (725 ft) a.m.s.l. directly to the west of the area and Merril Hill at 215 m (705 ft) a.m.s.l. near the northeastern boundary of the area. Much higher ground exists along the southern flank of the Appalachian Mountains on Singepole Mountain at 430 m (1,370 ft) a.m.s.l. which lies 45 km northwest of the southern portion of the project area.

The local bedrock geology is of Devonian and Silurian age in the immediate area. Bedrock of the Sangerville formation and Patch Mountain members exists throughout the length of the area. These are of Silurian age and include interbedded pelite and limestone and/or dolostone. An intrusive formation of Devonian age is present in the central portion of the area. This formation is composed of muscovite and biotite-rich granite (Osberg et al. 1985).

Surficial deposits throughout the immediate project area include Holocene stream alluvium in the form of floodplains and stream terraces. Underlying much of this recent deposition in the southern and northern portions of the project area are fine-grained glacio-marine deposits of sand and silt with some clay and minor amounts of gravel. These sediments were deposited during the late glacial marine submergence of the area, and are largely glacial sediments which accumulated on this one-time ocean floor. In the central portion of the area a thin till drift is present. It is a heterogeneous mixture of sand, silt, clay, and cobbles directly deposited by glacial ice (Thompson and Borns 1984). This area was clear of late Pleistocene continental ice between 14,000 B.P. (12,000 B.C.) and 13,000 B.P.

(11,000 B.C.). The late Pleistocene marine invasion, which covered much of Maine immediately thereafter, reached this locale. The northern end of the Gulf Island area lies within 5 km (8 mi) of the northern extent of the marine invasion (Stuiver and Borns 1975).

Local biotic communities in the study area fall within the Transition Hardwoods - White Pine - Hemlock vegetation zone. The Transition Hardwoods zone fosters a dominant combination of beech, yellow birch, white birch, aspen, red maple, and sugar maple, with white pine and hemlock predominant among the conifers.

The Early and Middle Archaic context begins on this page. The Susquehanna, Ceramic and Early Contact contexts begin on pages E14, E35 and E64 respectively. In each context, an Evaluation section which specifies minimum criteria for site significance, is placed 2-3 pages from the end.

EARLY AND MIDDLE ARCHAIC CONTEXT

Nomination Version, May 1991

Introduction

The Early and Middle Archaic Context includes the time from roughly 10,000 B.P. to 6000 B.P. The respective Early and Middle Archaic Periods are arbitrarily divided at 8000 B.P. in most chronological schemes applicable to the Northeast. Primarily because the relationships between material culture, temporal and geographic boundaries are poorly understood, we unify these concepts into a single unit for the purpose of site significance determinations. The regional paleoecology apparently included relatively lower sea levels in the Gulf of Maine less than -25 meters circa 10,000 B.P. and roughly -13 m circa 6300 B.P. Because of its topographic characteristics and bedrock control, the coast of Maine would not have been radically different in physical shape. However, lower tidal amplitude and warmer inshore surface waters are reconstructed for the period. Overall intertidal productivity might have been lower, but oyster populations flourished in estuaries. Anadramous fish populations, particularly shad, were present and succeeded in penetrating far inland on Maine's rivers. The forest cover was closed over most of the state, except for poplar/spruce parkland at higher elevations in northern Maine before 9000 B.P. Most of the state until 7000 B.P. was covered with a pine-oak forest. Hemlock and birch increased in frequency between 7000 and 6000 B.P. The large mammal association in this forest was probably dominated by white-tailed deer and bear, with some moose.

Throughout the Northeast the range of material culture ascribed to the Early and Middle Archaic is poorly understood, consisting of a variety of point styles and some ground stone forms, including heavy woodworking implements. The general consensus has been that this was a period of "settling in to" and learning to cope with a postglacial, wooded environment. However, serious questions have been raised about the theory (in various guises) that the period was a "struggle" for those who lived at the time (Robinson and Petersen 1990).

The earliest radiocarbon dates assignable to the Early and Middle Archaic in northern New England average 9000 B.P. on two pit features containing ground stone rods at the Weirs Beach site (Bolian 1980). A probable Late Paleoindian level at the same site radiocarbon dates 9615±225, which provides a terminus post quem for the Early and Middle Archaic (9200 to 10,000 B.P. with the large standard error). We end the period at about 6000 B.P., with the arrival of elements of the Laurentian Tradition Vergennes Phase in Maine.

[X] See continuation sheet

Components of the Middle Archaic in northern New England were first recognized at the Neville site, Manchester, New Hampshire (Dincauze 1976). Isolated Early Archaic points have been recognized in New England based on analogues with mid-Atlantic and southern point styles (principally Palmer, Kirk and bifurcate-base points). Rarely, contemporary regional point styles have been recognized on the basis of radiocarbon dated components, eg. the John's Bridge site and Swanton Corner-Notched points, dated ca. 8100 B.P. (Thomas and Robinson 1980).

Early and Middle Archaic archaeological components and artifacts are more rarely encountered in New England than are later materials. Early theorists (Ritchie 1965, Fitting 1968) assumed that the regional postglacial environment was not conducive to human habitation because of scarce resources. Dincauze and Mulholland (1977) disproved the "resource scarcity" hypothesis for southern New England, but implied that it might apply to northern New England. A review of recognizable Early and Middle Archaic points in Maine collections (Spiess et al 1983) demonstrated that they were much more common in southern and western Maine than further eastward. They postulated that this pattern might be due to lower population levels northward and eastward, a relative lack of appropriate research, and/or unrecognized diagnostic point styles that would redress the difference.

Recent excavation in Maine, particularly in stratified alluvium in our major river valleys, has demonstrated that Early and Middle Archaic components are not rare. In northern New England, the period has been inadequately accounted for by existing cultural-historic constructs (Robinson 1991). With the exception of the introduction of Neville and Stark biface technology into southwestern Maine late in the period (after 7200 B.P.), the State's Early and Middle Archaic stone technology is dominated by ground and pecked stone, and a quartz core and felsite core and flake technology. Robinson (1991) defines a Gulf of Maine Archaic technologic tradition to account for this phenomenon, characterized by: 1) flaked stone assemblages dominated by core, uniface and flake technology, 2) a relatively minor role for bifaces and flaked stone projectile points in the technology, and 3) a diverse assemblage of ground stone tools, including full-channeled gouges and ground stone rods among other artifact forms. The Gulf of Maine Archaic Tradition is proposed to encompass coastal regions and all river drainages that drain into the Gulf. Robinson speculates that projectile points were made of wood, bone, or composites of the above with stone, most of which clearly have not survived. Most stone points/bifaces in the region are either clear Southern analogues or similarly styled local production. There is a high proportion of exotic chert, demonstrating importation, among the Early Archaic points in Maine (Spiess et al 1983). Maine archaeologists may now be free from the "red herring" question of why there are not more recognizable Early and Middle Archaic components, and thus are able to pursue more complex questions.

Identification

Only one survey project in Maine had specifically focussed on the Early and Middle Archaic: the collections based survey reported by Spiess et al (1983). Then, about 1980 an amateur archaeologist tested the basal stratum of the Brigham site (90.2c), and obtained a radiocarbon date on feature charcoal of 10,290±460. The date was associated with a small assemblage of quartz and other flakes. This work was subsequently incorporated into the Piscataquis Archaeological Project which has yielded substantial preliminary results (Petersen 1990; Petersen et al 1986, 1988) and the addition of four sites (Brigham, Sharrow, Derby, and Rhoda) to the National Register (NR 12/24/86 and 2/2/87). From the Brigham and Sharrow sites there are now currently 15 radiocarbon dates older than 6000 B. P. (Thayer 1990).

Hydroelectric relicensing studies along some of Maine's major rivers commenced simultaneously. In an effort to locate sites similar to the Brigham and Sharrow sites, several relicensing studies have resulted in relatively deep (2 to 3 meter) shovel testing of stratified alluvium on a scale never before possible in Maine. At least a dozen components of Early and/or Middle Archaic age have been located by these studies (Hamilton et al 1990, Sanger et al 1991; Belcher and Sanger 1988; Cowie and Petersen 1988, 1989).

The Early and Middle Archaic collections study (Spiess et al 1983) was dependent primarily upon diagnostic bifaces from eroded context. Although we now know that they mark only a portion of Early and Middle Archaic components in Maine, the study did demonstrate intensive use of major lake inlets and outlets. Unfortunately, most of these sites have been eroded by artificially raised water levels. Likewise, a scattering of points from the coast demonstrates coastal zone use during the Early and Middle Archaic. However, the Maine shoreline of that period has subsided and is accessible only underwater. It is doubtful whether many coastal components of the period survive, and none have yet been located in situ. The greatest source of data that survives from the Early and Middle Archaic, therefore, are the components sealed in stratified context in river alluvium. These sites demonstrate consistent use of the major river valleys in Maine for fishing and as seasonal foci for habitation in small groups.

Research Significance Themes

Theme 1, Culture History.

The Early and Middle Archaic artifacts recovered from mostly eroded context around Maine's interior lakes have contributed relatively little to culture history. In fact, Early Archaic diagnostic projectile points are usually found as a minority component on the same sites with Middle Archaic

diagnostic projectile points, and a wide variety of ground and pecked stone tool types (Spiess et al 1983). No shallowly buried, single component site, such as the John's Bridge site in Vermont, has been discovered in Maine. Therefore, the elucidation of internal chronology within the Early and Middle Archaic, and before and after the period, has been addressed almost exclusively at stratified sites buried in river alluvium. In these cases assemblages of stone tools, debitage and other items such as calcined bone and charcoal can be tightly associated with a particular hearth feature, a particular paleosol of limited use, or perhaps with a paleosol (habitable soil surface) used for up to a millennium (as postulated at the Blackman Stream site Sanger; et al 1991). By the nature of these sites the shorter the occupation, and therefore the more useful for chronological control, the smaller are the artifact collections. Since diagnostic projectile points are absent from these sites so far, the definition of cultural units is based upon primarily ground stone and flake/core assemblages. Robinson (1991) postulates a Gulf of Maine Archaic Tradition which is found over most of Maine for most of the Early and Middle Archaic. Only in southwestern and central Maine does another cultural expression, the Neville and Stark complexes with well defined biface technology, appear after ca. 7200 B.P. There is some evidence at stratified sites in the Merrimack River valley in New Hampshire (the Neville site itself, and the Eddy site) that the Neville complex is a chronological successor to the Gulf of Maine Archaic Tradition in that region.

Because the recovery rates of ground stone tools in these stratified alluvial sites is so low, and then they are generally fragmentary, Robinson (1991) relies on data from several mortuary assemblages (the Morril Point burial complex) for further definition of the stone technology. Stone rods of several forms, and full channel gouges, are diagnostic.

The Culture History Theme includes tracing the ethnohistory of Native Americans. The Neville and Stark complexes of the Early and Middle Archaic are evidently an intrusive cultural phenomenon from the south after circa 7200 B.P., with connections in the Morrow Mountain and Stanley complexes of the mid-Atlantic states. Having only recently perceived the difference between Gulf of Maine Archaic and the Neville/Stark complexes, we cannot begin to answer the question whether the latter were carried by an immigrant group of people or adopted by resident groups, nor any other ethnic or physical relationships at this time.

Theme 2, Settlement pattern.

Significant concentrations of demonstrably Early and Middle Archaic material are located at the inlets and outlets of major and medium sized lakes in the Maine interior. This material is mostly from eroded context,

so that we cannot reconstruct the details of use of these areas. The settlement pattern around major interior lakes for later people (Late Archaic and Ceramic) appears to have been more dispersed than it was during the Early and Middle Archaic, however.

Use of the coastal zone is demonstrable from isolated occurrences of eroded diagnostic points. One shell midden, adjacent to a deep water channel at The Basin on Vinalhaven, is reported to have yielded Neville complex points from a basal deposit (Bourque, personal communication.) Because of the magnitude of coastal subsidence since the Early and Middle Archaic, there are probably very few or no other similar occurrences.

The best preserved Early and Middle Archaic record occurs in deeply stratified alluvium along the main river valleys. These components often underlie Late Archaic and Ceramic components in the same locations. Judging by the amount of material recovered in test excavations so far, these riverine sites were relatively lightly occupied compared with lake inlets and outlets. However, this interpretation may be biased by the fact that most lake inlet/outlet sites are known from the western part of the state were Neville and Stark projectile points are most abundant.

No Early and Middle Archaic site has been excavated extensively enough to yield internal settlement pattern data (beyond the distribution of a few flakes and tool fragments around single hearths). The Blackman Stream site has the potential for doing so, since it contains a demonstrated minimum of 700 square meters of occupied paleosol with an average radiocarbon age of circa 8000 B.P.

Theme 3, Subsistence Patterns.

The vast majority of subsistence remains attributable to the Early and Middle Archaic come from the sealed contexts of stratified riverine sites. As such, they represent a limited subset of subsistence opportunities, absent data from the coast and from the interior lakes.

Faunal remains from Early and Middle Archaic contexts consist solely of calcined scraps of bone. Early and Middle Archaic inhabitants of New England (Spiess 1991) made extensive use of aquatic habitat, including a surprising reliance on turtles and snakes at some sites. Shad are identified in many components of the period from across New England, while salmonids and sucker have been identified in a few places. Deer, beaver and a variety of bird and small-medium mammal species complete the faunal data list. Apparently, reliance on anadramous fish at the riverine sites was important, especially shad.

Floral remains consisting of carbonized plant parts (charcoal and seeds) recovered from hearth feature fill have only recently been systematically analyzed. Occasional nut fragments have been identified. Most surprising is identification of a possible carbonized squash rind from a context dating 6320 B.P. at the Sharrow site (Petersen 1991). This species is a domesticated plant. If confirmed, the identification raises the question of Early and Middle Archaic use of a wide range of domesticated North American plant species and their organizational approach to the problems of horticulture (planting, tending and harvesting gardens).

Theme 4, Mortuary Patterns.

Robinson (1991) has identified the Morril Point burial complex as a pattern of mortuary behavior that is contemporary and loosely associated with the Gulf of Maine Archaic. The Morril Point burial complex includes the practice of cremation, and burial of cremated human bone with uncremated ground stone tools in pits filled with red ochre. Red ochre may or may not have been spread on some artifacts prior to burial. The burials tend to be grouped in cemeteries located on easily dug substrate (generally natural mounds of sand or gravel). Stone pavements, which might have served a crematory function, are possibly associated at the Morril Point Mound. This mortuary pattern is sufficiently similar to later Late Archaic "Red Paint" mortuary phenomena to have gone unrecognized until now. How the Morrill Point burial complex relates to other similar mortuary patterns across the Northeast over nearly 6,000 years of prehistory is an obvious research question. What is the relationship between the mortuary assemblages and contemporaneous occupation assemblages? Does the early development of mortuary ceremonialism signify that basic settlement and subsistence strategies of the Late Archaic period had become established by the early part of the Middle Archaic period? Given that widespread trade is characteristic of the Late Archaic period, what trade in "cultic" and functional artifact forms can be identified in the Middle Archaic period and perhaps earlier? Most of the exotic stone points identifiable from Early and Middle Archaic contexts have been recovered from habitation sites, not from mortuary assemblages. This fact is a dramatic contrast with the inclusion of Ramah chert points made in southern Labrador and "Bradley" points from the St. Lawrence in Late Archaic Moorehead Phase graves.

Theme 5, Transportation, Travel, Trade and Commerce.

Many of the diagnostic Early and Middle Archaic points recognized by their similarity to southern forms (Spiess et al 1983) are made on exotic chert. As such they may have been imported into Maine from origins across the Eastern United States. The actual mechanism of their transportation, and the nature of the trade contacts that moved them, are currently unknown. Aside from the exotic stone points, most of the flaked stone material used

during the period is the most mundane of locally available material: quartz and felsite, often obtained as river cobbles. There appears to be some difference in the use of raw materials between the Gulf of Maine Archaic tradition and Neville complex on the Merrimack River, Androscoggin River, and Sebago Lake basin in Maine and New Hampshire. The Neville Complex made extensive use of one or more rhyolites, from central New Hampshire, while the Gulf of Maine Archaic primarily used quartz. In central Maine, Kineo rhyolite was the material preferred by Gulf of Maine Archaic inhabitants. These data suggest some subregional trade and travel differences, as yet unexplained or even fully quantified.

Use of the birchbark canoe during the Ceramic period, and possibly during a portion of the Late Archaic is demonstrated by site locations on marginally navigable stream and small rivers across Maine. The perception (Spiess et al 1983) that Maine Early and Middle Archaic sites tend to concentrate more at lake inlets and outlets than do Late Archaic and Ceramic sites might be related more to available means of transport than to resource availability. The locations of Early and Middle Archaic sites along rivers and streams should be compared against the more widespread Ceramic period record to test the hypothesis that Early and Middle Archaic water travel capability was relatively limited, perhaps to dugout canoes.

Theme 6, Social and Political Organization.

Few data exist currently that are applicable to this theme. However, the maintenance of permanent cemetery locations is interpreted by some archaeologists as evidence of lineage-based social systems with geographic foci.

Theme 7, Laboratory and Field Techniques.

The Blackman Stream site, which preserves 700 square meters of a buried paleosol or occupation surface, has been the first application of laser transit survey technology in Maine prehistoric archaeology. The problem of horizontal and vertical control during excavation of this surface has caused the principal investigator, David Sanger, to turn from more cumbersome means of measurement to this state-of-the-art computerized technique. Such techniques may become more broadly applied during the excavation of deep and complex stratigraphy that typically contains intact Early and Middle Archaic period remains.

Theme 8, Anthropological Archaeology.

Robinson (1991) has postulated a dichotomy between Gulf of Maine Archaic assemblages and Neville/Stark complex assemblages within the Early and Middle

Archaic. There is some stratigraphic evidence from New Hampshire and southwestern Maine of movement of the latter into a region occupied by the former. The "influence" of the Neville/Stark complex apparently never extended into Eastern Maine or the Maritime Provinces. As yet we do not have any evidence of the mechanism and cultural relationships accompanying this culture change. However, it is closely parallel with a perceived similar phenomenon: the arrival of Susquehanna Tradition technology in Maine circa 4000 B.P. Is Maine and the far Northeast, like Great Britain in Europe for example, a place which usually receives cultural influence and people moving in from the south? This view would noticeably contrast with the view that the Gulf of St. Lawrence north of Maine is a dynamic environment generating a great deal of cultural influence throughout Northeast prehistory.

Theme 9, Human Biology.

No Early and Middle Archaic human remains are extant from Maine. The most likely possibility would be recovery of small fragments of calcined bone from mortuary context.

Theme 10, Environmental Studies.

Archaeological and environmental studies contribute substantially to our understanding of causal relationships between climatic and environmental change. The sedimentological record for the Piscatquis River drainage, as preserved in the Sharrow and Brigham sites in Milo, including dated site stratigraphy, incipient soils, and carbonized plant remains, provides an unusual opportunity to study hydrological and climatic conditions for a small river drainage for most of the Holocene. These site specific data are necessary for integration with more broadly-based studies of plant pollen and other environmental "signatures" from the past. Early Archaic occupations occurred toward the beginning of the Holocene, at which time recent studies have indicated rapid environmental change.

Theme 11, Non-Mortuary Religious Practices.

No evidence of non-mortuary religious practices have yet appeared from the period.

Theme 12, Cultural Boundaries.

We have referred previously to the postulated boundary between the Gulf of Maine Archaic and the Neville and Stark complexes. After 7200 B.P. there appears to be a clear cultural dichotomy between southwestern Maine and central, northern and eastern Maine. The exact nature of this dichotomy, in fact whether it can be characterized as a cultural boundary, should be a focus of research on the Early and Middle Archaic. The fact that the Gulf

of Maine Archaic tradition may lack the "easy" diagnostic projectile point types that are typically employed in discussions of "cultural" boundaries means that boundary studies must focus on more complete assemblges from well defined archaeological contexts. While a large number of assemblages must ultimately be considered in the analysis of regional boundaries, the resulting cultural reconstructions should be more broadly based in the archaeological record than those based on a small number of diagnostic artifacts alone. The character of the assemblages from the Early and Middle Archaic periods in Maine require that careful consideration be given to the boundary concepts that we frequently employ when defining archaeological cultures.

Evaluation

Current research on the Early and Middle Archaic is primarily culture-historical. Archaeologists are still trying to define the chronological and geographic distribution of certain styles of bifaces, unifaces and ground stone tool types. Robinson's synthesis of the Gulf of Maine Archaic Tradition, and its possible contrast with the Neville and Stark Complexes, incorporated the most recent data on assemblages, dates and geographic range derived primarily from stratified sites in river alluvium. Because the Gulf of Maine Archaic did not rely heavily upon flaked stone biface production for armature tips, we must rely more heavily upon other stone tool types (eg. ground stone, quartz unifaces), and in particular intact assemblages.

The relationship between these technological constructs and the Morril Point Mound mortuary complex is another current topic of research. It is apparent that the Morril Point Mound mortuary complex, the "Red Paint" or Moorehead Phase cemeteries of the fifth and fourth millennia, unnamed similar mortuary behavior of the sixth millennium, Maritime Archaic mortuary behavior from the Gulf of St. Lawrence northward, and possibly other mortuary complexes in the Great Lakes constitute a related group of mortuary behavioral complexes spanning at least five millennia and most of the broader Northeast. Archaeologists are beginning to ask what spawned these similar mortuary and religious phenomena, and what vestiges, if any, survive into the Ceramic Period and ethnohistoric present in Northeastern American Indian culture.

Occasionally, research interest has turned from the attempt to build culture history and geographic cultural units, and the mortuary phenomena, to questions of subsistence and settlement. Studies of faunal remains have done little more than characterize the range of variability in animal products harvested during the period. Studies of floral remains have raised the question of the age of horticulture in the Northeast.

National Register Eligibility Criteria.

For a site to be eligible for listing in the National Register of Historic Places because of one or more significant Early and Middle Archaic component(s), it must contain at least one component containing stone tools, debitage, features, floral subsistence, and/or faunal remains that can be certainly identified as deriving from the Early and Middle Archaic. That identification may be based upon a diagnostic biface type, which is the traditional method of identifying "culture" in Northeastern prehistory. However, because the Gulf of Maine Archaic minimized use of stone bifaces, component identification may also be based upon other material culture attributes (which include ground stone or quartz uniface tool types and/or a suite of lithic raw material as evidenced by debitage) and a chronological date based upon association with a radiocarbon dated feature or a relative date on a stratum in a sealed alluvial context. The component identified as Early and Middle Archaic must be clearly separable from other components on the basis of horizontal patterning or vertical stratigraphy. Mortuary components clearly identifiable to the period are eligible under the same criteria. Moreover, any site with an Early and Middle Archaic component that is demonstrably able to make an extraordinary contribution to any of the Research Significance Themes presented above is significant.

Because of the general scarcity of diagnostic bifaces for the Early and Middle Archaic, the primary factor in judging National Register eligibility must be component purity and component identifiability to the Early and Middle Archaic. Maine Archaeological Survey computerized records indicate that approximately 70 Maine sites currently are known to contain (an) Early and Middle Archaic component(s). Approximately half of these sites are eroded lake-shore locations yielding biface or ground stone types diagnostic of the period. At least a dozen sites contain Early and Middle Archaic components in well-stratified alluvial context, however.

Protection

All Early and Middle Archaic coastal site locations are now under the waters of the Gulf of Maine due to coastal subsidence and eustatic sea level rise of 13 to 25 meters. It is conceivable that single component lithic scatters have survived erosion and remain accessible on the bottom of the Gulf where they are unlikely to have been buried by soft sediment. (A Laurentian Archaic site of circa 6000 B.P. age is known to exist underwater off Deer Isle.) Should such sites exist, it is impractical to protect them from the disturbances caused by inshore commercial fishing (principally dragging). Systematic data recovery by diving is the favored response.

Many interior lakeshore sites have Early and Middle Archaic components. These are often eroded, and the diagnostic stone artifacts mixed with later material. Therefore, few of these sites are eligible solely because of their Early and Middle Archaic components. Because water level is controlled artificially on most Maine lakes, the sites are periodically (seasonally during low water, or once in several decades as dams are repaired) accessible to artifact collectors. Inventory of private artifact collections is the major practical method of data recovery in most cases, although a few sites may be especially suited to physical and legal protection.

The vast majority of eligible Early and Middle Archaic components in Maine are located in deeply (2 to 3 meters) stratified alluvial silts and sands along major and medium-sized rivers. The primary threat to these sites is ongoing erosion of the margins of impoundments created by hydroelectric dams. Most of these localities will be inventoried in the next two decades or so as part of hydroelectric licensing studies. Physical protection of these sites by erosion control methods has proven prohibitively costly when that option has been investigated. The protection method of choice, therefore, includes data recovery from a portion of the site that may erode during the term of the license, accompanied by National Register listing and legal protection, and site monitoring for the remaining portion of the site.

References

Belcher, William R. and David Sanger
1988 Phase II report on the Archaeology of the Basin Mills Project. Report on file, Maine Historic Preservation Commission, Augusta.

Bolian, Charles
1980 The Early and Middle Archaic of the Lakes Region, New Hampshire. Pp. 115-134 in David Starbuck and Charles Bolian eds. Early and Middle Archaic Cultures in the Northeast. Occasional Publications in Northeast Archaeology 7.

Cowie, Ellen and James B. Petersen
1988 Phase II Testing of the Gulf Island/Deer Rips Project. Report on file, Maine Historic Preservation Commission, Augusta.
1989 Archaeological Phase II Survey and Testing of the Bonny Eagle project. Report on file, Maine Historic Preservation Commission.

Dincauze, Dena
1976 The Neville Site: 8000 years at Amoskeag. Peabody Museum Monograph 4. Harvard University, Cambridge, Massachusetts.

Dincauze, Dena and Mitchell Mulholland
1977 Early and Middle Archaic site distributions and habitats in southern New England. Annals of the New York Academy of Sciences 288: 439-456.

Fitting, James E.
1968 Environmental potential and the postglacial readaptation in eastern North America. American Antiquity 33: 441-445.

Hamilton, Nathan, John Mosher, Cynthia Thayer, and Jennifer Theberge
1990 Archaeological Phase II Testing of the Rumford Falls Project, Oxford County, Maine. Report on file, Maine Historic Preservation Commission.

Petersen, James B.
1990 Archaeological Testing at the Sharrow Site: A Deeply Stratified Early to Late Holocene Cultural Sequence in Central Maine. University of Maine at Farmington, Archaeology Research Center. Submitted to the Maine Historic Preservation Commission, Augusta.
1991 Archaeological Testing at the Sharrow Site: A Deeply Stratified Early to Late Holocene Cultural Sequence in Central Maine. Occasional Publications in Maine Archaeology, Augusta.

Petersen, James B., Nathan D. Hamilton, David E. Putnam, Arthur E. Spiess, Robert Stuckenrath, Cynthia A. Thayer, and Jack A. Wolford
1986 The Piscataquis Archaeological Project: A Late Pleistocene and Holocene Occupational Sequence in Northern New England. Archaeology of Eastern North America 14:1-18.

Petersen, James B., Thomas R. Baker and Michael J. Heckenberger
1988 A Stratigraphic Sequence at the Sharrow Site in Central Maine. Current Research in the Pleistocene 5:19-20.

Ritchie, William A.
1965 The Archaeology of New York State. Natural History Press, Garden City, New York.

Robinson, Brian
1991 Early and Middle Archaic Period occupation in the Gulf of Maine: Mortuary and Technological Patterning. In Early Holocene Occupation in the Gulf of Maine Region, edited by Brian S. Robinson and James B. Petersen. Occasional Publications in Maine Archaeology 9. Maine Historic Preservation Commission, Augusta.

Robinson, Brian and James B. Petersen
1990 Perceptions of Marginality: the Case of the Early Holocene in Northern New England. Paper delivered to the Conference on New England Archaeology 1990.

Sanger, David, William Belcher and Douglas Kellogg
1991 Early Holocene Occupation at the Blackman Stream site, central Maine. In Early Holocene Occupation in the Gulf of Maine Region, edited by Brian S. Robinson and James B. Petersen. Occasional Publications in Maine Archaeology 9, Maine Historic Preservation Commission, Augusta.

Spiess, Arthur
1991 Archaic Period subsistence in New England and the Atlantic Provinces. In Early Holocene Occupation in the Gulf of Maine Region, edited by Brian S. Robinson and James B. Petersen. Occasional Publications in Maine Archaeology 9, Maine Historic Preservation Commission, Augusta. In press 1991.

Spiess, Arthur, Bruce Bourque and R. Michael Gramly
1983 Early and Middle Archaic site distribution in Western Maine. North American Archaeologist 4: 225-244.

Thayer, Cynthia
1990 Recent radiocarbon dates for the Brigham site. Maine Archaeological Society Newsletter 4:1: 16.

Thomas, Peter A. and Brian S. Robinson
1980 The John's Bridge Site, V1-FR-69: An Early Archaic Period site in Northwestern Vermont. Department of Anthropology, University of Vermont, Report 28.

SUSQUEHANNA TRADITION CONTEXT

Nomination Version, January 1991

Introduction

The Susquehanna Tradition (circa 4000 to 3000 B.P.) is composed of a chronological series of stone tool assemblages characterized initially by finely made, broad-bladed projectile points, of other distinctive stone and bone tools, and a mortuary tradition that contrasts strongly with those of the preceding cultural group(s) in Maine. The climate was slightly warmer during the 4th millenium than today, and the forest was a hardwood dominated mixed hardwood-softwood association of birch, beech, pine, oak and a variety of other hardwoods. Along the coast, the waters of the Gulf of Maine were slightly warmer than at present, and tidal amplitude was less. Thus, the environment was more similar to that of modern southern New England than the modern Maine coast. None of the ecological changes mentioned here are coincident with the advent of the Susquehanna Tradition, so they cannot be said to be directly causal. Whatever the cause and mechanism, the first centuries of the fourth millennium witnessed the spread of cultural uniformity, definitely in stone tool form, possibly in bone tool form, and possibly in mortuary behavior across much of eastern North America.

In New York and New England, the Susquehanna Tradition encompasses a well defined sequence of phases or archaeological assemblages that clearly intergrade at temporal boundaries (Bourque 1975; Dincauze 1968, 1972, 1974, 1975; Funk 1976; Ritchie 1965; Sanger 1975; Snow 1980) and reflect coherent change across the region. In eastern New York the River Phase, characterized by side-notched Normanskill Points, is succeeded by the Susquehanna Tradition. One early phase of the Susquehanna Tradition is marked by broad bladed, contracting stemmed Snook Kill points. In central and western New York the related and contemporaneous Batten Kill complex, characterized by Genesee points, is the first representation of the Susquehanna Tradition. Snook Kill and Genesee Points often occur together, with Perkiomen points (convex sided, broadly corner notched) a widely distributed minority type that may be contemporaneous or slightly later. In central New York, the succeeding Frost Island Phase is marked by slightly smaller Susquehanna Broad points. A hypothetical continuing decrease in overall size and width ends with the Dry Brook Point type (Snow 1980:236). In New England, large points from the Atlantic Ledges site (Dincauze 1972), and closely related Snook Kill points, are given temporal priority. A parallel trend in decreasing size and width to New York is postulated, with the Wayland Notched point being an analogue for the Susquehanna Broad point in New York. Slightly smaller and narrower Coburn points end the sequence. Based on dates from New England and New York, the large Atlantic/Snook Kill points made their appearance around 3800 or 3900 B.P., and the smaller Coburn or Dry Brook points disappeared

around 3200 or 3100 B.P. However, as we shall see below, the exact timing of the sequence and the details of the trend toward smaller points (successional nature or contemporaneity of the point types) is questionable. The Susquehanna Tradition ends in New England and New York between 3100 and 2900 B.P. with the invention/arrival/evolution of a period transitional to Early Woodland, marked by Orient Fishtail points and extensive use of soapstone vessels, then by adoption of fabric malleated ceramics.

Atlantic Phase points (Dincauze 1972) "are large, bifacially flaked stone cutting and piecing tools with wide, distinct shoulders above a tapered or straight stem." "Mansion Inn blades" (Dincauze 1968) have corner removed bases that exhibit a less defined stem. "Wayland Notched points" (Dincauze 1968) are side notched. These large bifaces are accompanied by several classes of tools often made on broken or reworked points: drills or awls, bifacial stemmed scrapers with convex bits, and some scraper-shaped pieces used as strike-a-lights (with pyrites in fire-starter kits). An identical group of reworked projectile points is reported for Snook Kill Phase sites (Ritchie 1980:137-8), including stubby, reworked stemmed points with extreme wear on a blunt end, also strike-a-lights. Ovoid biface-scrapers are part of Atlantic Phase assemblages (Dincauze 1976). Unstemmed, or slightly contracting stemmed, point preforms, called "Boats blades" by Dincauze (1968), are common. Snook Kill traits include Snook Kill points, scrapers and drills made on reworked points, ovate and stemmed knives, simple end scrapers, celts, plano-convex adzes, shallow-lipped gouges, choppers, and pebble hammerstones (Funk 1976:255). Axes tend to be fully grooved or three-quarter grooved, with distinctively deep grooves. The drills exhibit a long, narrow, diamond-cross section tip, with a variety of basal forms including an "old point" base, a simple rectangular base, and a T-shaped base. The drill, gouge, adze, and celt forms appear to accompany Susquehanna Tradition assemblages throughout the sequence, although there may be subtle chronological changes in these forms that are not yet recognized. One basis of Susquehanna Tradition technology seems to be production of a variety of tools on bifaces, including the diagnostic points and knives, but extending to reuse of broken bifaces for scrapers and strike-a-lights, and some extreme retouch into drills. Animal effigies of flaked stone have also been reported (Funk and Cox 1987). Winged, perforated atlatl weights are rare, but might be an Atlantic Phase trait: one was recovered from the Atlantic Ledges site (Dincauze 1972), and one from Stratum 3: Lower Zone at the Neville site (Dincauze 1976). Soapstone bowls are apparently absent from the Atlantic Phase/Snook Kill assemblages, but appear in Frost Island and contemporaneous assemblages in New York. (Soapstone bowls continue into the later Orient Phase).

The Susquehanna Tradition occupations at the Turner Farm, designated in toto as Occupation III, must on typological grounds and the basis of radiocarbon dates fall early in the Tradition sequence. Bourque (1989) believes that Occupation III covers a 2 to 3 century span of time contemporary with

Dincauze's Atlantic and Watertown phases. The Turner Farm trait list is the best currently available for the early Susquehanna Tradition in northern New England, although there is some hint of slight stylistic change within the few centuries represented there (Bourque 1989). Flaked bifaces dominate the Occupation III artifact sample.

A distinctive bone tool technology may accompany the Susquehanna Tradition stone assemblage. It is poorly reported, the Turner Farm sample (Bourque 1989) being the exception. Basic forms and even manufacture technique differ between Occupation III and the preceding Occupation II. (Occupation III bone tools are ground into form, Occupation II tools are initially, at least, scraped into shape.) The vast majority of bone tools/ artifacts from Occupation III were recovered from burials. These included incised cervid longbone diaphysis pieces (6-8 cm by 2 cm), with well defined parallel incisions on the inside of the marrow cavity. These and other grave inclusions (small rounded bone pieces) Bourque suggests may have been gaming pieces. Multiple examples of turtle carapace were recovered. Two examples were in association with multiple small, rounded stone pebbles, thus it seems likely that turtle shell rattles were not a rare grave inclusion (Bourque 1989). Other bone artifacts include a bone gouge and bone harpoons. Twelve small, cylindrical copper beads are reported from Features 9 & 12/1975 (Bourque 1989).

Comparatively little is known about the general adaptation and lifeways of the Susquehanna Tradition, and definitely not enough is known to examine changes over time and space. Although their contemporaries in the lower Mississippi Valley and Midwest knew horticulture, the Susquehanna Tradition is assumed to have had a general hunter-fisher-gatherer adaptation. Throughout the Northeast, most Susquehanna Tradition assemblages are made on local lithic materials, or lithic materials moved over short distances (less than 100 km). There is little evidence of long-distance trade in lithics, despite the broad geographic similarity in artifact styles that change in parallel over time. There is also a widespread pattern of mortuary ceremonialism which includes frequent use of cremation, often of the deceased and usually of a tool kit to accompany the deceased, cremation in separate features (crematoria) from the actual interment pits, and often, grouping of the crematorium and interment pits into "cemeteries." This consistent mortuary behavior is found as far south as the Savich Farm in New Jersey (Kraft 1986) and as far north as Maine (Bourque 1989).

Although the Susquehanna Tradition is a construct recognized by most contemporary archaeologists in the Northeast, clearly much basic lithic and bone artifact attribute description and comparison has yet to be done. Full reporting of assemblages of limited chronological span has only begun. Although the broad outlines of chronological change within the Susquehanna Tradition are suspected, they exist currently at the level of hypotheses

without extensive testing. Realization of geographic variability in attributes, and its implications, has barely started.

Many Susquehanna Tradition radiocarbon dates have now been reported in the literature. Two hearths at Point-du-Buisson 4 yielded dates of 3550±200 (Qu-1015) and 3480±130 (RC-1268), although without absolute association with Susquehanna Tradition material (Clermont and Chapdelaine 1982:41). The Mud Lake Stream site in New Brunswick (Deal 1985) yielded an assemblage of Atlantic Phase points and associated material from Features 1 and 21, and three radiocarbon dates: Fea 1, 4010±180 BP; Feature 21 4000±100 BP (Beta 7639) and an earlier date from a disturbed portion of the feature. The association of these features with the Atlantic points and other stone tools is solid, but there are at least two episodes of disturbance associated, including a 7th millennium radiocarbon date. The Adder Orchard site in Ontario has yielded multiple features and lithics, with three radiocarbon dates averaging 4000 B.P. (Fisher 1990). To the south of Maine, Atlantic phase material has been dated 3805±135 in Feature 017-D at the Rocks Road site, New Hampshire (Robinson and Bolian 1987). A Wayland notched point is reported from a pit in a site in Litchfield, New Hampshire dating 3620±110 (Y-1373) (Dincauze 1968). A Snook Kill assemblage has been dated from the Kuhr No. 1 site in New York at 3620±130 (I-6733), and an assemblage that is said to be transitional between Snook Kill and Frost Island at the Camelot No. 1 site dates 3425±95 (Funk and Rippetau 1977). The same authors date Frost Island assemblages at the Fortin site at 3280±90 (I-7097); at Kuhr No 1 3500±105 (I-6751), 3545±100 (I-7096), and 3485±90 (I-7094); and at the Enck No 1 site 3250±100 (Dic-192). They consider the three dates on Frost Island from Kuhr No 1 to be 200-300 years early, even though they came from sealed contexts. The Claude No 1 site in New York has yielded a Frost Island date of 3490±80 (Dic-494) (Trubowitz 1983), which adds credibility to the Kuhr No. 1 site dates.

In Maine, Snow (1975) reports dates of roughly 3350, 3600 and 3800 from cremation pits without diagnostic artifacts at Passadumkeag, and a date on salvaged charcoal from a burial pit at Eddington Bend of 3430±145. The Sharrow site has yielded one date closely associated with Atlantic points: 3650±110 (Beta 20719) (Petersen, pers. comm). Site 88.7 on Kingsbury Stream, Abbott, has yielded at date of 3720±90 on a buried hearth without diagnostic artifacts (Spiess and Cranmer 1990). A single cremation feature at the Young site yielded 8 dates ranging from 3105 to 3715 B.P. (Borstel 1982) and an Atlantic Phase cremation assemblage. Four of the five youngest dates from this one cremation feature cluster in the southwest quadrant of the feature. Several possible sources of contamination for the large span of dates were explored, without definitive success. The three oldest dates are 3715±60, 3670±80, and 3650±65; two dates fall around 3400. Recent additional dates on the feature strengthen the case that the feature dates about 3600 B.P. Ten dates applicable to Atlantic Phase assemblages have been obtained from

the Turner Farm (Bourque et al 1984). One feature yielded three dates averaging 3675 BP. The other dates range from 4020±80 to 3515±80. The site of Fort Halifax has yielded four dates on two of three buried occupation surfaces (Assemblages D, F, and J) averaging 3150 B.P. The only diagnostic artifact from these sealed components was a Susquehanna Tradition drill fragment; unfortunately there were no diagnostic bifaces (Spiess, research in progress). The Dennison Hatchery site (Peterson 1990) has returned a radiocarbon date of 3320±80 from a sealed stratigraphic context with a broadly side-notched/expanding stemmed point transitional to Orient Fishtail form. The Smith site in the Williams Dam project area has similarly yielded late Susquehanna Tradition dates of circa 3200 associated with expanding stem or broadly side-notched points (Petersen, personal communication, work in progress).

In sum, the Mud Lake Stream, Adder Orchard site, and (one) Turner Farm dates of circa 4000 BP may record Atlantic Phase-like technology/culture in Maine and eastern Canada between 4000 and 3900 B.P. The vast majority of Atlantic Phase dates from New England, and Snook Kill dates from New York, fall between 3600 and 3800 B.P. In New York, the transition from Snook Kill to Frost Island occurred between 3500 and 3400 B.P. Frost Island Phase lasted until at least 3200 B.P. In Maine, a similar transition from Atlantic Phase to an unnamed successor, which we call Late Susquehanna, occurred sometime after 3600 B.P, but before 3320 (at the Dennison Hatchery site). That unnamed successor, the Late Susquehanna Tradition, survived until at least 3150 B.P. at Fort Halifax, or later at the Smith site.

Answering the question whether the Susquehanna Tradition represents a migration, diffusion or some hybrid process involves focussing on local behavior as well as broad patterns. Despite the fine stone working that characterized the Susquehanna Tradition generally, across much of the Northeast relatively intractable local volcanic rocks (felsite, rhyolites) were used for biface production. Cherts were commonly used only in central New York and further west. The idea that local lithic resources were "overwhelmingly" used by early Susquehanna Tradition knappers (makers of Snook Kill and Atlantic points) has lead Funk and Rippetau (1977:37) to assume that diffusion of ideas was the main factor underlying spread of the Susquehanna Tradition. They assume implicitly that immigrants would bring stone from their place of origin and be unfamiliar with local sources. Local distribution of a lithic westward from a source on the Maine coast (Bourque et al 1984) apparently documents establishment of local movement or exchange patterns (scale 50 km) early in the Susquehanna Tradition occupation. Thus, we expect that research on the Susquehanna Tradition over the next 5-10 years will focus on questions of chronology, settlement pattern, lithic and bone tool style, and movement/exchange in an effort to answer the broad question "What is the Susquehanna Tradition?" and to define its local manifestations.

In-State Advances in Research

The last two decades of research have witnessed advances in our understanding of the Susquehanna Tradition, many of them as yet unpublished. The circa 1970 recognition of Atlantic Phase-like and Watertown Phase-like occupation on the Maine coast (Bourque 1989) and lower rivers has been accompanied by a feeling that Frost Island-like material (characterized by Susquehanna Broad points and soapstone vessels) is rare or absent. Recent work at the Dennison Hatchery site (Petersen 1990), the Smith site (Petersen report in progress), at Fort Halifax (Spiess report in progress) and elsewhere has located Late Susquehanna Tradition occupations in stratified contexts, dating between roughly 3500 and 3150 B.P. As these materials are analyzed and reported, we will gain a clearer picture of how to recognize late Susquehanna Tradition material in Maine, and its relationship to the rest of the Northeast.

In fact, it is useful now to specify an early and late Susquehanna Tradition division. The early Susquehanna Tradition is comprised of material related to Dincauze's Atlantic and Watertown phases, Snook Kill and Genesee points as exemplified by Turner Farm Occupation III; Borstel's cremation feature at Hirundo; and other assemblages with large, broad bifaces. This material probably dates between 4000 or 3950 BP and 3500 B.P. Late Susquehanna Tradition assemblages in Maine are related to the Frost Island Phase in New York and/or poorly defined constructs characterized by smaller, narrower points, often with broad side notches, dating between roughly 3500 and 3100 B.P. or later.

Continued work on early Susquehanna Tradition occupations at the Turner Farm (Bourque 1989), the Todd Site (Skinas 1987), the Carey's Garden complex in Topsham (Wilson et. al. 1990), sites 53.38 in Waterville and 27.59 and 27.60 in Warren (Spiess, research in progress), at various sites on the Saco and Androscoggin Rivers and major interior lakes (Petersen various) will provide reams of data on the early Susquehanna Tradition. Bourque's (1989) suspicion of chronological change within the few centuries represented at the Turner Farm is one such advance. Another research advance already evident is that early Susquehanna Tradition material is distributed much farther inland than could be claimed for a strictly coastally oriented culture: as far up the Penobscot as Mattawamkeag, on the upper Piscataquis, and in the major northern interior Maine lake basins on the headwaters of the Kennebec, Penobscot and St. Croix systems.

To date, analysis of the Turner Farm data provides the only detailed look at coastal lifeways: the early Susquehanna Tradition was more dependent on terrestrial deer hunting and less dependent upon marine hunting and fishing than any group living there before or since (Spiess and Lewis 1990).

More data has come from the Turner Farm on the cremation cemetery and mortuary behavior of the early Susquehanna Tradition occupants in Maine than from all other sites combined. These data indicate a clear and dramatic break with preceding artistic, technological and mortuary behavior. While most Maine researchers continue to insist that the Susquehanna Tradition represents a clear break from previous inhabitants of Maine, all of us are mindful that just one feature or occupation layer could produce evidence of contact between the cultures involved. Cross (1990) has just advanced a provocative idea based upon the Turn Farm and Hirundo biface assemblages that Early Susquehanna tradition biface production was an activity accomplished by a few lithic knapping specialists. One implication of this hypothesis is that a change in social organization allowing or encouraging specialized production by the "best" artisans could cause the "spread" of Susquehanna Tradition and replacement of earlier "cultures". This hypothesis is potentially much more powerful than the old alternatives of "migration" and "diffusion" for explaining the initial spread of the Susquehanna Tradition, and its eventual demise by gradual change.

End Date

The Susquehanna Tradition ends during one of the most poorly understood times in Maine prehistory: about 2 centuries on either side of 3000 B.P. We exclude all ceramic-using occupations from the Susquehanna Tradition. The earliest date so far obtained in Maine on ceramics, on Vinette I corded ceramic from the Knox site (30.21) near Isle au Haut, is 2720±90 B.P. (Belcher 1988). On Long Island and eastern New York, the Orient Phase dates between approximately 3000 and 2700 B.P. It is characterized by side-notched stemmed Orient "fishtail" points, use of both soapstone vessels and cremation burial. One reason for excluding the Orient Phase and related material from the Susquehanna Tradition is the possible adoption of ceramics during the late Orient Phase, although apparently both Frost Island and early Orient phase groups used soapstone for stone vessel manufacture. Although there is much argument about exactly what effect the addition of ceramic technology had on the lives of northeastern Amerindians, that introduction is still a convenient time marker in New England.

Review of Research Significance Themes

Theme 1: Culture History

This theme engenders two types of related research. Most basic is the elucidation of the details of succession of tool types and other artifacts in the archaeological record. As we have amply demonstrated above, our understanding of the beginning and end of the Susquehanna Tradition, chronological details within it, and time-space systematics necessary to elucidate

regional geographic entities is in a state of rapid improvement. In the absence of this type of detailed knowledge, we cannot progress on another sort of culture history, which is the tracing of the ethnohistory of Native American groups.

There are two major linguistic groups in northeastern North America: Iroquoian and Algonquian. The geographic distribution of these languages at the time of contact indicates a complex history, including population movement/replacement over some unknown period of prehistoric time. Linguists attempt to approach this problem by looking for common root words in reconstructed proto-languages that might have geographic significance: ie. names for certain trees, plants, animals or landforms. Proto-Algonquian, for example, has words for beech (Fagus) and tamarack (Larix), which indicate a homeland somewhere in the north temperate to subarctic transitional forest (Snow 1980:232-3). This reasoning raises the question of Iroquoian origins. Snow (1980) suggests that the Susquehanna Tradition marks the arrival of Iroquoian languages in the northeast, presumably from the mid-Atlantic states. Lounsbury (1961) suggests the split of Iroquoian from Cherokee between roughly 1500 and 1800 B.C.. Siebert (1967) suggests proto-Algonquian divergence into daughter languages around 1200 B.C. Fiedel (1987), however, puts the dispersal of proto-Algonquian from a northern homeland relatively late, during the Middle Woodland (circa 200 B.C. to 700 A.D.). Naturally enough, when faced with an event that looks like a migration (Susquehanna Tradition arrival in northern New England), the question arises of who were the immigrants and where did they come from? Arrival from the south, and a proto-Iroquoian linguistic affiliation is one obvious hypothesis. Others include the possibility that the language they spoke has no surviving descendants, or the possibility that cultural and linguistic correlations are not valid even at the Tradition-Linguistic Family level of correlation.

Theme 2: Settlement Pattern

"Settlement pattern" can mean geographic variation on a continuum of scale. Herein we focus the discussion on three scales: 1) the distribution of sites across the entire state, their clustering in certain regions and possible absence in others; 2) the distribution of sites relative to specific attributes of landform, and 3) intrasite patterning, the actual organization of space within a habitation site.

On a regional geographic scale, the distribution of known early Susquehanna Tradition sites is controlled more by the dual factors of site preservation (site erosion, especially coastal subsidence), and archaeological survey intensity. Early Susquehanna Tradition sites are found everywhere that modest numbers of Ceramic period sites are found, with the exception of the York County and Washington County coastline, where the most rapid rate of coastal subsidence has selectively eliminated early sites compared with

later sites. Early Susquehanna Tradition sites are found along the coast from Cumberland County/Casco Bay eastward to Hancock County. They are also located along the rivers that drain to the coast, from the Saco in the west to the St. Croix in the east, and they are located on the headwaters stretches and headwaters lakes of the major rivers. Specifically, early Susquehanna Tradition sites are located in the Rangeley Lakes; Moosehead Lake; Chesunkook, North Twin and Ambajejus Lakes; and East Grand Lake and Spednick Lakes regions. These are, respectively, the headwaters of the Androscoggin, Kennebec, Penobscot and St. Croix River systems. Only the Fish River, and upper St. John river systems in northernmost Maine lack known early Susquehanna Tradition sites, probably because very few prehistoric sites have been discovered there, in general due to lack of professional survey.

The distribution of late Susquehanna Tradition material is less clearly known, but it too includes the major river headwaters lakes (eg. Moosehead) and the main valleys of the major river systems (eg. the Kennebec around Solon and Waterville). A comprehensive re-examination of coastal shell midden collections for diagnostic late Susquehanna Tradition material would be worthwhile, as no known components come to mind. One major question that should be answerable on the basis of extant collections with more research is whether late Susquehanna Tradition material is truly less common than early Susquehanna Tradition material, as it now appears, and whether any drop in intensity of occupation was accompanied by a geographic contraction in range.

The immediate shoreline location of most Susquehanna Tradition sites, coastal or interior, indicates that transportation and settlement were closely tied to canoe-based travel. Some of the smaller streams and rivers in the Maine interior are shallow, rocky and swift. They are usable without extreme effort only if light-weight, maneuverable, back-portable watercraft were available (Cook 1985). We have hypothesized (Cook and Spiess 1981) that examination of the archaeological record on streams that would have been usable only with birchbark canoes (not dugout canoes) would inform us about the invention of some level of birchbark canoe technology. One such stream is Kingsbury Stream, flowing north through Abbott, into the Piscatquis River, a major connecting route from the Kennebec via Wesserunsett stream (Cook 1985). Any culture making more than incidental use of Kingsbury Stream, we hypothesize, must have had access to birchbark canoe technology. In 1989 Spiess obtained a radiocarbon date of 3720±90 (Beta-33549) for a firehearth (Feature 2) buried in river silt on a bank of Kingsbury Stream (site #88.7). Although diagnostic artifacts have not yet been found in association, the date falls in the early Susquehanna Tradition period. Our working hypothesis, consistent with the general congruence of Susquehanna Tradition settlement with later Woodland (Ceramic) settlement, is that the birchbark canoe was well-known to early Susquehanna Tradition people. (Since the birchbark canoe

must be a north temperate or subarctic invention, based upon ;argepaper birch tree availability, this fact alone has implications for the in situ origin of the Susquehanna Tradition [see Theme 1: Ethnohistory, above].)

Finally, there are a few notable exceptions to the water shoreline settlement pattern that rules much of Maine prehistory. These are medium to large early Susquehanna Tradition sites located on very well drained (sandy) soil. Examples include sites 27.60 in Warren, and 53.38 in Waterville. None of these sites are on landforms that could have been riverbanks or lakeshores during Susquehanna Tradition occupation. Very well drained sandy soil is not the dominant soil type in much of central Maine, meaning that the sandiness of the soil must somehow have been significant. Perhaps the people were avoiding less well drained glacial till in trying to locate suitable camp-spots away from water (Bourque, personal communication). A similar anomaly (away from water) and focus on very well drained sandy soils has been noticed for Susquehanna Tradition settlement in southwestern Ontario (Kenyon 1980: 20). The presence of carbonized nut fragments in the Davidson site, and preference for very well drained soils by certain nut-bearing tree species (white oak, shagbark hickory, and chestnut) in Ontario lead Kenyon to hypothesize a (seasonal) focus on nut-harvesting. The Maine environment is similar, meaning that the hypothesis should be tested against Maine data. Alternative explanations for the anomalous settlement locations away from water might include movement of early Susquehanna Tradition early into an already settled landscape and an attempt to avoid direct competition with established resident groups (Bourque, pers. comm.), or, conceivably even partial reliance on a primitive form of horticulture in the easily worked sandy soils. These thoughts lead naturally to the next Research Theme.

Intrasite settlement patterns are just beginning to provide a focus for research. The Turner Farm shell midden on North Haven Island, Penobscot Bay (Bourque 1989) provides horizontal distribution patterning including clustering of hearths and other features. Bourque (1989) describes a "large feature complex composed of a cobble pavement (feature 19/1972), an extensive array of hearths and the probable house floor" (Features 1/1973, 2/1973, 3/1973, 4/1973, 25/1972, 29/1974 and 24/1974). A second probable concave (semi-subterranean) house floor complex is located to the northeast on the site. Moreover, the Turner Farm preserved a Susquehanna Tradition cemetery area, adjacent to but not overlapping the habitation area. But Bourque is certain that the Susquehanna Occupation (III) at Turner Farm represents several centuries of re-use of the area. Other early Susquehanna Tradition sites preserve a dispersed village pattern, with much sterile space between activity foci. The Carey's Garden complex in Topsham, sites 27.60 in Warren, and 53.38 in Waterville are currently being investigated to quantify this pattern. Site 53.38, in particular, seems to be composed of regularly spaced activity areas marked by stone tool debris and fire hearths along a small sandy ridge top. Site 27.60 is composed of six or more loci of varying size

scattered across 7 acres of hilltop.

Theme 3: Subsistence Patterns

Based upon the similarity of Susquehanna Tradition settlement patterns with later Ceramic (Woodland) patterns, and the generally limited intensity of Susquehanna occupation, there is no doubt that the basic economy was one of hunting, fishing and gathering wild plant food.

The presence of charred nutshell in Susquehanna Tradition (broadly defined) hearths has been noticed by several out-of-state researchers, beside the southern Ontario sites mentioned above (Kenyon 1980). Charred butternuts have been recovered from the Camelot No. 1 site in New York (Funk and Rippetau 1977:34), and hickory nut, acorn and walnut shells were recovered from "almost every hearth" at the Savich Farm in New Jersey (Kraft 1986:80). Turner Farm burials have yielded burned beechnut and burned wild plum (Prunus) seeds. A few fragments of hazelnut and acorn have been identified in late Susquehanna Tradition hearths at Fort Halifax (53.35) (Asch-Sidell, personal comm. 1989). There is plentiful charcoal from features at site 27.60, currently undergoing analysis; however, preliminary results do not indicate heavy use of nuts, and no cultigens have been identified (research in progress by Asch-Sidell). Unfortunately, it is only recently that Maine prehistoric charcoal samples have routinely been submitted for species identification, so the comparative database from other time periods will be weak.

There is little information on Susquehanna Tradition subsistence on rivers and lakes, although fishing seems to have focussed on anadramous species. Herring family (shad or alewife) bones were identified in Feature 21 at Mud Lake Stream, New Brunswick (Deal 1985). Eddington Bend (Petersen and Sanger 1986) has plentiful evidence of sturgeon use at the head of tide on the Penobscot. Fort Halifax (53.35) preserves evidence of intense sturgeon fishery and some salmon fishing at the head of tide on the Kennebec (Spiess, research in progress).

The vast majority of Susquehanna Tradition subsistence information from coastal shell middens comes from the Turner Farm (Spiess and Lewis 1990). Utilization of soft-shelled clam by Occupation III residents at the Turner Farm was extensive (12,740 kg. of clamshell in the excavated area), indicating a greater proportional shellfish contribution to the diet compared to mammal products during the Susquehanna Tradition than later. Other shell middens along the Maine coast show that shellfish collecting was an integral part of Susquehanna Tradition coastal economy. Mammal bone in Occupation III at the Turner Farm demonstrates year-round (or at least multi-seasonal with no detectable breaks) residence at the site. Thus, at least some Susquehanna Tradition people were resident year-round on the coast. Vertebrate hunting/fishing by Susquehanna Tradition occupants at the Turner Farm was less marine

oriented than the preceding Occupation I and II, or the following Ceramic (Woodland) inhabitants. Specifically, there was proportionately less fishing and fowling, and what fishing occurred was an inshore activity. Occupation III inhabitants were neither intensive offshore fishermen for codfish and swordfish like their predecessors, nor intensive inshore fishermen and seal hunters like their successors. Therefore, a greater proportion of their diet was based upon terrestrial mammals, deer in particular.

One research topic needing consideration soon is the variability in coastal Susquehanna Tradition economy, and a comparison with geographic and seasonal variability in coastal Ceramic (Woodland) period economies. Unfortunately, few faunal assemblages from shell midden occupations attributable to this period have yet to be systematically excavated and reported.

Theme 4: Mortuary Patterns

Disposal of the dead was an event that apparently consumed a great deal of time and energy during the Susquehanna Tradition. Like preceding Moorehead Phase (and earlier) "Red Paint" mortuary behavior, the Susquehanna Tradition people placed many of their dead in plots of ground separated by greater or lesser distance from their habitation sites. The same practice occurs in modern culture: we call these mortuary areas "cemeteries." We assume that these cemeteries were somehow "sacred" space in a religious sense, again in parallel with our Euroamerican culture. The Savich Farm in New Jersey (Kraft 1986:83) was a burial place for burned human remains, but not much charcoal, indicating cremation outside the burial pits. Cremation occurred at various stages of decomposition of the body. Accompanying grave goods are not specific to any age/sex group.

Turning to Maine, Eddington Bend (Moorehead 1922) and the Young site (Borstel 1982) have yielded Susquehanna Tradition graves. However, most of the information on Maine Susquehanna Tradition mortuary practice comes from the Turner Farm (Bourque 1989). The Turner Farm cemetery includes a variety of inhumation types, including single and multiple burials, the latter including mixed age/sex groups. Burials include deposits of bones cremated elsewhere, untreated bundle burials, and uncremated extended burials, often with small deposits of red ocher. Flaked and ground stone artifacts, bone artifacts including turtle-shell rattles, and faunal remains and floral remains are included. Some of the grave goods are cremated. Faunal remains in the grave lots include bone interpretable as food for the deceased (bones of the lower limb of a deer), and bones that have other meaning (bird skull or body parts, or carnivore skull parts). A comparison of midden with burial flaked stone bifaces demonstrated that the burial goods are thinner and larger. A series of cogent arguments (Bourque 1989) lead to the conclusion that the flaked stone grave goods were "better" than average, and that in a culture where the qualities of fine stone flaking and large size were valued,

the more valued specimens (both in used and "mint" condition) were sent along with the dead.

Differences between a northern and southern group of graves at the Turner Farm, primarily in stone tool typology, has convinced Bourque (1989) that several centuries of chronological change are represented. (Admittedly, radiocarbon dates do not confirm the "early" versus "later" groupings.) He hypothesizes development within the Susquehanna Tradition of mortuary behavior during the several centuries of occupation at Turner Farm. Early burials include both primary (extended) and secondary (bundle) uncremated burials, both with red ocher, but with few grave furnishings. Missing bones from some burials hint at considerable associated ritual complexity, perhaps involving a period of exposure or preliminary mortuary ritual elsewhere. (Note that the grave goods in these early burials are definitely early Susquehanna Tradition in form, not related to the preceding Moorehead Phase). Slightly later burials, still within the early Susquehanna Tradition, are cremated and accompanied with rich grave furnishings. How and why did this mortuary complexity develop? There are implications for understanding the process of immigration (if such) into Maine, cultural relationships with indigenous groups, and the spread of ideas to/from other Susquehanna Tradition groups to the south and west.

Theme 5: Transportation, Travel, Trade, and Commerce

As with most other prehistoric cultures in Maine, our database applicable to this theme is derived mostly from identification of the raw material of stone tools, and investigation of direction, distance and mode of its transport. Above (settlement pattern) we have presented the argument that the Susquehanna Tradition made and used birchbark canoes, and were capable of traveling cross country on the interior waterways of northern New England. Moreover, it appears that Susquehanna Tradition lithic styles were similar across large areas of the Northeast. Therefore, it may seem surprising that most lithic material used in Maine by the Susquehanna Tradition was locally obtained. Where we can trace lithic movement, it is usual no more than 100 km. (An exception may be a few pieces of Kineo rhyolite in Massachusetts Susquehanna Tradition assemblages.) At least in the Kennebec drainage (Funk and Cox 1987), and probably eastward from there (e.g., site 27.60) the major source of lithic raw material for flaked stone tools is glacial till derived river cobbles of Kineo rhyolite or "Traveler rhyolite." Site 53.34 on the Sebasticook (Funk and Cox ibid) has yielded abundant evidence of bifaces made on large flakes struck from cobble cores. A lithic reduction sequence from cores to finished artifacts is proposed for the site. There is even evidence of "prima-donna" lithic biface reduction behavior in the form of a bifacially flaked turtle or beaver effigy made on felsite.

A visually distinctive coastal volcanic, called banded-spherulitic rhyolite (or "Vinalhaven striped rhyolite" by collectors) has a distribution westward from its source on Vinalhaven (next to North Haven Island, near the Turner Farm) into the Kennebec and Androscoggin River estuaries (Bourque et al 1984). This research demonstrated that banded striped rhyolite may bemore common in these westward estuaries than upstream from the source in the Penobscot drainage. Subsequent research (Spiess et al [1988], and at 27.60 in progress) has demonstrated a high frequency of banded spherulitic rhyolite in Saint George River early Susquehanna Tradition collections as well (as expected, since the St. George lies between the source and the Kennebec River). The hypothesis presented by Bourque et al, that cobble felsite is common in the Penobscot, whereas BSR might have filled a "lithic deficit" to the westward, is not convincing for the St. George and Kennebec valleys. Restudy of this issue, using the data accumulated since 1984, is warranted.

V. Kenyon (personal communication) has recovered a Susquehanna Broad point made of Kineo rhyolite, and debitage of the same material, on the Merrimack River in New Hampshire. Thus, by the late Susquehanna Tradition, this common material that is not found in glacial drift in the Androscoggin Valley was passing westward from the Kennebec. It is time to pay more attention to lithic materials of Susquehanna pieces on a regional scale.

Theme 6: Social and Political Organization

At present there are only two hints at Susquehanna Tradition social and political organization. Their grave goods do not show any correlation with individuals of particular age or sex groups, nor are there consistent, non-utilitarian grave offerings that might be construed as markers of rank or status. However, some Susquehanna Tradition individuals at the Turner Farm exhibit evidence of cranial deformation, and this fact may bear on individual status. At present, we therefore assume that Susquehanna Tradition groups were band-organized hunter-gatherers where status was achieved on the basis of personal accomplishment. Neither is there any evidence of warfare, which was one common path toward accumulation of status and power later (Contact Period) in the Northeast. The second clue to social organization is intra-site patterning. The dispersal, or at least well-separated nature, of concentrations of archaeological debris at sites such as the Carey's Garden complex, 27.60, possibly the Turner Farm, and 53.38 argues for individual family autonomy. Cross' (1990) thesis that craft specialists produced the fine lithic pieces which characterize the Early Susquehanna Tradition must have some implications for social organization within and between groups. This type deserve further study.

Theme 7: Laboratory Techniques

Application of techniques of stable isotope quantification to bone from

interments at the Turner Farm holds some promise for generating more data about Susquehanna Tradition dietary patterns. Initial results (Bourque, pers. comm., unpublished) indicate great variability from individual to individual in dietary protein content at the Turner Farm. Since this site is among the few in the northeast that has yielded a large series of Archaic period skeletons of known age, this type of analysis may contribute to arguments about subsistence and even individual status (access to protein) at the site.

Theme 8: Anthropological Archaeology

The strong suspicion held by most prehistorians working in the Northeast that the Susquehanna Tradition was carried into the region by an immigrant group may eventually allow us to contribute to the broader question of population immigration and culture contact dynamics. If Bourque is correct that initial early Susquehanna Tradition mortuary practices at the Turner Farm were uncomplicated, but became more intense within a few centuries, perhaps we can learn something about the development of group identification and inter-group dynamics. Cross (1990) has presented his hypothesis that Susquehanna Tradition lithic production was a specialist craft activity in a broader context of craft specialization and social organization among hunter-gatherers. Maintenance of inter-group social ties, for example, might be one result.

Theme 9: Human Biology

Again, the skeletal population from the Turner Farm is by far the largest Susquehanna Tradition sample from New England. A preliminary skeletal biological study (Barbian and Magennis 1989) recorded a minimum of 70 individuals. The deceased included a wide demographic range: one fetus, nine newborns (ages 0 to 1), 25 infants and children between ages 1 and 12, 4 children between 12 and 20, and 30 adults, of which at least eight are greater than 35 years old. There is no correlation between age or sex and mortuary treatment (cremation, inhumation either as corpse or bundle burial).

Stable isotope analysis is a method of comparing relative representation of isotopes of carbon and nitrogen from skeletons with plant and animal food sources, and estimating human diet. Preliminary stable isotope analysis has been accomplished on the Turner Farm population, and the results show a greater than expected range of variation from individual to individual (Bourque, pers. comm. 1989). Bourque wants to explore the concept of differential access to food/protein sources among various age/sex groups in the population. Seemingly, any new information on Susquehanna Tradition skeletal biology will add comparative data to what could be a fascinating data base.

Theme 10: Environmental Studies

During the Susquehanna Tradition the Maine coastal and near-coastal environment, probably meaning both water temperature and terrestrial climate, was slightly warmer than at present. The plant species represented by charcoal in Susquehanna Tradition fire hearths may be a source of information on potential changes in forest cover since the 4th millennium.

Calcined (burned) bone from Susquehanna Tradition fireplaces and other features at several riverine sites is contributing significant data to the prehistory of Maine's fishery. Calcined sturgeon bone dominated at Fort Halifax and Eddington Bend, two sites at the head of tide on Maine's two largest rivers. Salmon are present as a minority species at Fort Halifax. The concept that sturgeon were an important, perhaps the most important in terms of weight, anadromous fish species is new to paleoenvironmental study in the Northeast. Modern fisheries biology restoration programs are focussed heavily on salmon, and secondarily on shad, suggesting that much of the biomass present prehistorically may currently not be adequately considered in restoration programs. Carlson (1988) has used primarily Woodland (Ceramic) period data from Maine and elsewhere in New England to argue that shad and sturgeon were more important anadramous fish than salmon. She also argues (1988:74-5) that the taking of estuarine fish in the mid- and lower estuary (primarily small cod and flounder) was more important in the focus of prehistoric social organization than was the fishery for anadramous species at or above the head of tide. While we accept the conclusion that salmon were not nearly as important in New England as they were prehistorically on the Northwest Coast, Carlson did not have full access to much data developed in Maine during the last four years. Her hypothesis of anadromous versus estuarine fish importance affecting prehistoric social organization and seasonal movement scheduling requires reexamination.

Theme 11: Non-Mortuary Religious Practices

Currently, there is little information available about non-mortuary religious practices during the Susquehanna Tradition. Perhaps the persistent occurrence of turtle shell rattles, albeit in mortuary context, informs us about ritual/musical aspects of Susquehanna Tradition life. It is tempting to draw analogies directly from ethnohistoric accounts of Iroquoian and other groups' use of turtle-shell rattles in ceremonial contexts, but the data to test these analogies is currently lacking from the archaeological record.

Theme 12: Cultural Boundaries

The Susquehanna Tradition is notable for the apparent absence of sharp

cultural boundaries within this cultural phenomenon. However, if this culture was present in Maine as early as 4000 B.P., and the mostly earlier Moorehead Phase survived locally until 3800 B.P., then the opportunity exists to study the dynamics of culture contact over a few centuries. It is possible, however, that the transition from Moorehead Phase to Susquehanna is mostly developmental in nature within in situ populations.

Evaluation

The research significance themes discussed above demonstrate that research questions pertinent to the Susquehanna Tradition still focus on questions of origin and internal spatial/temporal relationships. We are just beginning to ask for more detailed information on settlement pattern, subsistence and the topics of themes 4 though 11. Because much research is still at the basic culture-historical level based upon diagnostic stone tools, judgement of site significance for National Register eligibility may be at corresponding levels of data complexity. Site significance cri-teria based upon Susquehanna Tradition components are as follows.

One site with a demonstrable Susquehanna Tradition component in a given management unit is significant if it will likely yield a large sample of diagnostic Susquehanna Tradition artifacts.

Other sites in a given management unit must exhibit the following criteria for significance based upon a Susquehanna Tradition component. The component must be separable from other prehistoric artifactual material on the basis of horizontal and/or ver-tical stratigraphic separation or clustering, and it must be clearly asso-ciated with one or more of the following types of data: 1) features, 2) calcined or non-calcined vertebrate faunal remains and/or invertebrate faunal remains, 3) charred plant remains, and/or 4) human biological remains. The association of Susquehanna Tradition material with features may be assumed if the site yields a reasonable density of Susquehanna Tradition lithic material separable from other prehistoric material, if the context of pre-servation is not disturbed extensively, and if some evidence of feature preservation is present. Moreover, any site with a Susquehanna Tradition component that can make an extraordinary contribution to any of the Research Significance Themes presented above is significant.

At the time of writing there are 84 sites in the state inventory with a Susquehanna Tradition cultural presence. Seventeen (17) are currently listed on the National Register of Historic places, with concentrations of listing in the North Haven-Vinalhaven area, Solon area, and Milo area. None of the sites is listed solely because of its Susquehanna Tradition component.

Protection

The majority of Susquehanna Tradition sites are located in the marine coastal zone, or along rivers, streams, and lakes in the interior. Protection of these sites under shoreland zoning laws is currently judged to be adequate, although enforcement is not. Marine coastal Susquehanna Tradition sites are eroding, often with the Woodland (Ceramic) components that lie above them. However, since Susquehanna Tradition components are older, and consequently as a group have been subjected to greater coastal subsidence and erosion, and seem to be rarer than Woodland (Ceramic) components, greater consideration should be given to erosion control for significant Susquehanna Tradition components.

The exception to the "coastal zone" rule, those Susquehanna Tradition sites located away from water on sandy, well drained soils, are a problem for protection strategies. Until a better predictive model of where they are located is developed, some survey effort will have to be put into all construction projects on such soils to avoid damaging unsuspected sites.

References

Barbian, Lenore and Ann Magennis
1989 The Bioarchaeological Interpretation of the Turner Farm Site, Maine. Paper presented to the Council on New England Archaeology Annual Meeting, Sturbridge, Massachusetts May 20, 1989.

Belcher, William R.
1988 Archaeological Investigatons at the Knox site (30.21), East Penobscot Bay, Maine. Master of Science Thesis, University of Maine.

Borstel, Christopher
1982 Archaeological Investigations at the Young Site, Alton, Maine. Occasional Publications in Maine Archaeology 2, Maine Historic Preservation Commission, Augusta.

Bourque, Bruce J.
1975 Comments on Late Archaic populations of central Maine: the view from the Turner Farm. Arctic Anthropology 12:2:35-45.
1989 Untitled draft report on the Turner Farm site. Manuscript on file, Maine State Museum.

Bourque, Bruce J., Robert G. Doyle, and Steven White
1984 The Archaeological distribution of banded spherulitic rhyolite in Maine. Man in the Northeast 28:111-119.

Carlson, Catherine
1988 Where's the salmon?: a reevaluation of the role of anadramous fisheries in aborigonal New England. Pp. 47-80 in George P. Nicholas, ed. Holocene Human Ecology in Northeastern North America. Plenum Press, New York and London.

Clermont, Norman et Claude Chapdelaine
1982 Pointe-du-Buisson 4:Quarante Siecles d'Archives Oubliees. Recherches Amerindiennes au Quebec, Quebec.

Cook David
1985 Above the Gravel Bar: Indian Canoe Routes of Maine. Privately published, Winthrop, Maine.

Cook, David and Arthur Spiess
1981 Archaeology of the Piscatquis Ahwangan. The Maine Archaeological Society Bulletin 21:1:29-38.

Cross, John R.
1991 Specialized Production in Non-stratified Society: An Example from the Late Archaic in the Northeast. Ph.D. Thesis, Department of Anthropology, University of Massachusetts, Amherst.

Deal, Michael
1985 Final report on the 1983/4 excavations at the Mud Lake Stream site (BkDw 5), southwestern New Brunswick. Manuscripts in Archaeology 15, Historical and Cultural Resources, St. John.

Dincauze, Dena F.
1968 Cremation Cemeteries in Eastern Massachusetts. Papers of the Peabody Museum of Archaeology and Ethnology, Harvard Univsersity. 59:1.
1972 The Atlantic Phase: a Late Archaic cutlure in Massachusetts. Man in the Northeast 4:40-61.
1974 In introduction to archaeology in the greater Boston area. Archaeology of Eastern North America 2:39-67.
1975 The Late Archaic period in southern New England. Arctic Anthropology 12:2:23-34.
1976 The Neville Site: 8000 Years at Amoskeag. Peabody Museum Monographs 4. Cambridge, Massachusetts.

Fiedel, Stuart J.
1987 Algonquian origins: a problem in archaeological-linguisitc correlation. Archaeology of Eastern North America 15:1-11.

Fisher, Jacqueline
1990 Algonquian origins: a problem in archaeological-linguistic correlation. Archaeology of Eastern North America 15:1-11.

Funk, Robert E.
1976 Recent Contributions to Hudson Valley Prehistory. New York State Museum Memoir 22, Albany.

Funk, Robert E. and Bruce Rippeteau
1977 Adaptation, Continuity and Change in Upper Susquehanna Prehistory. Occasional Publications in Northeast Anthropology 3. George's Mills, New hampshire.

Funk, Thomas, and Steven Cox
1987 Phase II Archaeological Investigations of Site 53,34, Sebasticook River. Manuscript on File, Maine Historic Preservaton Commission.

Kenyon, I. T.
1980 The George Davidson site: An archaic "Broadpoint" component in south-western Ontario. Archaeology of Eastern North America 8:11-27.

Kraft, Herbert C.
1986 The Lenape. New Jersey Historic Society, Newark.

Lounsbury, F. G.
1961 Iroquois-Cherokee linguistic relations. In Symposium on Cherokee and Iroquois Culture, ed. by William M. Fenton and J.Gulick. Smithsonian Institution, Bureau of Ethnology, Bulletin 130. Washington, D. C.

Moorehead, Warren K.
1922 A Report on the Archaeology of Maine. Andover Press, Andover, Massachusetts.

Petersen, James B.
1990 A Report on Archaeological Investigations at the Dennison site. Report on file, Maine Historic Preservation Commission.

Ritchie, William
1965 The Archaeology of New York State. Natural History Press, Garden City, New York.
1980 The Archaeology of New York. Revised edition. Harbour Hill Books, Harrison, New York.

Robinson, Brian S. and Charles E. Bolian
1987 A preliminary report on the Rocks Road site (Seabrook Station): Late Archaic to Contact Period occupation in Seabrook, New Hampshire. The New Hampshire Archaeologist 28:1:19-81.

Sanger, David
1975 Culture change as an adaptive process in the Maine-Maritimes region. Arctic Anthropology 12:2:60-75.

Siebert, Frank T.
1967 The original home of the Proto-Algonquian people. National Museum of Canada Bulletin 214, Anthropology Series78:13-45.

Skinas, David
1987 The Todd Site: a case study in shell midden formation. Unpublished MS dissertation, University of Maine at Orono.

Snow, Dean
1975 The Passadumkeag sequence. Arctic Anthropology 12:2:46-59.
1980 The Archaeology of New England. Academic Press, New York.

Spiess, Arthur
1985 Wild Maine and the rusticating scientist: a history of anthropological archaeology in Maine. Man in the Northeast 30:101-129.

Spiess, Arthur and Leon Cranmer
1990 Upper Piscataquis Flood Control Structures: Phase IA Archaeological Survey. Report on file, Maine Historic Preservation Commission.

Spiess, Arthur and Robert Lewis
1990 The Turner Farm Fauna: 5000 Years of Hunting and Fishing in Penobscot Bay, Maine. Ms. on file, Maine Historic Preservation Commission.

Spiess, Arthur, Joan Robertson, and Mark Hedden
1988 The McLaughlin site: a Susquehanna and Early Woodland Occupation on the St. George River. The Maine Archaeological Society Bulletin 28:2:9-30.

Trubowitz, Neal
1983 Highway Archaeology and Settlement Study in the Genessee Valley. Occasional Publications in Northeastern Anthropology 8. George's Mills, New Hampshire.

Wilson, Deborah, Steven Cox and Bruce J. Bourque
1990 The Topsham Archaeological Project, Results of the 1988 and 1989 surveys.

CERAMIC PERIOD CONTEXT

Nomination Version, May 1991

Introduction

During the last 3,000 years, the Maine forest and sea coast have developed characteristics of a mosaic transition between North Temperate and Subarctic ecozones. These ecological characteristics were partially recorded by European colonists and, to some extent, still characterize the State today. Compared with the preceding Late Archaic, the last 3,000 years has been characterized by general climatic cooling, reinforced along the coast by cooler and wetter conditions driven by increasing tidal amplitude and cold water in the northern Gulf of Maine. In the forest, conifers have increased in number at the expense of most hardwood species, and a strip of coastal spruce forest has widened and spread westward from eastern Maine. Intertidal zone and estuarine productivity has increased dramatically as the water has cooled and tidal amplitude has increased, probably resulting in increased populations of waterfowl, seals and certain species of fish and shellfish at the expense of other species (Spiess et al 1983).

Maine's Native American population adapted with a generalized hunting, fishing and gathering economy based upon mobility in birchbark canoes. Subsistence and settlement strategies were combined to move people to seasonally available resources in some cases, or to move food or other resources to localized concentrations of population. Seemingly during the 3,000 years of the Ceramic Period, greater and greater pressure was applied to terrestrial large game populations, furbearers, and sea mammals. Corn-bean-squash horticulture was adopted only in southwestern Maine toward the end of the Ceramic Period, primarily due to marginal climatic conditions for horticulture over most of Maine. Life in the rest of the state remained based almost entirely upon harvesting wild resources until well after contact with Europeans.

The material culture of the Ceramic Period, as we know it archaeologically, includes stone spear points, arrow points and knives; a variety of cutting, scraping and whittling tools dominated by the common "endscraper"; small and simple woodworking adzes and celts; and bone points, netting needles, awls and other piercing tools. The more perishable wood, fibre and bark material culture produced with the less perishable tools listed above rarely survives. When it does survive, it includes spectacular examples of woven and dyed cloth, mats, skin clothing, birchbark containers and house covering, bark and cloth burial shrouds, and wooden tool handles and other implements. Native (unsmelted) copper is found occasionally. Mostly it was made into decorative beads, but occasionally it was formed into needles, awls or other small tools. The Ceramic Period, as its name implies, is also marked by the construction and use of hand-built low-fired ceramic

vessels which were used as cooking (and presumably storage) containers.

The beginning of the Ceramic Period is set at 3000 B.P. The oldest radiocarbon date associated with ceramics in Maine so far is 2720±70 B.P. at the Knox site near Isle au Haut (Belcher 1989). However, a date of 3150±125 B.P. associated with ceramics is reported from the Beaver Meadow Brook site in New Hampshire (Howe 1988). Based upon a review of these and other dates in the Northeast, Petersen and Sanger (1989) begin their Ceramic Period 1 at 3050 B.P. The Ceramic Period ends arbitrarily at circa 1500 A.D. (450 B.P.), with the advent of European contact, although the manufacture of Native American ceramics continued for up to two centuries more.

Across most of eastern North America, the last few thousand years of prehistory is called the Woodland Period. Sanger (1979:9 and elsewhere) prefers to call the period after introduction of ceramics to Maine the "Ceramic Period" rather than using "Woodland" terminology. We follow Sanger's usage here. The Ceramic Period term is designed to emphasize the difference between Maine's mostly hunter-gatherer adaptations of the last 3000 years, and the original definition of "Woodland" traits offered by McKern (1939) that was strongly based upon the association of ceramics with horticulture. We now know that the development of horticulture had a long history in North America independent of ceramic vessel manufacture (Smith 1989; Fitz 1990), and that many groups of hunter-gatherers on the northern fringes of the eastern woodlands adopted ceramic vessel manufacture but not horticulture.

There have been several major foci of research on the Ceramic Period in Maine within the last decade. The most fundamental is a detailed understanding of the sequence and chronology of changes in ceramic vessel style. Petersen and Sanger (1989) have just provided a usable master chronology which should solve the need for the near future. They divide the ceramic sequence into seven chronological Ceramic "Periods" (CP1 through CP7). Petersen and Sanger's chronology is ultimately based upon divisions of the radiocarbon time scale. As such it is strictly chronological. Several of their ceramic periods are transitional in nature between markedly different and easily recognizable "styles" of ceramic manufacture. Although the evidence is equivocal, and in some ways its interpretation is dependent upon theoretical considerations of culture change, Petersen and Sanger repeatedly prefer explanations of gradual change with continuity, rather than abrupt change, between ceramic styles. Other Maine archaeologists would tend to emphasize abrupt transitions between some styles, for example between Vinette I (CP1) and early Middle Woodland (CP 3).

Thus, one major Ceramic Period research topic is the nature and meaning of stylistic variation in ceramic vessels. Do some of the major style changes mark different (ethnic or residential) groups that co-existed and

maintained some sort of cultural boundary between themselves for decades to centuries? Petersen (see Petersen and Sanger 1989; Doyle et al 1982; Petersen and Hamilton 1984) has identified a subtle attribute of ceramic decoration, the direction of twist in manufacturing cordage and textile fibers that were often used to decorate the exterior of ceramics when they were wet, which also seems to indicate a cultural boundary within Maine of long duration. Ceramics found at sites on the coast and estuaries (eg. below Augusta on the Kennebec and below Bangor on the Penobscot) are decorated with predominately Z-twist cordage, while interior sites' ceramics are dominated by S-twist cordage impressions for two thousand years, from CP 1 through CP-4 (3000 to 950 B.P.). This pattern is homogenized after 950 B.P., when marine-shell tempered ceramics appear well into interior Maine, and Z- and S-twist cordage are present in nearly equal proportions. Does cordage twist manufacture mark an interior versus coastal cultural dichotomy which persisted for 2000 years, during which both groups adopted the changing, prevailing style favored for ceramic manufacture? Again, we are asking questions about what the variability in ceramic style means. Ultimately, finding the answer may allow us to trace backward in time the movements and ancestry of Native American groups who were first recorded in written records during the Early Contact period.

Part of the solution to this question, and a research focus in its own right, is work on the seasonal cycle and subsistence economy of the coastal zone. The vast majority of Native American habitation spots along the coast and lower estuaries were the locations of discard of locally-collected shellfish shells, among a vast array of other activities. The calcium carbonate in shellfish shells in these "shell middens" neutralizes the usual acid of Maine's soil. Shell midden sites preserve unburnt vertebrate (fish, bird, mammal) bone which would otherwise rot away. Thus, shell middens preserve a unique record of localized subsistence patterns. Because of progressive coastal erosion, shell midden components predating the Ceramic Period are rare. Thus, the study of subsistence and settlement patterns within whole estuaries or bays, based upon excavation and analysis of multiple sites, is virtually confined to the Ceramic Period. The last 15 years have witnessed the development of more and more precise techniques for determining season of death from shell, bones and teeth, and greater application of the techniques to Maine shell middens (Spiess and Hedden 1983, Carlson 1986, Spiess and Lewis 1990). Each advance in laboratory technique has produced a different interpretation of prehistoric Ceramic Period coastal settlement seasonality (Sanger 1982). Lately we have concluded that some sites were inhabited for limited seasons and others were used at all seasons of the year (Spiess et al 1983:99-100). Thus, at least some people must have been resident on the coast year round. Does this fact of year-round coastal residence mean that some groups of people were resident in interior Maine year round, perhaps within one major lake basin or interior river valley above the head-of-tide? This line of reasoning forces us to ask questions

about how far people moved geographically during a seasonal cycle of activity, and therefore what was the geographic scale of the range used by Native American bands or tribes. This series of questions and answers is notably convergent with the ones being asked about Ceramic vessel style attributes.

The recent recognition of calcined (burned) bone as a routine source of subsistence information from interior archaeological sites (Knight 1985, Spiess n.d.) will provide some comparable subsistence information from the interior, where fresh bone normally does not survive. However, calcined bone samples are highly fragmented and often are not amenable to the laboratory techniques that are used to collect season-of-death information on shell-midden samples.

One aspect of archaeological fieldwork relevant to all questions is the accuracy with which archaeological assemblages can be recovered: in particular what is the "resolution" of the separation between assemblages recovered from stratified contexts. While stratified alluvial sites (up to 3 meters deep) along our interior river valleys have produced relatively well-understood contexts, understanding the separation of components in shell middens along the coast is critical. The nature of archaeological formation processes of shell middens has seen extensive debate, reviewed by Spiess (1988). More recently Skinas (1987) and Belcher (1988, 1989) have made substantive contributions in terms of recognizing surfaces of shell that were exposed for some period of time, and recognizing the sequential construction of individual house floors within a shell midden. Many Maine archaeologists now feel that they can "dissect" a shell midden using a variety of excavation techniques, and recover artifacts, bones and features from individual living (usually wigwam) floors and associated shell dump areas (eg. Cox 1983, Sanger 1987, Spiess and Hedden 1983). These techniques should provide artifact and faunal assemblages formed over limited periods of time.

One outcome of modern research into the Ceramic Period has been a perception of change in subsistence and settlement patterns, and thus in social organization, between the Middle Ceramic and Late Ceramic, perhaps during CP6 (roughly 1300 A.D.). Many small coastal occupations including dentate stamped ceramics are succeeded by fewer, sometimes concentrated, seasonal occupations with cord-wrapped stick impressed ceramics. This pattern is particularly based upon research in the central coast of Maine in Penobscot Bay and at the Goddard site (Bourque and Cox 1981, Spiess et al 1983), and may not be evident in Passamaquoddy Bay (Sanger 1987:140). One hypothesis advanced to explain the central coast data involves the beginning of trends toward seasonal population concentration into larger villages, although small groups continued to disperse over wide areas for subsistence

activities during some seasons. Perhaps this is the initiation of the pattern of coalescence of groups of 300 to 1,000 individuals with named villages that acted as multi-seasonal central places, a pattern documented by Europeans during the Early Contact period. This line of inquiry is in its infancy, but may hold a key to understanding the late prehistoric evolution of Native American social organization in Maine.

Investigations of prehistoric patterns of trade, based upon source identification of archaeologically preserved materials, is another topic of current research interest. Native copper seems particularly abundant in early Ceramic and late Ceramic Period sites, but has not been intensively or systematically studied. More data are available on the movements of stone as a raw material. In particular one class of stone tool endscrapers was often manufactured out of exotic stone. Often, more than half the endscraper assemblage from a Ceramic Period site is made of exotic stone, and the percentage seems to be increase from the early to the late Ceramic.^ Stone from the north Labrador coast, north-central Quebec, Bay of Fundy in Nova Scotia, eastern Pennsylvania, and central New York is common. These non-perishable materials, by themselves, document an interconnected network of trade partnerships (or some other social relationship) that covered the Northeast. There is some hard evidence of trade in perishable goods, in particular furs. The faunal remains from the Turner Farm site document intensification of effort to obtain furs through the Ceramic Period (Spiess and Lewis 1990). In particular, some Ceramic Period sites in Maine contain evidence of a focus on trapping or hunting one species, the sea mink, now extinct and formerly unique to the coast of Maine. Butchery marks on the bones of this and other species clearly indicate they were skinned for their pelts. Spiess et al. (1983) have speculated that trade in pelts was part of a much larger trade in invisible perishable materials that accompanied the trade in exotic stones. Intensification of this trade may have had something to do with the Late Ceramic period changes in settlement pattern (which are a parallel topic of research), and in "preadapting" Native Americans in the Gulf of Maine for the appearance of European trade goods in the 16th century. Thus, research into the Ceramic Period could ultimately present a coherent picture of the sequential changes in Native American life leading from circa 3000 B.P. to the Early Contact period.

Identification

The vast majority of those prehistoric archaeological sites in Maine with one or more known-age component(s) contain a Ceramic Period component. As of January 1, 1991, 682 sites are known to have a Ceramic Period occupation, although less than half of those can be specified as "Early", "Middle" or "Late" Ceramic. Approximately 40 sites with significant Ceramic Period components have already been listed in the National Register of Historic Places.

A history of reconnaissance archaeological survey in Maine is nearly synonymous with a history of Ceramic Period survey, for the following reasons. With the exception of fluted point Paleoindian sites, which are located away from water, more than 99% of known prehistoric sites in Maine are located within a few yards of an existing water body shoreline or fossil shoreline. Whatever were the variations in adaptation during the last 10,000 years of Maine prehistory, the dense tree cover has forced people to travel mostly by water and live mostly adjacent to the water. Thus, prehistoric archaeological survey projects in Maine have concentrated on shoreline survey. (This is not a complete tautology: occasional survey projects away from water have produced minuscule results, again except for Paleoindian sites.) No matter what else archaeologists are seeking, Ceramic Period sites are usually part of any successful survey effort.

At present, many significant shoreline portions of Maine have received reconnaissance level survey. The following summary lists the area of the state and one or more principal investigator's name for some major survey projects: Passamaquoddy Bay, the Washington County marine coast and interior lakes (Sanger), the upper St. John River (Sanger), portions of the Hancock Country coast (Sanger, Kopec, and Cox), east Penobscot Bay (Sanger), Blue Hill Bay (Cox), Penobscot Bay (Bourque), the central Maine coast from Boothbay to Penobscot Bay (Sanger, Spiess, Eldridge), Casco Bay (Yesner, Hamilton), the Penobscot River between Bangor and Passadumkeag (Sanger), the Kennebec River from Augusta to The Forks (Spiess, Will, Petersen), the Piscataquis River (Petersen, Spiess), the Androscoggin River from Topsham to the New Hampshire Border (Bourque, Cox, Gramly, Hamilton, Petersen, Spiess, Wilson), and the Saco River (Petersen), the Moosehead Lake basin (Petersen, Hamilton), and the lakes around Millinocket (Petersen). These are the highlights, for which bibliographic references to reports can be found in the State Plan bibliography (Spiess 1990).

By the end of 1991, intensive level survey will have been completed for over 50 National Register eligible sites with Ceramic Period components along rivers above the head of tide and around major interior lakes, primarily as a result of hydroelectric relicensing studies. Intensive level survey of the coastal zone, primarily focussing on shell middens, has been substantial in only limited areas of the coast: portions of Casco Bay, the Boothbay area, North Haven and Vinalhaven in Penobscot Bay, and around Isle au Haut. Multiple Resource nominations for the Boothbay area and for North Haven, plus work on scattered individual coastal sites, has resulted in approximately 30 Ceramic Period sites in the coastal zone being listed in the National Register of Historic Places.

Substantial publication of major excavations in Ceramic Period coastal zone sites is rare, meaning that the detailed data applicable to the research

questions discussed above, and the Research Themes presented below, are difficult to find. To date, only a few small sites near Kidder Point in Penobscot Bay have been completely published (Spiess and Hedden 1983). Sanger (1987) presents a detailed report on the Carson site, located just over the New Brunswick border, which is relevant to easternmost Maine. Monograph length reports on the Turner Farm (Bourque, pers. comm.) are in final manuscript stage, and the Goddard site report is nearing manuscript completion (Cox pers. comm). Several major site excavations await publication: Fernald Point and Fraser Point on Acadia (Sanger), the Todd site in Bremen (Sanger), excavations in several shell middens on North Haven and Vinalhaven (Bourque), Allen's Island and the Olsen site in the St. George river and estuary (Spiess and Eldridge), and several sites in Casco Bay (Yesner, Hamilton).

Predictive models of Ceramic Period site location, of variable success, have been developed for the central Maine coast (Kellogg 1982:87-95,^ 1987), rivers (Cook and Spiess 1981, Cook 1985), and interior lakes (Petersen and Putnam 1988). Kellogg has produced a powerful predictive model for site location for the central Maine coast, based upon a random sample of landforms compared with archaeological site (virtually all Ceramic Period) locations. The primary criteria of site location are (1) aspect (east through southwest), (2) proximity to (not necessarily immediately behind) a (small to medium-sized) pebble, gravel and/or sand beach accessible at all tides, (3) location away from a wave-dominated exposed marine environment, (4) presence of a clamflat less than 250 meters away, and (5) a relatively level landform covered with soft sediment for habitation (ie. sand, silt, clay or till of low rock content). Sources of fresh water (springs, bedrock seeps, and small streams) are ubiquitous along the Maine coast, so that they have no predictive value. This predictive model cannot be generalized to the southernmost Maine coast, which is dominated by barrier beaches and salt marsh, nor to the Washington County and Cobscook Bay coasts with its huge tidal range.

A predictive model for site location on rivers has developed from David Cook's understanding of Maine canoe routes. Cross country canoe travel involves as much work with a pole (upstream and down) as it does with a paddle, and tremendous exertion across carries. Carries may get one around a falls or rapids too dangerous to pass through, or across several kilometers of land between drainage headwaters. On major rivers and streams, the amount of wind on any given day and the water discharge at a particular season (low and "boney", just right, or extremely rapid) will determine the suitability of a particular route for upstream or downstream travel. Beaver dams on small streams and marshes greatly aid cross country travellers using small headwaters streams, so the particular cycle of beaver activity on a route is also important. Downstream travel is often rapid, proceeding just slightly

faster (paddling) or slower (snubbing with a pole) than the current. Upstream travel, usually poling, proceeds at about the pace a man can walk (2-4 km/hr). Thus, in an easy day's travel (4-8 hrs) one can usually cover 8 to 30 km. Absent the need for a portage, travel campsites need be spaced no closer than 8 to 10 km. Major interior campsites are located on the nearest level, best-drained ground near waterway confluences, which include travel route junctions, and near the beginning or end of portages. These are the places where one would most often chose to break ones travel effort and rest. Archaeological sites seem to be common on Maine rivers, since they were all used to "get somewhere." Streams, however, vary widely in their archaeological site association. Major travel routes have more archaeological sites than "dead end" routes.

Predictive models for interior lakes are less successful. Petersen and Putnam (1988) produced a predictive model for Moosehead Lake, based upon the attributes of landforms found within 200 x 200 meter blocks of terrain. These attributes included the presence of points of land, stream confluences, level and well drained terraces, and others. Each block received a score based upon its attribute content (range 8 to 19). Phase I survey results for Moosehead Lake (Robins et al 1990) indicate that this approach was not entirely successful. 593 sampling areas were surveyed (covering 101.5 km of shoreline), resulting in the discovery of aboriginal cultural remains on 238. Fifty-eight percent of the higher scoring sampling areas contained one or more sites, and 36% of the lower scoring areas contained one or more sites. In fact 9 of 25 (36%) of the blocks receiving the four lowest scores proved positive for prehistoric sites. These results indicate that this predictive model is only marginally useful, and carried a high risk of missing an archaeological site if used to "ignore" low scoring areas. At least part of the problem can be traced to the use of scoring criteria based upon the present shoreline of the lake, which has responded to a circa 12 foot increase in high water level because of dam construction. At present we do not consider that we have an operable predictive model for site location on large interior lakes.

Research Significance Themes

Theme 1, Culture History.

Culture history includes two lines of inquiry that are conceptually related: tracing the cultural progenitors of ethnographically known Native American groups (eg Trigger 1983), and a detailed reconstruction of the association between and succession of various material culture "types" (or groups of attributes, however defined) in the archaeological record. The Ceramic period must, somehow, provide the culture historical background for the emergence of the ethnohistorically known Native American groups of the

Early Contact Period. There are major and well-recognized theoretical limitations in the use of material culture to trace and define ethnic groups however (eg. the problem of style in the archaeological record). More practical impediments to the detailed dissection of Ceramic Period culture history are imposed by the nature of "context" and "association" in the archaeological record (see discussion in Introduction).

Ceramics, however, seem to carry more detailed "stylistic" information than do stone tools, and they are present in quantity. The addition of ceramics to the archaeological record, therefore, should change the geographic and temporal scale of resolution with which we can investigate the archaeological record, compared with the Archaic. Is it possible to identify local groups, perhaps ranging over a portion of the coast or over one or more major interior drainages, within time frames as finely divided as one or two centuries? As noted above, the Ceramic chronology of Petersen and Sanger (1990) is a beginning point for the discussion of the meaning of the changes in ceramic style attributes and geographic distribution patterns evident in ceramics.

In contrast, Ceramic Period stone tools are present in seemingly less variety than during the Archaic. Rectangular-based bifaces (probably hafted knives), and unifaces (or "endscrapers") are probably present throughout the Ceramic Period sequence. Stemmed bifaces (many of which are projectile points), relatively casually manufactured small woodworking adzes and gouges, drills, and occasional utilized or retouched flakes complete the stone tool list. There is stylistic variability in stemmed bifaces and projectile points, both geographically and temporally. Large, stemmed points and delicately made isosceles triangles with narrow side notches (Meadowood points) characterize the earliest part of the Ceramic Period sequence. Lobate and contracting stemmed narrow points, corner-notched and side-notched points, and ultimately concave base triangular points are succeeding styles. Their temporal and geographic relationships are complex and little studied on a formal basis. Bone tools, found in shell middens primarily, are varied and may exhibit their own stylistic changes over time (Will 1981) or across space.

Variation in ceramic style (or attributes) and in stone tool style are not necessarily coincident in time or space. For example, Spiess and Hedden (1983) note that several "types" of supposedly Early Ceramic stone point are associated with Middle Ceramic (CP-2) vessels at one small site. Again, a healthy debate over the nature of such associations in shell middens and elsewhere is involved. But, ultimately, our interpretations of culture history will differ dramatically if stone, bone and ceramic styles all exhibit coincident and congruent, easily defined boundaries, or if the archaeological record is a mosaic of associations and style variation. At

present it seems that the latter is more correct than the former characterization.

Theme 2, Settlement pattern.

Settlement pattern includes the study of geographic patterning on a continuum of scales including: 1) distribution of sites across the state, 2) distribution of sites relative to specific landforms, and 3) intrasite patterning, including archaeological recovery of dwelling structure features. Ceramic Period sites are found in all parts of the State: on the marine coast, estuaries and major rivers, minor rivers and streams, and interior lakes basins. The intensity of known site density varies directly with the amount of archaeological survey expended in an area. In areas where substantial reconnaissance level survey has been accomplished, site density varies inversely with the amount of site destruction caused by erosion (sea level rise, lake basin impoundment or river bank lateral migration). Because of the variability in these two factors, we cannot make statements about the relative intensity of Ceramic Period occupation across broad regions of the state based on our present knowledge of the surviving archaeological record.

The vast majority of sites are found along canoe-navigable waterways or shorelines in Maine. As discussed above in the section on predictive models of site location, canoe-based transport explains much of the variability in site location along the Maine coast and rivers and streams, although site locations around interior lakes has not yet yielded a coherent predictive model. However, there does appear to be a "minimum size" of lake that attracted prehistoric settlement, absent the passage through a lake of a well-used canoe route. In other words, small lakes that "don't go anywhere" rarely have associated archaeological sites. A few sites (less than 1% of the sample) have been located away from canoe-navigable waterways. They are either small sites on well drained soils near upland stream headwaters, or small to medium-sized sites associated with lithic material outcrops.

Ceramic Period archaeological site size varies considerably, but again the sample is highly affected by damage caused by shoreline erosion. Only a few shell middens are known to be little affected by erosion. They tend to be elliptical or oval in shape, with the major diameter between 4 meters and 30 meters in length. Much larger shell middens are represented by eroding remnants up to 150 meters along the shore and up to 40 meters width away from the shore. Uneroded Ceramic Period sites along interior waterways and lakeshores, or eroded sites yielding information on their former size (usually through surface survey and feature location), vary between 4 or 5 square meters in extent to 10,000's of square meters. The smallest sites are demonstrably single, short term occupations focussed on a single hearth or structure. The larger sites may contain innumerable palimpsests (overlays)

of such small sites, or perhaps many entire multi-structure villages or camping episodes.

At the level of intrasite patterning, the existence of functional differentiation of different portions of coastal shell middens has been debated (Spiess 1988, Sanger 1987). Shell dumping areas or surfaces (Skinas 1987); small scale variation in discard of vertebrate body parts, and stone and bone tools within one shell midden; and variability between shell middens have been established. Localization of domestic structures to the back (inland) portions of the site, or differential use of portions of the site at different seasons (winter back in the woods, summer out by the beach) are debatable concepts.

Routine recognition, excavation and analysis of domestic structure floors and the associated artiface and faunal assemblages in shell middens (Sanger 1979, 1987, Cox 1983, Spiess and Hedden 1983) followed their initial discovery (Matthew 1884) by nearly a century. Some domestic structures are marked by no more than a thin gravel floor and associated fire hearth. Others are semi-subterranean structures excavated 30 to 50 cm deep into sterile substrate or placed in preexisting pits or depressions, often those of other houses (Belcher 1988, 1989). Recovery and analysis of single component assemblages from such house floors will increase the resolution of our view of coastal prehistory, much as the excavation of well stratified assemblages has recently done for the interior.

We know that Ceramic Period people moved their place of residence seasonally (see Theme 3 below for the data base). Moreover, we should not assume temporal continuity of use of a group of sites or a particular settlement pattern over decades or more (Dewar 1986). Faunal studies of coastal shell middens (Spiess and Lewis 1990, Carlson 1986, Chase 1986) indicate that some shell middens were short-term seasonal campsites, while others were multiseasonal focal points of activity. Ceramic Period occupation at the Turner Farm site, for example, occurred over much of the year. Multiple seasonality for an individual occupation has been demonstrated, but the data cannot substantiate year-round occupation lasting for one year, decades, or more. We can, however, state that some sites demonstrate presence of people on the coast of Maine at random with respect to season during the Ceramic Period. Other sites are specialized spring, summer, fall or winter campsites, or some combination thereof. It is reasonable to conclude that people made use of the coastal zone year round. Logical related questions include what percentage of this population took seasonal trips into the interior of Maine (above head-tide), or if there were groups of people who lived mostly in interior Maine.

The ethnohistoric record indicates the presence of "base camps" or villages where most people resided for most of the year. The term "base

camp" has been used (Sanger 1987) to describe demonstrably winter/mainland camps around northern Passamaquoddy Bay. In contrast, the largest and most intensely occupied coastal Ceramic Period occupation so far investigated (the Goddard site) is demonstrably a warm season occupation. The larger question of coastal versus interior transhumance, and coastal versus interior resident groups is still open.

Also unanswered are questions about the permanence of any given residence site. If a village was used multi-seasonally, how many years in succession was it used before the village group moved to a new locus? If a camp were seasonal in nature, how many seasons was it reoccupied sequentially before people favored a new location? Sanger (1979, 1987) has proposed that soft-shell clams provided a "security" resource along the coast, and that their harvest was accomplished by "picking" the larger individuals by observing the siphon hole at low tide. His model explicitly includes the concept of selective harvest of larger individual clams. Implicitly, this strategy would cause people to shift campsites if and when the clam resource was over harvested (by their standards) on nearby flats. Perhaps the sustainable harvest from nearby clamflats to some degree determined repetitive frequency and longevity of occupation on nearby sites. In any case, this model includes logical cause for decisions to move to alternative residence locations with some periodicity. Other causes for shifting to new campgrounds might be just as applicable to interior sites: exhaustion of easily moveable firewood, accumulation of noxious refuse, etc. Countering the logical tendency to utilize locations that had been "fallow" for short periods was some tendency that drew people back to a given location. Locational stability in a multi-seasonal village, where most people spent most of the year, is understandable on the basis of inertia: the group, or group leadership, would have to agree it was time to move. However, we suspect that only a subset of the total available campsites were used by each generation, and that these locations were mentally mapped as "designated" campsites. Investment in non-portable furnishings, such as house frames and the large, non-portable cooking vessels fashioned from hollowed logs (Spiess 1981) would encourage people to return each year, all other things being equal. Investigation of these questions of settlement pattern is within the reach of archaeologists currently working in Maine.

Theme 3, Subsistence Patterns.

Shell middens of the Maine coast contain a wealth of information about coastal Ceramic Period subsistence patterns in the form of vertebrate bones and the invertebrate shell that constitutes much of the matrix. A series of techniques have been developed in the last 15 years to quantify many attributes of shell midden faunal samples, including taxonomic and body parts counts; age from teeth and epiphyseal fusion in mammals; age and season of

death from periodic growth structures in bone, teeth and shell; and the detection of breeding in birds from medullary bone and fledgling bones (Spiess and Lewis 1990). Ultimately, consistent and detailed application of these techniques to many shell midden faunal samples will allow the detailed reconstruction of subsistence necessary for understanding coastal economic adaptations during the Ceramic Period.

Initially, subsistence pattern analysts attempted to answer a simplistic question: were people living on the coast in the winter and interior in the summer or vice versa? (Sanger 1982). Continued data accumulation has lead to the realization that coastal subsistence patterns were multiseasonal and complex. This pattern has been characterized as a "diffuse or generalist" (Sanger 1987:117) "maritime adaptation" (Sanger 1988:83). In reality, however, Ceramic Period coastal subsistence adaptations include terrestrial, littoral, estuarine, inshore, and offshore components, a point which has not yet provided a focus of discussion.

The most intensively studied shell midden fauna is the Turner Farm (Spiess and Lewis 1990), North Haven Island, Penobscot Bay. Ceramic Period subsistence was multiseasonal there, consisting of many components: terrestrial deer, moose and furbearer hunting and trapping; shorebird and waterfowl hunting; shellfish collecting; sea mink trapping or hunting along the littoral; inshore fishing for sturgeon, flounder, sculpin and a variety of other fish; inshore hunting for seals; and possibly offshore hunting/fishing for cod and porpoise. Since a few bones of large whales are present at the Turner Farm and several other Ceramic Period shell middens, we must consider the possibility that large whales were hunted as well. A time series of Ceramic Period faunal samples from the Turner Farm documents intensification of seal hunting, furbearer trapping and moose hunting from the early Ceramic to late Ceramic Period. So far, this diachronic analysis of Ceramic Period subsistence provided by the Turner Farm is unique.

At Great Diamond Island in Casco Bay, a Ceramic Period component is accompanied by substantial storage pits filled with large cod and sturgeon bone. The cod apparently were caught in the late winter and spring. A dozen or so sites in the estuaries of the Sheepscot and Damariscotta Rivers (Boothbay region) revealed a subsistence pattern based upon estuarine fishing, inshore and terrestrial hunting and trapping. Some of the sites are multiseasonal, some reflect limited season of occupation. Unfortunately, the season of occupation estimates based upon fish (Carlson 1986) and those based upon shellfish and mammals (Chase 1986) are not always congruent, so a coherent seasonal cycle cannot be constructed. Spiess (unpublished) has analyzed faunas from the St. George estuary, showing a similar range of estuarine fishing, hunting and trapping. Faunas from offshore islands such as Hall, Allen and Little Burnt Islands indicate a specialized summer subsistence based upon fishing, bird hunting, and trapping sea mink. Faunas

from Rocque Island shell middens apparently represent winter occupation hunting deer, moose, seal, furbearers, and catching some small fish (Sanger and Chase 1983). The Goddard site late Ceramic Period fauna records a specialized summer subsistence pattern based upon intensive hunting of seals and sturgeon. Sites around Passamaquoddy Bay and Cobscook Bay lack substantial finfish faunas, but reflect a range of terrestrial and inshore hunting and trapping, and shellfish collecting (Sanger 1987, Black 1986; Spiess, Trautman and Kupferschmid 1990).

The soils of interior Maine are generally acid and thus do not preserve bone unless it is calcined (burned above 600° C in a fire). Thus, faunal remains from Ceramic Period sites on Maine rivers and lakes consist of small, burned and broken pieces of bone often recovered from the fill of fire-hearths. Direct quantitative comparison with unburned shell midden fauna is problematic, and the human behavior of disposing of bone in a fireplace adds an extra selective factor to the process of preserving these bone samples (Spiess n.d.). Nevertheless, interior Ceramic Period sites have yielded faunal samples which provide some information. Sturgeon, large mammal (deer or moose) and beaver were consumed at the Young site near Bangor (Knight 1985). The Brigham and Sharrow sites near Milo have produced an extensive Ceramic Period fauna including furbearers, large mammals, bird and turtle. Most riverine and lacustrine Ceramic Period calcined bone samples are numerically dominated by beaver. Comparisons with many Archaic Period calcined bone samples indicate that this pattern is not just a factor of differential preservation favoring survival and identification of beaver bones. The pattern may document more extensive subsistence reliance on beaver in the interior of Maine during the Ceramic Period than previously; or it may reflect some sort of disposal pattern conditioned by a cultural belief, such as an effort to feed beaver bones to the fire rather than let them be consumed by dogs.

Less is known about aboriginal use of plant foods in Maine. With the exception of using the pollen record to detect environmental perturbation associated with European and late prehistoric land clearance and horticulture, the sole source of information about Ceramic Period use of plant food comes from analysis of charred plant remains derived from fire hearths, or other sealed feature contexts such as garbage pits. Systematic work on charred plant remains recovered from feature fill began in 1989 after the arrival in Maine of an experienced archaeobotanist (Nancy Asch Sidell). To date, Early and Middle Ceramic contexts have not yielded evidence of domestic plant remains, but have yielded evidence as expected of use of wild fruits, berries and nuts. Moreover, no particular seasonal or geographic focus on intensive use of nut crops is yet apparent. Large features from the late Ceramic period Early Fall site (radiocarbon dated circa 1400 A.D. [Cowie and Petersen 1989]), on the lower Saco River, have yielded the earliest evidence in Maine of corn and bean horticulture. The evidence is plentiful,

and evidently represents horticultural activities on or near the spot.

Recent synthetic work on the development of horticulture in eastern North America indicates that the southern Midwest and mid-South were an independent center for domestication of native North American cultigens between 4000 and 3000 B.P. (Smith 1989; Fritz 1990). These North American cultigens include squash, sunflower, sumpweed, and chenopod. Addition of the Central American domesticate maize to eastern North American economies occurred much later, after 1750 B.P. (200 A.D.). Maize-centered agriculture spread across much of Eastern North America between 800 and 1100 A.D. (Smith 1989). Asch Sidell has extensive experience with the North American domesticates, but to date has not identified any in Maine Ceramic Period context. One hypothesis, therefore, is that horticultural practices using native North American domesticates never were viable in Maine, and that all Ceramic Period Maine Native Americans remained essentially hunter-gatherer-fishermen until the arrival of corn and bean horticulture in southwestern Maine during the late Ceramic Period. Fritz (1990) supports this hypothesis.

In sum, a detailed synthesis of what is known about Maine Ceramic Period subsistence is much needed.

Theme 4, Mortuary Practices.

Apparently, there is a dramatic difference in mortuary behavior in the Northeast between the Early Ceramic (Early Woodland) and Middle or Late Ceramic Period. As did the preceding Archaic cultures, Early Woodland groups in the northeast maintained some separate, sacred places for interment of the dead (cemeteries). Examples are known at the Augustine Mound in New Brunswick (Turnbull 1976), the Boucher and other cemeteries in Vermont (eg. Heckenberger et al. 1990a, 1990b), and in reuse of the Late Archaic Mason Cemetery by early Ceramic people in Maine. The Boucher cemetery has been most intensely studied and described, including an amazing array of perishable fiber, leather, and bone goods preserved by copper ornaments interred with the dead. Most of these goods do not seem to have been produced specifically for interment, therefore this mortuary assemblage provides a glimpse of the great but everyday skill in working plant fiber, leather, wood and bone that is usually lost in our archaeological record. Pride in personal adornment by living persons, especially in the use of small copper and shell objects sewn onto clothing, was an important part of the cultural system. Use, and interment of these objects upon death apparently supported a wide-ranging trade network, the purpose of which was the circulation of goods and maintenance of intergroup contacts, rather than accumulation of a surplus (Heckenberger et al 1990:213-4).

Multiple radiocarbon dates from the Boucher site have recently demonstrated (Heckenberger et al 1990a, b) that the cemetery was used repeatedly for nearly a millennium, and that early graves were rarely disturbed by the digging of later graves. Thus, the concept of the ground as a sacred place survived for a considerable length of time, and some sort of above-ground marker system (perishable, probably of wood, since it does not survive) may have marked individual graves.

This intense cultural investment in the dead does not survive in Maine or elsewhere in the Northeast into the Middle and Late Ceramic period. In fact, Middle and Late Ceramic Period dead were often interred in what seems a casual manner in shell middens (where the bones of the deceased often are preserved because of the neutralizing effects of shell). Perhaps people were also interred in isolated (non-cemetery) locations elsewhere across the landscape, where bones do not survive.

Many cases of isolated, sometimes fractured and burnt, human bones being recovered from Middle and Late Ceramic shell midden context are also known. Perhaps this evidence indicates cannibalism, or patterns of disposal of the dead that were less formalized even than interment in a true grave dug in the shell midden. Few grave goods accompany Middle and Late Ceramic Period interments, adding to the impression of little cultural investment.

Accompanying a change in ceramic technology and perhaps less obvious changes in technology and lifestyle, the dramatic change in mortuary behavior between Early Ceramic and later Ceramic culture deserves substantial theoretical attention. For example, is there a major change in lifestyle and perhaps population between the Early and later Ceramic Period?

Theme 5, Transportation, Travel, Trade, and Commerce.

The birch-bark canoe, or some similar form of light-weight, back portable boat transport, has been in use in Maine since at least the Susquehanna Tradition Late Archaic. This conclusion is based upon the ubiquity of Susquehanna Tradition sites in the Maine interior, a sophisticated understanding of what cross-country canoe travel entails (Cook 1985), and excavation of a feature dated circa 3700 B.P. on Kingsbury Stream in Abbott, at a location useful only to canoe-based travelers (Spiess and Cranmer 1990). Thus, we can assume that the birch-bark canoe provided the basis for transportation and travel throughout the Ceramic Period in Maine. We have explored the topic of birch canoe travel in some detail in the section on settlement patterns above, so will not repeat the discussion here.

Ethnohistoric accounts of canoe travel indicate that several round trips could be made in a year from the St. Lawrence Valley to Boston, or that the majority of the population of a Kennebec River village moved upstream 120 km

for seasonal hunting on Moosehead Lake with relative ease. Movements of raiding parties over long distances (eg. the Mohawk Valley to eastern Coastal Maine, or from central Maine to southern coastal Maine) over short periods of time are recorded.

During the Ceramic Period, individuals intent on trading probably also moved great distances across the Northeast in canoes. There must have been some formal system of trading partnerships that tied contiguous groups to each other, or tied together individuals from more widely separated locations, because nonperishable materials such as stone and copper were often moved great distances from their sources. During the Early Ceramic, Meadowood points made of Onondaga chert (New York or Pennsylvania sources) are common in Maine. Throughout the Ceramic Period small bits of exotic stone were moved long distances, and often made into endscrapers. Pennsylvania jasper, Onondaga chert, chalcedony from the Bay of Fundy, and Ramah chert from the north coast of Labrador, as well as many New England cherts, were part of this trade system. Native copper, which come from the upper Great Lakes or the Bay of Fundy, Nova Scotia, was also traded widely in Maine during the Ceramic Period. Evidence for intensification of fur trapping at the Turner Farm during the Middle and Late Ceramic, and the prevalence of evidence for sea mink trapping along the Maine coast (which was a fur bearer species unique to Maine) indicate that at least some perishable products were involved in the trade network also.

Source characterization of some of the stone material, and especially of the copper, involved in this pan-Northeast trade network is badly needed. Precise quantitative reporting of materials in site reports, for example as a count of endscrapers probably manufactured of different materials, will eventually allow quantitative/geographic pattern analyses.

Study of stone raw material procurement at quarry sources is ongoing. However, recovery of diagnostic artifacts or datable deposits at quarry sites is rare. Gramly (1980, 1984) provides a theoretical foundation for fitting quarry visits into an annual cycle of activities, based upon a site just west of the Maine border in New Hampshire. Quarry sites in Maine include small quartz outcrop quarries (sites 7.27, 17.168, 17.169), deposits of glacial Kineo rhyolite cobbles that served as quarries (sites 43.40 and 53.34), the Kineo rhyolite outcrops on Moosehead Lake and Brassua Lake, and the large chert quarries near Munsungun Lake (site 155.47, Willard Brook, N.R. August, 1982). Geological characterization of only a few of these sources is complete (eg. Pollock 1987).

Theme 6, Social and Political Organization.

Recently, North American archaeologists have begun to realize that diversity in subsistence and socio-political organization can be subsumed

under the general label "band organized hunter-gatherer," which is generally applied to non-horticultural prehistoric inhabitants of the Northeast. Studies of the organization of living space, trade and (re)distribution of rare raw materials or trade items can contribute to our understanding of diversity of band socio-political organization. In particular, the study of complete domestic structures (house floors) can help in the investigation of family size and domestic space organization. Study of the spatial organization of groups of contemporary houses, or even of the food sharing patterns among them, contributes to this theme.

As mentioned in the preceding discussion of settlement patterns, several recent studies have focussed on the recovery of individual house floors from shell middens (notably Cox 1983; Belcher 1988). So far, no one has attempted complete excavation of such a structure and surrounding refuse deposits, followed by a detailed analysis of the material culture remains in an effort to reconstruct the range of individual activity patterns and discard patterns represented. McCormick (1980) so far is the only one to postulate food sharing among several houses at one site, based upon the body parts distribution represented by moose bones.

Multi-site studies of the patterns of movement or trade in non-perishable raw materials, which might reflect broader scale patterns of sociopolitical organization, have not been published. Theoretical work, and evidence from the Early Contact Period (eg. Kaplan 1985, Bourque and Whitehead 1985) indicate that intensification of trade and the aggrandizement of personal power to "big men" successful in controlling trade is one step toward sociopolitical change in hunter-gatherers. Examination of Ceramic Period data for this subject, however, have been limited to an observation that intensification of intergroup trade accelerated during the Middle or Late Ceramic (Spiess, Bourque and Cox 1983), before European contact.

Theme 7, Laboratory or Field Techniques.

Sanger's (1987) early success in New Brunswick and eastern Maine duplicating Matthews (1884) excavation of house floors in Ceramic Period shell middens has since been copied by many (Cox 1983, Bourque pers. comm. at site 29.64, Spiess various, unpublished). Recent detailed work exploring the concepts of house floors and midden composition are the result (Belcher 1988, 1989). Skinas (1987) has applied amino-acid racemization to shellfish from the Todd site to detect surfaces where (unburned) shells were exposed to moderate heat from the sun or intense heat from hearths. So far, this seemingly useful concept has not been used at other Maine shell middens.

Spiess, Hedden and Robertson (1990) have recently focussed on the analysis of fire-cracked rock (FCR) and data about intensity of heating and

cooling that can provide clues to prehistoric cooking or other behavior. This approach was forced upon the investigators after recovery of huge pavements of FCR at site 53.36 that lacked any obvious function because of little associated material culture. Ultimately, it was decided that these features might be sweat lodge remnants. Subsequent FCR analysis has proven useful in generally characterizing cooking methods at several other sites (stone boiling vs. open hearth). So far, the technique of FCR analysis has not become widespread in Maine, possibly because of the cumbersomeness of recovering and transporting the FCR.

Petersen (Petersen and Sanger 1989) has brought a new standard to the analysis of prehistoric Ceramics to Maine in the last 5 years, including detailed decorative feature, temper, and vessel form attribute analysis, in an effort to discern and analyze individual vessel lots. This approach is now applied widely in Maine Ceramic Period site analyses, and the data that are generated are beginning to contribute to a wide range of research questions.

Theme 8, Anthropological Archaeology.

Archaeology of the Ceramic Period in Maine has, to date, focussed upon questions of chronology, site formation, and some "mid-range" theoretical concerns such as trade, geographic cultural boundaries and relationships, and the nature of the economic subsistence base. No large scale anthropological questions have yet been addressed, although Maine Ceramic Period data could eventually contribute to such questions. One example might be the comparative study of chronological development, political and social organization, trade, etc. in "Mesolithic" grade coastal economies that created shell midden sites as part of their subsistence settlement system (eg. comparing the northeastern North America with Mesolithic Scandinavia, the northwest coast of North America, and Jomon Japan, among others). Such studies must evidently await the future.

Interaction between horticulturalists and hunter-gatherer-fishermen, and the set of processes by which horticulture supplants reliance on wild food in a particular region, are potentially addressed in Maine. In fact, Maine represents a superb laboratory for addressing such concerns, because the boundary (and some interactions) between horticulturalists and hunter-gatherer-fishermen survived to be recorded by Europeans during the Early Contact period. Studying the arrival of horticulture in Maine, and the long-term processes involved, necessarily means studying the Ceramic Period as well.

Theme 9, Human Biology.

Several Ceramic Period human skeletal samples are currently under study (eg. sites 30.42 and 3148). The studies have not been completed or published. Isolated human skeletons recovered from several other sites have not been subjected to intensive study. No systematic intersite comparisons have been made.

Relatively new techniques of stable carbon and nitrogen isotope analyses hold great promise for paleo-diet analysis, when coupled with baseline studies of isotope ratios in various faunal food sources. So far this technique has been applied to Archaic period skeletal samples, but not to any of the Ceramic Period human skeletal remains from Maine.

Within the last five years there has been a nationwide policy shift toward accommodating Native American requests for the reburial of certain human skeletal material. At the time of this writing Maine is in the process of developing policy on this subject in conformance with State and Federal statutes. We are focussing on uniform minimal data recovery procedures before reburial, funding, and other policy decisions. Therefore the amount of skeletal data available for the Ceramic Period may increase dramatically in the near future.

Theme 10, Environmental Studies.

The only environmental studies that have been performed so far specifically in association with Ceramic Period sites are characterizations of the shoreline and nearshore environment, and paleoecological changes with increasing sea level (eg Kellogg, Doctoral dissertation research in progress). These studies hold promise for being able to reconstruct localized changes in environment, such as shifts in clamflat size and location, and in understanding factors of archaeological site preservation related to sea level rise and shoreline erosion.

Theme 11, Non-Mortuary Religious Practices.

Maine's Native American populations had (and have still) a rich culture of myth and religion, aside from those aspects of culture directly attributable to mortuary patterns. Such evidence is particularly represented in petroglyph sites (eg. 69.4, and many sites around Machias Bay). Petroglyphs are non-perishable designs carved in rock that served an mnemonic devices, or in ceremonial demonstrations, as part of Algonkian Shamanic traditions (eg Hedden 1988, 1989). Much of the meaning ascribed to these designs survived to be recorded during the ethnohistoric present on Ojibway birchbark and other perishable materials in the northern Midwest. Petroglyph

sites are a special category of site which may or may not be located contiguous to a habitation site of the same age.

The time depth of this shamanic tradition is currently a subject of research (Hedden personal communication), based in part upon the appearance of some of the designs on pipes and other objects in New England and elsewhere as old as Early Ceramic. If aspects of the shamanic tradition, as represented by certain designs, are unique to Algonkian-speaking groups as opposed to Iroquoian or other groups, for example, then this research is also directly relevant to the origin and ethnohistory of Maine's current Native American population.

Theme 12, Cultural Boundaries.

Cultural boundaries can be manifest by abrupt changes in material culture or settlement and economic pattern across short distances or short spans of time. There are general impressions among Maine archaeologists that the relative frequencies of different projectile point attributes vary geographically across Maine at any synchronic time horizon. For example, Levanna triangles are more common in southern and western Maine during the Late Ceramic than elsewhere. During the Middle and Late Ceramic, side-notched points seem to be most common along most of the Maine coast from roughly Casco Bay to somewhere east of Mount Desert Island, while corner-notched points are most common at the same time in easternmost Maine. In the face of relatively little evidence, corner notched points seem relatively more common in northernmost Maine, too. However, beyond the general impressions, no systematic study has been attempted and therefore no hypotheses on the meaning of this perceived variability have been advanced.

There is also a set of general observations that dominant raw material types vary geographically. For example, quartz is perceived as a dominant raw material during the Ceramic Period in the Androscoggin drainage and further west. Kineo rhyolite, derived from glacial cobble sources or from bedrock outcrop, is the dominant material in central Maine. A variety of poorly known materials dominate flaked stone manufacture in eastern Maine, while northern Maine Ordovician cherts (including Munsungun chert) are dominant in the St. John and Aroostook drainages. Discussions of the frequency of raw material types is somewhat complicated by different raw material preferences for different tool types. Endscrapers, in particular, tend to be made of highly silicious, fine grained, often colorful rock which was often an imported "exotic" stone. Systematic reporting and study of raw material type frequencies in debitage, projectile points, and endscrapers might provide clues to cultural boundaries (as well as transportation and trade networks).

Petersen's (Petersen and Sanger 1989) observation that some attributes of ceramic decoration, in particular the direction of applied cordage twist (S or Z), currently provides the most definitive evidence of some sort of cultural boundary within Maine. This topic has been discussed in greater detail in the Introduction. It would be most interesting to investigate how this perceived boundary in ceramic attributes correlates with lithic usage frequency, and projectile point attributes, for example. Such research is now possible, no such study has yet been published. The topic does, however, hold one key to the time depth of cultural boundaries glimpsed and recorded by Europeans during the Early Contact period.

Evaluation

A full range of research topics applicable to band-organized hunter-gatherer-fishermen, small-scale horticultural societies, the interaction between the two, and the part played by maritime resources in a Mesolithic-grade economic system are available for study in Maine. In addition, because of historic factors in the concentration of research on the Archaic Period in Maine until recently, because of a recently introduced focus on ceramic attribute and vessel lot analysis which allows development of a fine-scale chronology, and because of recent advances in understanding the finer stratigraphic details of shell middens and alluvial sites in Maine, there is a basic need for simple chronology building. Accompanying the more detailed chronology will be greater opportunity for studies of synchronic geographic patterning in material culture. At the time of writing there are nearly 700 known sites with demonstrably Ceramic period components in Maine. In addition, a high percentage of the remaining nearly 4,000 known Maine sites must also have ceramic period components. This large number of sites means that relatively detailed criteria can be used for National Register eligibility determination.

National Register Eligibility Criteria.

For a Maine site to be eligible for listing in the National Register of Historic Places because of one (or more) Ceramic Period component(s), that (those) component(s) must: (a) be clearly separable from other components on the basis of horizontal distribution or vertical stratigraphy, or some combination of the above and typological or raw material analysis; and (b) contain ceramics, lithic and/or bone tools which are diagnostic and can be assigned to some subdivision of the Ceramic Period, either one or several of CP1-7 (of Petersen and Sanger 1989) or an Early/Middle/Late division of the Ceramic Period as commonly understood; and (c) at least in part remain in intact context or site matrix, mostly undisturbed by manmade or natural forces such that there is a close association between diagnostic elements of material culture and one of the following: one or more features such as a fire hearth, a living floor or major portion thereof, a fossil soil surface,

and/or a refuse deposit. The feature, living floor, soil surface or refuse deposit must contain one or more of the following in addition to stone tools: charcoal suitable for radiocarbon dating the occupation, charred plant food remains, faunal remains, human remains, and/or mortuary goods or personal adornment. Moreover, any site with a Ceramic Period component that can make an extraordinary contribution to any of the Research Significance Themes presented above is significant.

Using these criteria, an eroded lakeshore scatter of lithic remains would not be eligible. A partially eroded site where there was demonstrable association of features containing charcoal, faunal remains, etc. and undisturbed material culture of one Ceramic Period temporal subunit in intact soils might be eligible. A shell midden that has been partially disturbed by looting, but which contains enough undisturbed matrix to demonstrate that material culture from limited subdivisions of the Ceramic period can be associated with faunal remains in intact strata is eligible. A riverine site within stratified alluvium is eligible when is yields strata containing material culture demonstrably from some subdivision of the Ceramic Period associated with features containing datable charcoal, and/or faunal remains, etc. A stratified site with a few ceramic sherds and lithic flakes from a buried soil layer, but none of the associations under (c) above, is not eligible. A soil surface which was available for much or all of the Ceramic Period, and accumulated material culture items and features for much of the Ceramic period which cannot be clearly separated or associated on the basis of horizontal patterns, is not eligible.

Protection

The majority of Ceramic Period sites located along the tidal shorelines (the coastal zone) are eroding because of subsiding land and increasing tidal amplitude. Less than a half-dozen coastal shell midden sites are known that have not yet been disturbed by erosion. We are currently suffering from coastal erosion in episodes that recur once or several times in a decade, associated with major storms. While the land subsidence rate has not been constant, measured on a scale of millennia, there is no way to predict when or whether the current rates of land subsidence will ameliorate. If they persist for another century or two, and are exacerbated by increased sea level due to climatic warming (the "greenhouse" effect), the vast majority of coastal zone sites will be destroyed. Moreover, most of the sites on lower and mid-estuaries are "shell middens", which are visually distinctive in eroding banks because of the white shell they contain. Thus, looters have an easy time finding such sites as they erode. In places along the Maine coast, the majority of surviving shell midden area has been "dug over" one or more times. Therefore, a combination of erosion control, legal protection, and monitoring are required along the coast for effective site preservation.

Along rivers above the heads of tide, stratified sites buried in deep alluvium are also often subject to riverbank erosion. Shallowly buried sites may be located on high banks and therefore may be less subject to erosion. Certain sites along rivers are well known to local collectors and suffer from looting, but the problem is less intense than along the coast or around major lakes. Many stretches or river, particularly those with erosion problems, have or will receive archaeological survey work as part of hydroelectric relicensing studies. Mitigation and monitoring plans will follow for significant sites.

Maine lakes can be divided into two classes: those with substantially raised water levels due to man-made dams, and those without. Those without man-made dams, or dams that have raised the water level only a few feet, generally suffer less erosion and therefore may have many relatively intact sites around their margins. Manmade impoundments of former river channels, or lakes where the water level has been raised substantially (a meter or more), are associated with sites that have often suffered horrible erosion. Most such sites are no longer eligible, and few contain intact deposits in the backshore zone. Artifact collectors routinely pick up artifacts during low water periods, but a few of them dig and therefore destroy uneroded adjacent deposits at some sites. Many of these impoundments will also be subject to hydroelectric relicensing studies, which will result in mitigation and legal protection.

Petroglyph sites are a special case for preservation because they consist of designs pecked into bedrock. These sites cannot be "excavated", the bedrock cannot be moved without prohibitive expense and removal of the designs from their original environmental context which adds much to their context. Unfortunately, these shallowly dinted designs are subject to exfoliation by ice and vandalism. The technology does exist to make very accurate casts of these designs, however. It is current policy that reproduction of these designs with accurate molds and casts, curated in the State Museum or elsewhere, as an accurate recording strategy, is the only practical means of preserving this information.

In sum, the most intractable problem is coastal erosion of shell middens, which destroys site matrix outright, and the digging that accompanies site exposure.

References

Belcher, William R.
1988 Archaeological Investigations at the Knox Site (30-21), East Penobscot Bay, Maine. Unpublished Master of Science Thesis, Univ. of Maine at Orono.

1989 The archaeology of the Knox site, east Penobscot Bay, Maine. Maine Archaeological Society Bulletin 29(1):33-46.

Black, David
1986 What Images Return: A Study of the Stratigraphy and Seasonality of a Shell Midden in the Insular Quoddy Region. Department of Tourism, Recreation and Heritage, New Brunswick.

Bourque, Bruce J. and Steven L. Cox
1981 The Maine State Museum investigation at the Goddard site. Man in the Northeast 22:3-28.

Carlson, Catherine
1986 Martime Catchment Areas: An Analysis of Prehistoric Fishing Strategies int he Boothbay Region of Maine. Master of Science thesis, Quaternary Studies Program, University of Maine at Orono.

Chase, Thomas
1986 Shell midden Seasonality Using Multiple Faunal Indicators: Applications to the Archaeology of Boothbay, Maine. Master of Science thesis, Quaternary Studies Program, University of Maine at Orono.

Cook, David
1985 Above the Gravel Bar: the Indian Canoe Routes of Maine. Published by the author, Winthrop, Maine.

Cook, David and Arthur Spiess
1981 The Piscataquis Ahwangan. Maine Archaeological Society Bulletin 21:1:29-38.

Cowie, Ellen and James B. Petersen
1989 Phase II Survey and Testing of the Bonney Eagle project. Manuscript on file at the Maine Historic Preservation Commission, Augusta.

Cox, Steven L.
1983 The Blue Hill Bay survey. Maine Archaeological Society Bulletin 23:2:21-30.

Dewar, Robert
1986 Discovering settlement systems of the past in new England site distributions. Man in the Northeast 31:77-88.

Doyle, Richard, Jr, Nathan D. Hamilton and James B. Petersen
1982 Early Woodland Ceramics and associated perishable industries from southwestern Maine. Maine Archaeological Society Bulletin 22:2:4-21.

Fritz, Gayle J.
1990 Multiple pathways to farming in precontext eastern North America. Journal of World Prehistory 4:387-435.

Gramly, R. Michael
1980 Raw material source access and "curated tool" assemblages. American Antiquity 45:823-833.

1984 Mount Jasper: A direct-access lithic source area in the White Mountains of New Hampshire. Pp. 11-27 in Jonathan Ericson and Barbara Purdy, eds. Prehistoric Quarries and Lithic Production. Cambridge University Press, Cambridge.

Heckenberger, Michael, James B. Petersen, and Louise A. Basa
1990 Early Woodland Period ritual use of personal adornment at the Boucher site. Annals of the Carnegie Museum 59:173-217.

Heckenberger, Michael J., James B. Petersen, Louise A. Basa, Ellen R. Cowie, Arthur E. Spiess, and Robert E. Stuckenrath
1990 Early Woodland period mortuary ceremonialism in the far Northeast: A View from the Boucher Cemetery. Archaeology of Eastern North America 18:109-144.

Hedden, Mark H.
1988 Prehistoric Maine petroglyphs (a videoscript). Maine Archaeological Society Bulletin 28:1:3-27.
1989 Petroglyph evidence for a possible 19th century survival of Algonkian (Passamaquoddy) shamanaism in eastern Maine. Maine Archaeological Society Bulletin 29:1:21-32.

Howe, Dennis E.
1988 The Beaver Meadow Brook site: prehistory on the west bank at Sewall's Falls, Concord, New Hampshire. New Hampshire Archaeologist 29(1):49-107.

Kaplan, Susan
1985 European goods and socio-economic change in early Labrador Inuit society. Pp. 45-70 in William W. Fitzhugh, ed. Cultures in Contact. Smithsonian Institution Press.

Kellogg, Douglas
1982 Environmental Factors in Archaeological Site Location for the Boothbay, Maine Region, with an Assessement (sic) of the Impact of Coastal Erosion on the Archaeological Record. Master of Science thesis, Quaternary Studies Program, University of Maine at Orono.

1987 Statistical relevance and site locational data. American Antiquity 52:143-150.

Knight, James
1985 Differential Preservaton of Calcined Bone at the Hirundo Site, Alton, Maine.Master of Science thesis, Quaternary Studies Program, Univ. of Maine at Orono.

Matthew, G. F.
1884 Discoveries at a village of the stone age at Bocabec. Bulletin of the Natural Hisotry Society of New Brunswick 3:6-29.

McCormick, James S.
1980 Criteria in Archaeological Faunal Analysis: Four Passamaquoddy Bay sites. Master of Science thesis, Quaternary Studies Program, University of Maine at Orono.

McKern
1939 The Midwestern taxonomic method as an aid to archaeological culture study. American Antiquity 4:301-313.

Petersen, James B. and Nathan Hamilton
1984 Early Woodland ceramic and perishable fiber industries from the Northeast: a summary and interpretation. Annals of the Carnegie Museum 53:14:413-445.

Petersen, James B. and David Putnam
1988 Moosehead Lake Porject Archaeological Scope of Work. Manuscript on file at the Maine Historic Preservation Commission, Augusta.

Petersen, James B. and David Sanger
1989 An Aboriginial Ceramic Sequence for Maine and the Maritimes. Manuscript in preparation for publication. Copy on file at Maine Historic Preservation Commission.

Pollack, Stephen
1987 Chert formation in an Ordovician arc. Journal of Sedimentary Petrology 57:75-87.

Robins, Jennifer, John G. Crock, Geraldine E. Baldwin and James B. Petersen
1990 Archaeological Phase I Survey of the Moosehead Lake Project. Report on file, Maine Historic Preservation Commission.

Sanger, David
1979 Discovering Maine's Archaeological Heritage. Maine Historic Preservation Commission, Augusta.

1982 Changing views of aboriginal seasonality and settlement in the Gulf of Maine. Canadian Journal of Anthropology 2:2:195-203.
1987 The Carson Site and the Late Ceramic Period in Passamaquoddy Bay, New Brunswick. Archaeological Survey of Canada, Paper No. 135. National Museum of Civilization, Ottawa.
1988 Maritime adaptation in the Gulf of Maine. Archaeology of Eastern North America 16:

Sanger, David and Thomas Chase
1983 An introduction to the archaeology of the Rocque Island group, Maine. Paper presented to the Canadian Archaeological Association, April 1983.

Skinas, David
1987 The Todd Site: A Case Study in Shell Midden Formation. Unpublished Master of Science thesis, Univiversity of Maine at Orono.

Smith, Bruce D.
1989 Origins of agriculture in Eastern North America. Science 246:1566-1571.

Spiess, Arthur E.
1981 Progress in prehistoric technology: advances in cooking methods. Maine Archaeological Society Bulletin 21:1:29-38.
1988 On New England shell middens: response to Sanger's cautionary tale. American Antiquity 53:174-177.
1990 Maine's Unwritten Past: State Plan for Prehistoric Archaeology. Maine Historic Preservation Commission, Augusta. Draft.
1991 Archaic Period subsistence in New England and the Atlantic Provinces. in Early and Middle Archaic Occupation in the Gulf of Maine: Mortuary and Technological patterning. B. Robinson and J. B. Petersen eds. Early Holocene Occupation in Northern New England. Occasional Publications in Maine Archaeology 9, Maine Historic Preservation Commission. In press 1991.

Spiess, Arthur E., Bruce J. Bourque and Steven L. Cox
1983 Cultural complexity in Maritime cultures: evidence from Penobscot Bay, Maine. Pp. 91-108 in Ronald J. Nash ed. The Evolution of Maritime Cultures on the Northeast and the Northwest Coasts of America. Publication No. 11, Deptartment of Archaeology, Simon Fraser University, Burnaby, British Columbia.

Spiess, Arthur, and Leon Cranmer
1990 Upper Piscataquis flood control structures: Phase IA archaeology. Manuscript on file at the Maine Historic Preservation Commission, Augusta.

Spiess, Arthur and Mark Hedden
1983 Kidder Point and Sears Island in Prehistory. Occasional Publications in Maine Archaeology 3, Maine Historic Preservation Commission, Augusta.

Spiess, Arthur, Mark Hedden and Joan Robertson
1990 Waterville-Winslow Bridge location: Phase II Archaeological Testing. Manuscript on file at the Maine Historic Preservation Commission, Augusta.

Spiess, Arthur and Robert Lewis
1990 The Turner Farm Fauna: 5000 Years of Hunting and Fishing in Penobscot Bay. Manuscript on file, Maine Historic Preservation Commission.

Spiess, Arthur, Elizabeth Trautman, and Timothy Kupferschmid
1990 Prehistoric Occupation at Reversing Falls. Manuscript on file at the Maine Historic Preservation Commission, Augusta.

Trigger, Bruce G.
1983 American archaeology as Native history: a review essay. William and Mary Quarterly, 3rd series. 40:413-452.

Turnbull, Christopher
1976 The Augustine Mound: a mound from the Maritimes. Archaeology of Eastern North America 4:50-62.

Will, Richard T.
1981 A Study of Prehisotric Bone Tools from the Turner Farm site, North Haven, Maine. Master of Science thesis, Quaternary Studies Program, University of Maine at Orono.

EARLY CONTACT PERIOD CONTEXT

Nomination Version, June 1991

The Early Contact Period Study Unit contains Native American sites which post-date the first influence of European contact in Maine , whether from direct contact with Europeans (excluding Norse) or by Native middleman trade from the north or south. The Early Contact period starts arbitrarily at 1500 A.D., with European voyages to Newfoundland and the Gulf of St. Lawrence. Subsequent addition of European materials to Native material culture were followed by expansions and strains in pre-existing intertribal trade networks, warfare, disease introduced unwittingly by Europeans, social strain and personal tragedy. There were few European voyages into the Gulf of Maine during the 16th century (Bourque and Whitehead 1985), except perhaps by a few Basques (Turgeon 1991). Thus much of the movement of European material goods into the Gulf of Maine was controlled by Souriquois (Micmac) traders with European contacts in the Gulf of St. Lawrence. There are hints in the Late Ceramic archaeological record, in the intensification of fur trapping and trade in lithic materials and copper, that a Native trade network was "preadapted" and in place when the Europeans arrived (Spiess et al 1983). Sustained European presence, and with it direct and indirect interference in Native American affairs, in the Gulf of Maine began with Samuel de Champlain and George Waymouth, circa 1605.

Coupled with recent significant advances in our understanding of Gulf of Maine Native American ethnicity, to which we shall return below, many archaeologists currently feel that the ethnohistoric record which predates 1675 provides an excellent model for understanding the last few centuries of prehistory, and maybe the deeper past. Unfortunately, archaeological components of the Early Contact period are more poorly known than are those of the earlier Ceramic Period. Comparison of the ethnohistoric and archaeological record, however, has great potential for a major advance in understanding Maine's Native American heritage.

The last decade has produced an unparalleled advance in our understanding of ethnicity during the Early Contact Period (Prins and Bourque 1987, Prins 1988, Bourque 1989, Prins 1990). These authors have revised a static view of river-valley-centered tribal distribution that had been most recently reiterated circa 1980 (Snow 1978, 1980), ultimately based upon Speck's work (Prins 1988a:204-211; Bourque 1989:257-258). In Prins's and Bourque's work a detailed rereading of primary sources for a variety of European ethnonyms (ethnic group names applied by Europeans), and individual Native Americans' names (mostly sagamores), provide details on the dynamic nature of ethnic groups. Prins (1988:161-191) documents ethnic plasticity and change as an integral part of the Native American adaptation in the 17th

and 18th centuries. Formal adoption of individuals or of whole groups incorporated new individuals into an existing ethnic group, including adoption of a son or even adoption of a tribal leader from a different ethnic group (Prins 1988a:175-176). Group amalgamation sometimes occurred more slowly, sometimes forming a third (new) ethnic identity from two antecedent groups of people. This process was reversible for a time, and the new ethnic identity sometimes failed to survive, as in the case of Amesokanti at Farmington Falls (Prins 1988b). Ethnic change of individuals also occurred as a result of marriage rules and residence patterns (Prins 1988a).

The English generally referred to Native Americans by a place or geographic name. French sources were more sensitive to ethnic identity, although they often used a name applied by one group to another: eg. Almouchiquois, a derogatory name for the (probably Abenaki) inhabitants of southern coastal Maine and New Hampshire applied by the Souriquois, based upon the latter's word for "dog". Similarly, Maliseet means "those who speak badly" (ie. with an accent) as judged by the Micmac (Prins 1988a:163).

Major relocations and amalgamations of ethnic groups in Maine intensified after roughly 1670. Between 1605, when Champlain's account first specifically mentions ethnic groups, and circa 1670 three ethnic groups inhabited the Maine-Maritimes peninsula. From northward to southward these are the Souriquois, Etchemin, and Abenaki. The Souriquois, also in part identified as Tarrantines in some English accounts, are (primarily) the ancestors of the modern Micmac. They inhabited Nova Scotia, New Brunswick, and possibly northeastern Aroostook County, Maine (Prins 1988). The other two groups are discussed in more detail in the following paragraphs.

The Etchemin were the primary ancestors of the Maliseet-Passamaquoddy. In the early 17th century, they lived between the tidal portion of the Kennebec River and the St. John drainage. The Etchemin inhabited the mouth of the St. John, at a village named Ouigoudi (Lescarbot 1907/11 2:357), although the Souriqouis used the St. John river valley further inland. The Etchemin inhabited the Penobscot valley. There was a village near the mouth of the Kennebec inhabited by people who were probably Etchemin, although the Abenaki inhabited the Kennebec well above tidewater. (For example, after becoming familiar with the regional geography from the perspective of Quebec after 1608-1610, Champlain refers to the Abenaki living inland on a river that flows to the coast of the Etchemins [Bourque 1989:262 with references]). The Etchemin village near the mouth of the Kennebec may have been on the Sasanoa River, a tidal connection between the Kennebec proper and lower Sheepscot, or on the lower Sheepscot River estuary. Biard (1891:422) clearly describes a short trip though the Sasanoa to Meteourmite's village in 1611, where Almouchiquois were visitors. The Almouchiquois inhabited Casco Bay with Marchin as sagamore, although they did not grow crops there (Bourque

1989:263). Champlain visited a major Almouchiquois agricultural village located at the mouth of the Saco in 1605.

In a January 31, 1612 letter, Biard (1891) summarized the ethnic distribution from the viewpoint of Port Royal, Nova Scotia: "To the west and north live the Etheminquois, from the river St. John to the river Pentagoet and even to the river Kinibequi. .... The Armouchquoys occupy vast lands from the river Kinibequi to 40°." (Longitude 40° North is south of New York city.)

In 1604 Champlain heard of an agricultural village located up the Kennebec. In 1629 he refers to upriver inhabitants on the Kennebec as "Abenacquiouit", Abenaki (Bourque 1989:262), with multiple agricultural villages. There is no primary source which equates Almouchiquois, the agricultural people from Casco Bay southward recorded before 1620, with Abenaqui, the agricultural people of the interior Kennebec named first in 1629. It may be that this was one ethnic group, and the French simply dropped use of the "dog" epithet. Other alternatives are possible, including withdrawal southward of the Almouchiquois or depopulation by disease in 1617-1619 (Bourque 1989:263).

Dreuillettes visited a village of unstated ethnic composition in 1647, where there were 15 dwellings located about a league (about 2.5-3 miles) upriver from Cushnoc [Augusta] (Thwaites 1959: 31:189) apparently on the east side of the Kennebec. Prins (personal communication January 1991), however, is of the opinion that this village (a league upriver from Cushnoc) was a temporary, probably multi-ethnic, mission village. Drueuillettes visited a village in the vicinity of Norridgewock, further upriver and probably on the west bank, in 1646 (Prins and Bourque 1987), and along with Cushnoc, again in 1650.

Tracing the Abenaki, sensu stricto, as interior Kennebec agriculturalists into the late 17th and 18th century is problematic, also. Beginning circa 1650, French colonial authors increasingly used the term "Abenaki" to refer to a greater proportion of the Indians in Maine and the Maritimes (Bourque 1989:271). In 1676, Madocawando, sachem at Taconic [Winslow, on the Kennebec] (Bourque 1989:266, with a vignette of his life) moved with most of his followers to Pentagoet (Castine). Beginning in 1681 the term "Caniba" is used to refer to people at Pentagoet and in the Penobscot Valley, and it is made clear in several sources that the Caniba were people who "ordinarily" had resided on the Kennebec (Bourque 1989:267-269). Caniba and Maliseet both used the Penobscot Valley during the 18th century, but where they lived and whether or not the communities were formally multiethnic remains unclear (Bourque 1989:267). Thus, the term Abenaki is generalized gradually to include more and more groups. For example, in 1744, Charlevoix (1870:200-201) states "These were the Abenaquis.

...the portion of the Nation living in the vicinity of the Kennebec were called Canibas. The subsequent necessity of defending themselves against the English and their allies having forced them to unite with the Etchemin or Malecites, living near the Penobscot, and the Micmac or Souriquois... (T)he close union formed between these three nations...have commonly led to include them all under the general name of Abenaqui nations."

For now we assume that Almouchiquois and Abenaki (sensu stricto) refer to one ethnic group living west of the Kennebec River. Between 1676 and 1692, for areas east of the Kennebec the term Etchemin was replaced by use of two terms: "Canibas", referring to expatriots from the Kennebec who moved to the Penobscot, and "Maliseet". Maliseet was originally spelled "marizis" by Cadillac circa 1692, and was used to refer to a people living between the St. John Valley and the Penobscot (Bourque 1989:268).

In 1694, Villebon says: "The Canibas, the Maliseets and the Micmacs, each have a different language..." (Bourque 1989:268). This statement clearly indicates some level of differentation between the Canibas and Maliseets. Moreover, Charlevoix's statement, albeit 50 years later from the long-distance perspective of Quebec, indicates that the Maliseet were thought of as the primary constituents of the older term "Etchemin". The question of what the "Caniba" were called prior to 1676 arises, especially in light of the clear early 17th century extension of the term Etchemin as far west as the (east side of the) mouth of the Kennebec River.

One opinion is that the Caniba were mostly or entirely Abenaki from the interior Kennebec region around Norridgewock (Prins, personal communication). For reasons presented below, we think this less likely than a second possibility.

The second opinion (Bourque, personal communication) is that the Caniba had been subsumed under the term Etchemin before 1676, and that the eastern and western Etchemin were much more closely related than either were to the Abenaki/Almouchiquois or Souriquois/Micmac. This position becomes clearer when one focusses on the Kennebec River as a boundary, and when one traces the biographies of individual Native Americans (Bourque, personal communication). The Kennebec River was apparently an inter-ethnic boundary, as well as the international boundary between New England and Acadia. The people living upstream from Norridgewock lived on the west bank, before they were enticed across the boundary by Father Rasles' construction of "new" Norridgewock circa 1690. Recent archaeological evidence indicates that these west bank people lived in longhouses and grew corn, beans and squash. We assume that these were the Abenaki. The Etchemin clearly inhabited the east bank of the Kennebec, at least at its mouth. Biographies of individual Caniba clearly indicate identification with the east side of the Kennebec, to as far east as the Pemaquid region along the coast. Madocawando's Caniba

were apparently recruited from the east side of the Kennebec River, and they lived at Taconit (Winslow) on the east side of the Kennebec before their move. Madocawando himself was a Maliseet-Etchemin from eastern Maine, the adopted son of Assiminisqua. Assiminisqua is, at one time, identified as living at Wesserunsett (now Skowhegan) on the left (east) bank of the Kennebec.

We end the Early Contact Period arbitrarily at 1676, which corresponds with the outbreak of King Phillips War, the move by Madocawando and his people from Taconic to Pentagoet and the inception of the expatriot "Canibas", expulsion of most white settlers from Maine for a period of 30 years or more, and intensified movement by Native American refugee groups and other drastic changes in Native American ethnic groupings and lifestyle.

II. IDENTIFICATION

To date there has not been a systematic attempt to identify specific villages mentioned in the ethnohistoric record with known archaeological sites, or to locate previously unknown archaeological sites of the period from historic records. Discovery of Early Contact period archaeological sites has been fortuitous. Only a few site specific projects have resulted. Sanger (Sanger et al 1983) salvaged eroding coastal site 16.90 after identification by an amateur archaeologist, Richard Doyle, of pig bones and debitage of European flint in an eroding context. Based upon Rosier's account of Waymouth's 1605 voyage, MHPC staff identified the location as Nahanada's (seasonal?) village and nominated it as such (NR 7/22/80, Bradley 1981, Sanger et al 1983)). In another project Spiess tested site 17.76 on Allen's Island, attempting to find evidence of Waymouth's 1605 voyage. A Contact Period Indian component was identified (NR 12/15/83), stratified above a Middle Woodland component. The Contact Period component at Allen's Island, and at the Hilton site (26.34, NR 7/13/89, Will and Will 1989) may postdate 1676 and therefore relate to the later contact period. In both cases, European trade goods are mixed with stoneworking technology, while Allen's Island also preserves Native American ceramic technology. The "Old" site of Norridgewock (Prins and Bourque 1987) has been reported as site 69.11. It was the subject of intensive-level survey testing by the University of Maine at Farmington in the fall of 1990, and report preparation is ongoing. The site is clearly eligible for nomination to the National Register of Historic Places.

Archaeological visibility of Early Contact period components may be low, especially when they are located congruently with prehistoric occupation. For example, Dreuillette mentions a village of 15 "great cabins" which in 1646 were located 1 league above Cushnoc. He states that Cushnoc is 16 leagues from the mouth of the Kennebec, and that Norridgewock is 16 leagues further upstream. Cushnoc is near Fort Western in Augusta (Cranmer 1990).

These known sites and distances mean that Dreuillettes' league was between 2.6 and 2.8 miles in length. The downstream end of the first major alluvial river terrace above Augusta is located 2.8 miles upstream from Cushnoc. Archaeological site 38.19 is located on this terrace, which has recently been subject to Phase I archaeological testing, apparently without detecting a Contact Period component (Will 1991). The Upper Kennebec Historic Archaeological Survey also failed to locate this site in 1984 and 1985 (Cranmer, personal communication 1991).

At present, there are a score or so sites with a component assigned to the Early Contact Period in Maine. A small sample as described above, have been listed in the National Register of Historic Places.

III. RESEARCH SIGNIFICANCE THEMES

Theme 1, Culture History

This theme engenders two types of research: (1) ethnohistory (sensu Trigger 1983) and (2) the details of material culture succession in the archaeological record. In contrast with the prehistoric past, there is relatively much information on ethnohistory and relatively little on the details of material culture. The ethnic picture has been discussed above. In this section we discuss the historic record of material culture. Because little archaeological work has been accomplished in Early Contact period archaeological sites, and less is fully reported, there has been no opportunity to compare patterns in the material culture record with the ethnohistoric baseline.

One aspect of material culture is the personal appearance of Maine's Native American inhabitants. Their personal appearance was modified by decorative hairstyles and paint designs, distinctive clothing styles, and decorative items applied to clothing, such data as are extremely rarely (eg: Heckenberger et al. 1990) recovered from the archaeological record. Circa 1583 natives of the Bay of Fundy wrapped themselves with a girdle with ends cut into "little thynn thonges, which thones they tye rownde about them with slender quils of birdes fethers wherof some are as red as if they had byn dyed in cuchanillo "(Quinn 1962:340-341). In 1605 in the St. George River area, Rosier reports that a similar piece of clothing "is decked round about with little round peeces of red Copper" (Burrage 1887: 121). Champlain reported the hairstyle and face paint patterns of the Saco River Indians circa 1605 as follows (Grant 1907: 61)": These savages shave off the hair far up on the head, and wear what remains very long, which they comb and twist behind in various ways very neatly, intertwined with feathers which they attach to the head. They paint their faces black and red, like the other savages which we have seen." Waymouth, in the St. George estuary in 1605 says: "They paint their bodies with blacke, their faces, some with red,

some with blacke, and some with blew (Burrage 1887:110), and "with stripes of excellent blew over their upper lips, nose and chin. .... One of them ware a kinde of Coronet about his head, made very cuningly, of a substance like stiffe haire coloured red, broad, and more than a handfull in depth, ... Other ware the white feathered skins of some fowle, round about their head, jewels in their eares, and bracelets of little white round bone, fastened together upon a leather string" (Burrage 1887:135).

On May 30, 1605, Waymouth observed three canoes of Indians land on an island near their anchored boat and "very quickly make fire" (Burrage 1887:109). They must have used some sort of fire-making kit. Bellanger for example, reports "Their girdells haue also before a little codd or pursse of buff wherein they putt divers thinges but especiallie their tinder to keepe fire in, which is of a dry roote and somewhat like a hard sponge and will quicklie take fyer and is hardlie put out" (Quinn 1962:341). In an account of variable fancifulness dating to 1673, Josselyn (1883) reports that the punk in these fire-making kits is composed of processed birch shelf fungus, and that they rubbed two sticks together to make fire. Otherwise, sparks may have been struck from pyrite and felsite, or other combinations of mineral and stone as reported in archaeologically recovered "firemaking kits" or from flint and steel obtained from Europeans. Wooden fire-drills are also reported by Rasle (Prins, personal communication).

Bows and arrows are described by several authors. Arrowheads were variably reported to be horseshoe crab tails (Champlain, in Grant 1907:61); "arrowes of one yarde hedded with indented bones three or fower ynches long, and are tyed into a nocke at the ende with a thong of lether" (Bellenger, in Quinn 1962:341); or arrows "headed with the long shanke bone of a deere, made very sharpe with two fangs in manner of a harping iron" (Waymouth, in Burrage 1887:118). Lescarbot (Grant 1907-14) reported stone arrowheads and hardwood shields at Saco in 1607. Biard (1891:421) reports that each of Meteourmite's 40 warriors had a bow, arrows, and a shield on the lower Kennebec in 1611. The shields are not further described, although a wooden shield is illustrated by Champlain (e.g., Armstrong 1987:136).

Native tobacco pipes were manufactured out of local clay, "very stong, blacke, and sweet, containing a great quantity" (Waymouth, in Burrage 1887:123). In fact, the survival of Native American technology well into the 17th century was commonplace, partly because of lesser access to Euroamerican trade goods with distance from the Gulf of St. Lawrence before circa 1610. Champlain (in Bourque and Whitehead 1985:335) reports that the Massachusetts Indians were still using stone axes and stone scraping tools to fashion canoes circa 1604: "After taking great trouble and spending much time in felling with hatchets of stone (for except a few who get them from the Indians of the Acadian coast, with whom they are bartered for furs, they possess no others) the thickest and tallest tree they can find.... They

apply fire throughout its whole length ... (and) scrape it all over with stones, which they use in place of knives. The stones from which they make their cutting tools are like our musket flints."

Thus, archaeologists working on the early Contact period in Maine must be aware of the fine scale geographic and temporal variation in access to European goods, and of the fact that much Native American technology survived well into the Early Contact Period.

Theme 2, Settlement Pattern

Settlement pattern includes the study of spatial distribution of archaeological material at several scales: 1) the distribution of sites across the state, 2) the association of sites with specific geographic attributes, and 3) the internal patterning within archaeological sites. In the latter case, the identification of features and material that can be associated with one "house" or living floor occupation of a limited span of time is critical for understanding artifact associations and building a cultural chronology. There is relatively much information about certain aspects of settlement pattern in the Early Contact period ethnohistoric record, primarily the larger scale distribution patterns subsumed under items 1 and 2 above.

The focal points of Early Contact Period settlement were many multi-seasonal villages each associated with a geographic name and a sagamore (chief or headman). The inhabitants of each village often dispersed to smaller, seasonal campsites for one or a few families. All settlements were reported to be located on some sort of water shoreline (offshore island, marine coastal, riverine or lacustrine). The large, multi-seasonal villages were not randomly distributed across the state, but were "concentrated" in estuaries along the coast and along the middle and lower reaches of major rivers.

The large multi-seasonal villages were evidently an identifiable "home" for their inhabitants, although we do not know how permanent they were on a seasonal basis. For example, in the late spring of 1614, John Smith found the Penobscot River "well inhabited with many people, but they were from their habitations, either fishing among the Iles, or hunting the lakes and woods.... (O)ver all the land, iles or other impediments, you may well see them sixteene or eighteene leagues from their situation" (Smith 1614:15). Apparently, Smith was reporting that people commonly went 40 to 50 miles from their "home village" to seasonal fishing or hunting camps. Moreover, at least in Almouchiquois territory along the southern Maine coast, use of a major embayment like Casco Bay may not have been year round. Marchin, the sagamore of Casco Bay, is reported by Champlain to have grown his corn at Saco "with Onemechin" (Biggar 1922-36:395-6). Whether Souriquois raids or

some other factor was the cause, some people from Casco Bay moved seasonally to Saco to tend gardens.

The outer islands of the central Maine coast (as opposed to inner islands and estuaries) were warm season camping locations. On May 12, 1605, Waymouth anchored in the Georges Islands (Allen and Burnt Islands, near Monhegan) and found evidence of hearths and food animal bones lying on the surface of an unutilized campsite. At five P.M. on May 30th (18 days later) three canoe-loads of people, apparently including women and children, arrived and made camp. Rosier's account (Burrage 1887:109) indicates delivery of a major oration by one of the arriving men, perhaps a formal welcome speach, indignation, and/or surprise. Since Waymouth's boat had been in the islands for two weeks, and the Europeans had thoroughly explored them, the May 30th group was probably newly arriving for their seasonal stay. Archaeological work on these sites indicates an island-based, warm-season subsistence pattern (Spiess, unpublished data) which supports the ethnographic account of seasonal use.

Most multi-seasonal villages were located on tidewater, including the estuarine portions of major and minor rivers. The best settlement pattern description applies to Mawooshen (Purchas [1625]; confirmed by Egerton circa 1610 [Barbour 1980]), a portion of Maine comprising the Mount Desert Island area and intervening drainages and coast westward to and including the Saco River drainage. Twenty-two villages were reported within Mawooshen, of which approximately thirteen (between ten and fourteen depending on several assumptions) are located on tide water. Approximately seven villages were apparently located on rivers above tidewater. On the Kennebec River, for example, Naragooc (Norridgewock) was the furthest village upriver.

Not all permanent villages were located on tidewater or lower rivers. The presence of a permanent village with sagamore on an interior lake basin is confirmed by Purchas description of the location of Buccawganecants. His description of the Androscoggin River contains the following information (Purchas 1625; reprinted 1906:404). The first village on the river (above what must be Merrymeeting Bay) is Amereangan, and the second village is Namercante. One day's journey (evidently leisurely, in a canoe) above Namercante "there is a downefall, where they cannot passe with their cannoes, but are forced to carry them by land for the space of a quarter of a mile.... And twelve days journey above the Downfall there is another..." We assume that these major falls are Lewiston and Rumford, respectively. "(S)ixe dayes journey more to the North is the head of this River, where there is the lake that is of eight days journey long, four days broad...." Likely the description refers to all of the inter-connected Umbagog-Richardson-Rangeley chain of lakes. "Three days journey from this Lake" (from the arrival at the outlet of the lake, ie. somewhere in the chain of lakes?) was located "Buccawanecants, wherein are three score households, and foure hundred men:

And the Sagamo there is called Baccatusshe."

Even if exaggerated, this report represents a substantial resident population in an inland lakes basin. On the other hand, circa 1646-47 Norridgewock was still the furthest inland village on the Kennebec River, and the Moosehead Lake basin was used as a seasonal hunting ground. In January 1647, Dreuillettes accompanied several to many families up the Kennebec River to Moosehead Lake. (The journey began at the village one league above Cushnoc and presumably went past other Kennebec River villages, including Norridgewock, which was the furthest upriver village from before 1614 to at least 1646 [Prins and Bourque 1987:141]. Dreuillettes does not say whether the group he traveled with was drawn from one or multiple villages.) The party dispersed around Moosehead Lake in family or extended-family sized camps for hunting and trapping, and reassembled in the spring at the spot on Moosehead from which they had dispersed. Dreuillettes was back on the middle Kennebec by May.

Much of the settlement information from the Early Contact Period consists of lists of place names. For example, Smith (1614:5) states: "The principall habityation Northward we were at was Penobscot. Southward along the Coast and up the Rivers we found Mecadacut, Segocket, Pemmaquid, Nuscongus, Kenebeck, Sagadahock, and Aumoughcawgen." Some sources list population size and the name of the sagamore as well as a place name, notably Purchas (1625; see also Barbour 1980), derived from information dating circa 1602-1609. About Norridgewock, Purchas (Purchas 1625; 1906 report) says: "To the Northward is the third towne, which they call Naragooc; where there are fiftie households and one hundred and fiftie men. The chief Sagamo of that place is Cocockohamas". Purchas reports villages with between 30 and 160 households and between 90 and 400 men, with one smaller village of 8 households and 40 men.

Some sources include information about intra-site content or organization. At the meeting of the Chiboctous and "great Pentegoet" rivers, presumably Pentagoet now called Castine, Biard (1891:424) reports "There are eighty canoes and a long-boat, eighteen huts and about three hundred souls. The most prominent chief was called Betsabes, a prudent and conservative man...." As another example, 1623-4, Levett (1847:85-6) reports at the falls on the Presumpscot that "the sagamore or king of that place hath a house, where I was one day when there were two sagamore more, their wives and children, in all about fifty...." Perhaps this location was a seasonal camp, with visitors.

Occasionally, a primary source provides a physical description of the location of a village. Asticou's village, in the Northeast Harbor or Southwest Harbor region of Mount Desert Island, in the summer of 1613 was "a pleasing slope, gently rising from the sea, and bathed on its two sides by

two springs. The land is clear of trees to the extent of twenty or twenty-five acres, and covered with grass in some places almost to the height of a man. Its aspect is to the south and east... (Biard in Cummings 1893). This may be the spot, under sagamore Asticou, that Purchas reports had 50 houses and 150 men. This village must have produced a substantial archaeological site: 20 acres is 80,000 square meters, or an area of about 150 by 50 meters. The area was apparently kept clear of trees, although the grass grew high in untrampled areas. This was a non-agricultural Etchemin village.

The description of Chouacoit, or Saco, by Champlain (Grant 1907:62-3), includes a written report accompanied by a later sketch map (eg. Armstrong 1987:61). Champlain's written description contains detail of corn-bean-squash gardens. Moreover, "the savages dwell permanently in this place, and have a large cabin surrounded by palisades made of rather large trees placed by the side of each other, in which they take refuge when their enemies make war upon them. They cover their cabins with oak bark." The sketch map may or may not be the product of artistic license. It portrays Chouacoit as a dispersed settlement, primarily of individual structures adjacent to cornfields separated by woods. This is only one group of structures. The structures are a mix of both conical wigwams and longhouses. In the only group of structures depicted, five dome-shaped wigwams surround a longhouse. A palisaded fort is depicted to contain one longhouse, not associated with the only group of structures. A similar dispersed settlement pattern may have been described for the Abenacquiouit on the Kennebec River by Erouachy in 1629: "large villages and also houses in the country with many stretches of cleared land, in which they sow much Indian corn" (Champlain, quoted in Bourque 1989:262). A similar settlement pattern, and the difficulties in detecting and recognizing it archaeologically, has been described for the Choctaw in Mississippi (Voss and Blitz 1988). Each individual farmstead is marked by a light scatter of debris of 30 meters or so diameter, separated from the next by 200 to 400 meters.

In Maine archaeologically confirmed Early Contact Period house forms include both small oval structures and longhouses. Site 17.76 yielded a recognizable wigwam floor of about 4 meters diameter marked around the circumference by large rocks and shell (Spiess, unpublished data.) Site 69.11 at Norridgewock contains the floorplan of at least one longhouse (Cowie, personal communication 1990). It is obvious, however, that archaeological work can substantially augment settlement pattern data derived from the ethnohistoric sources.

Theme 3: Subsistence Patterns

The seasonally agricultural nature of Abenaki and Almouchiquois settlement has been mentioned above. Champlain (Grant 1907:62) describes the horticulture at Chouacouet: "We saw their Indian corn, which they raise in

gardens. Planting three or four kernels in one place, they then heap up about it a quantity of earth with shells of the signoc [horseshoe crab] before mentioned. Then three feet distant they plant as much more, and thus in succession. With this corn they put in each hill three or four Brazilian beans, which are of different colors. When they grow up, they interlace with the corn, which reaches to the height of from five to six feet; and they keep the ground very free from weeds. We saw there many squashes, and pumpkins, and tobacco, which they likewise cultivate. ... They plant their corn in May, and gather it in September."

There are no written records of corn, bean and squash cultivation from east of the Kennebec River during the Early Contact period. The eastern limit of the distribution of horticulture during the 17th century is a question that may ultimately have to be answered with archaeological data. Rosier, however, implies that the people he met in the Georges Islands had a tobacco garden somewhere (Burrage 1887:124).

Much of the subsistence of the Almouchiquois and Abenaki, and the vast majority of Etchemin subsistence, was based upon wild plant and shellfish collecting, fishing, and hunting. A detailed description of the specific techniques used to acquire these resources is beyond the scope of this summary paper, but a detailed discussion is provided in Spiess and Lewis (1990). Much specific ethnohistoric detail for hunting and fishing techniques can be found in Denys (1671/2), but most of what he reports applies to the Souriquois of Nova Scotia and New Brunswick. Rosier's account of arriving in the St. George Islands in 1605 (Burrage 1887:103) is one of the few ethnoarchaeological accounts: "Upon this Iland, as also upon the former, we found (at our first comming to shore) where fire had beene made; and about the place were very great egge shelles bigger than goose egges, fish bones, and as we judged, the bones of some beast. Here we espied cranes stalking on the shore..." (possibly great blue heron).

Rosier's report (Burrage 1887:126) also contains a reference to what may be stored whale meat, offered in trade on June 1: "They shewed me likewise a great piece of fish, whereof I tasted, and it was fat like Porpoise...." At the end of his account, in a series of short subjects seemingly cleaning up a list of interesting topics he could not weave into his narrative elsewhere, Rosier (ibid: 158) relates an account of hunting large whales ("12 fathoms long"), from birchbark canoes with bow and arrow and "a bone made in fashion of a harping iron fastened to a rope, which they make great and strong of the barke of trees...." "When they haue killed him and dragged him to shore, they call all their chiefe lords together... (the) Sagamoes divide the spoile and giue to euery man a share, which pieces so distributed they hang up about their houses for provision; and when they boile them, they blow off the fat, and put to their peaze, maiz, and other pulse, which they eat." This is evidently a third-hand account, not eyewitness. Moreover, nowhere

in the text is there explicit connection between the proferred piece of sea mammal (skin? and) fat, and the account of hunting large whales. However, large whale bones are frequent enough in Ceramic period archaeological contexts from the Maine coast that some sort of formalized redistribution system for systematically hunted whale products must be considered as part of the subsistence base of the Ceramic Period and possibly Early Contact Period.

Theme 4: Mortuary Practices

There are few mortuary sites of confirmed Early Contact date from Maine. The poorly known Sandy Point site may date to this period (Willoughby 1935: 234). Evident Early Contact interments are known from southern new England (Willoughby 1935:231-241) and from Pictou, Nova Scotia (Harper 1955/6, Whitehead 1988). Modest amount of European copper and brass were present in the Massachusetts graves. The Nova Scotia interments contained conspicuous amounts of European trade copper. Recent re-examination of the Sandy Point burial material culture assemblage indicated that at least one individual was interred with iron trade axes and a large, iron-banded copper kettle. These pieces apparently date to the late 16th or very early 17th century. Burials on Mosher Island in Casco Bay, apparently dating from the Early Contact period, contained smelted copper beads (Bourque, pers. comm.). A Native American buried at Pemaquid, which must predate the circa 1630 English village, also contained large copper tubes or beads.

Spiess and Spiess (1987) review a catastrophic mortality event extending from roughly Casco Bay southward in 1616-1620. The dead from this event may have been buried in mass graves, or not at all in some areas. The timing of arrival of the first European-introduced diseases into the Gulf of Maine is a topic of debate. Snow and Lanphear (1988) conclude that smallpox and other diseases that caused massive Native mortality were not introduced into the region until the 17th century. This conclusion is at odds with one comment in the ethnohistoric record that the Souriquois population suffered from introduced diseases: "one by one the different coasts according as they have begun to traffic with us, have been more reduced by disease" (Biard, circa 1611 quoted by Bourque and Whitehead 1985:337). The solution seems to be that each group was affected by pandemic disease as Europeans settled among them, a conclusion reached by Bourque and Whitehead (ibid).

Theme 5: Transportation, Travel, Trade, and Commerce

Bourque and Whitehead (1985) discuss the intensification of trade and commerce in the Gulf of Maine, primarily by Souriquois middlemen trading with Europeans in the Gulf of St. Lawrence during the 16th century. There are enough references to European-built small sailing craft to demonstrate that they were preferred for long-distance coastwise trade (ibid:333). Smith's

(1614) comment that people commonly went 16 to 18 leagues from their home village as part of a dispersed subsistence phase indicates that the birch-bark canoe was capable of inshore coastal voyages as well. Rosier's report of hunting whales from a canoe, and the summertime use of Maine's offshore islands such as Monhegan and the Georges Islands, indicates that the entire coast was within reach during good weather conditions.

Long distance interior travel by canoe was also common. Early 17th century travel from the Penobscot to Tadoussac (on the St. Lawrence) by Etchemin is recorded (Bourque and Whitehead 1985:332). The geographic knowledge and skills required for interior travel over long distances by birch canoe survived to the 20th century. Succeeded by travel in canvas-covered canoes, some of this lore has survived to be recorded in detail (Cook 1985, with references). Dreuillettes 1646 winter trip from the lower Kennebec to Moosehead Lake for a four-month hunting trip also demonstrates the range over which a single annual subsistence cycle may have spread.

The trade into the Gulf of Maine run by Souriquois and Etchemin middlemen during the 16th and early 17th centuries (Bourque and Whitehead 1985) may have been an intensification of some pre-existing Ceramic Period trade patterns which involved furs among other products (Spiess et al 1983: 105). Some of the earliest European reports hint at trade in Native commodities. In 1580 John Walker took "III ^{c} drye hides ... eighteen foote by the square" that had been cached in an unattended Native structure in Penobscot Bay (Bourque and Whitehead 1985:330). Whether 300 individual hides or three hundredweight of hides, someone had stockpiled a significant quantity of moosehide which could only have been intended for trade or redistribution. In 1603 Champlain recorded a party of Native Americans in the St. Lawrence on their way to Tadoussac to "barter arrows and moose flesh for ... beaver and marten" (Bourque and Whitehead 1985:335).

Among European goods, metal was avidly sought, especially copper and its alloys. At Saco in 1603 Pring recorded: "plates of Brasse a foot long, and half a foote broad before their breasts" (Bourque and Whitehead 1985:327). These copper/alloy pieces were used as ostentatious status markers or personal decoration, fitting into a long prehistoric tradition of use of copper for decoration (e.g., Heckenberger et al. 1990). Champlain's comment on the stone age hatchets and scrapers in Massachusetts (Bourque and Whitehead 1985:335) indicates that the demand for iron tools further north in the Gulf had not yet been satisfied. Henry Hudson, 1609, commented that the French traded the following items with Penobscot Bay area Natives: "red Cassockes, Knives, Hatchets, Copper, Kettles, Trevits, Beads, and other trifles" (ibid:334).

Archaeological studies of Early Contact Period trade in Maine are in their infancy. Reports of European flint cobble ballast, worked by aboriginal stone flaking techniques, are perhaps the most common indication of European trade contact (e.g.: site 9.143, Jane Robinson, personal communication; site 16-90, Sanger et al 1983). Clay tobacco pipe fragments of European or Euroamerican manufacture are perhaps the second most common indicator of Early Contact sites. European copper or brass (often reworked) and glass beads (Cranmer 1990:96; Bradley 1983; Faulkner and Faulkner 1987:133) are less common. The quantification of European trade goods in Early Contact period Native American components is one topic requiring substantially more work, followed by a systematic effort to compare the archaeological data with Euroamerican accounts of trade items.

Theme 6: Social and Political Organization

The study of social and political organization using archaeological data is much more difficult than using good documentary sources. Archaeologists are still struggling with the topic, although with notably more sophistication than even a decade ago (Price and Brown 1985). The concept of "complex" hunter-gatherers (ibid) is a major conceptual advance, which applies to Maine Native Americans at contact since they lived in multi-seasonal villages of several hundred to a thousand individuals with a formal leadership structure, and since Maine essentially straddled the border of advancing horticulture. Combining archaeological and ethnohistoric data in exploring this topic could make a major contribution to archaeological studies on social and political organization of complex hunter-gatherers.

Prins (1988:120-140) rightly cautions against accepting the European meaning of terms such as "nation", "tribe", "king", "chief", or "captain" when applied to Native American social organization. However, numerous ethnohistoric references to king, captain, commander or prince indicate that one or more headmen were "in charge" at each major village. When a Native American word was used to describe these personnages it is "sachem" in southern New England and "sagamore" (or similar) in the northern Gulf of Maine. Many of the Native personages recorded by name in ethnohistoric documents (Bourque 1989) are sagamores.

Both in southern New England (Winslow 1624 in Prins 1988:125) and in Maine before 1620 there was a hierarchy of status and power among headmen. "Many provinces [in the central Maine coast are] governed in chief by a principall Commander or Prince, whom they call Bashaba, who hath under him divers petty Kings, which they call sagamores" (Strachey 1618 in Prins 1988:125). Rosier, in a summary opinion (Burrage 1887:157) says "They shew great reverence to their King, and are in great subjection to their Governors." Even a local sagamore could provide an impressive ceremonial/functional show of force to European visitors, as Meteourmite did

for Biencourt and Biard in 1611: "and some forty powerful young men around the hut, as a bodyguard, each one having his shield, his bow and his arrows on the ground before him (Warren 1891:421).

"Bashabe" was apparently a name, not a title (Prins 1988), despite English misunderstandings. Bashabe's village was Upsegon (Purchas 1625) at a place called Kadesquit (Biard 1612), perhaps Kenduskeag = Bangor, on the Penobscot River. The nature of the relationship between sagamores at the other villages and Bashabe is unclear: it may have been based strictly upon his skill and personal pursuasive power. The territory within which his power was acknowledged had a name ("Moashim", Gorges 1658 quoted in Prins 1988:167; probably the Mawooshen of Purchas 1625), extending from the Union River west to the Saco River. But after his death in 1615, chaos reigned: "This Bashaba had many enemies, especially those to the East and North-East, whom they called Tarentines.... (T)he Tarentines surprised the Bashaba, and slew him and all his People near about him, carrying away his Women, and such other matters as they though of value; after his death the publique businesse running to confusion for want of an head, the rest of his great Sagamores fell at variance among themselves, spoiled and destroyed each others people and provision, and famine took hould of many...." (Gorges 1658 in Prins 1988:167). Evidently, whatever power structure Bashabe had constructed could not survive his death.

A description written by Biard about 1614/15 (Thwaites 1896 3:87-89) makes it clear that relations between most sagamores were egalitarian and that decision-making required a sometimes difficult concensus. "It is principally in summer that they pay visits and hold their State Councils; I mean that several Sagamores come together and consult among themselves about peace and war, treaties of friendship and treaties for the common good. It is only these Sagamores who have a voice in the discussion and who make the speeches, unless there be some old and renowned Autmoins [shamans or medicine men]..., for they respect them very much and give them a hearing the same as to the Sagamores. It happens sometimes that the same person is both Autmoin and Sagamore, and then he is greatly held in awe.... Now in these assemblies, if there is some news of importance, as their neighbors wish to make war upon them, or that they have killed someone, or that they must renew the alliance, etc., then messengers fly from all parts to make up the more general assembly, that they may avail themselves of all the confederates, which they call Ricamanen, who are generally of the same language. Nevertheless the confederation often extends farther than the language does, and war sometimes arises against those who have the same language. In these assemblies so general, they resolve upon peace, truce, war, or nothing at all, as often happens in the councils where there are several chiefs, without order and subordination, whence they frequently depart more confused and disunited than when they came..."

Theme 7: Laboratory or Field Techniques

There are no Early Contact archaeological sites exhibiting particular significance because of the invention or application of a particular laboratory or field technique. It is likely that application of mettalurgical analysis techniques to differentiate Native from European copper will be critical in differentiating late Precontact from Early Contact sites. So far, however, studies of Contact Period copper in Maine have been not been systematic or remain unpublished.

Theme 8: Anthropological Archaeology

A better understanding of the Early Contact period in Maine could contribute to several topics of general anthropological interest. Most obvious are the processes of dramatic culture change that occur when two economically unequal cultures meet, including disease (Spiess and Spiess 1987, Snow and Lanphear 1988), warfare (various), and other symptoms of the dissolution of cultural values (Denys 1671/2). In particular in Maine we have an early example of the "Frontier" of European settlement, and participation in the fur trade, topics which have generated an enormous literature. Maine is a special case during the 16th and 17th century, compared with most other areas of the New World, because until roughly 1676 Native Americans were on an "even playing field" with the European immigrants. In fact, for the first decade, Native middlemen controlled the trade into the Gulf of Maine. The affect of this trade on Native sociopolitical structure may be similar to that of other Contact/trade situations: enhancement of the power of "big men" who partially control the trade (eg. Kaplan 1985 for an example from the Eastern Arctic). As stated in other discussions above, whether or not this process has antecedents in the prehistoric trade patterns before European arrival is an important question to understanding cultural preadaptation.

Not only is Maine an excellent locality for studying European-Native contact, but at the time of contact Maine included both sides of the economic border between horticulturalists and hunter-gatherers. The dynamics of that Native-Native culture contact situation add interesting complexity to the Euroamerican-Native contact.

Theme 9: Human Biology

As stated above in Theme 4, there are currently few mortuary sites of the Early Contact period. The horrible effects of introduced pandemic disease, as presented in historic sources, have been one focus of human biology research for this period (Spiess and Spiess 1987, Snow and Lanphear 1988). A single vertebrae from the Sandy Point burial has been included in a recent study of diet based upon bone stable isotope composition (Bourque,

personal communication). A recent change in National policy favoring reburial of Native American skeletal remains that can be identified with a known ethnic group will accelerate accumulation of the Human Biology data base tremendously in the near future.

Theme 10: Environmental Studies

No studies directly pertinent to the reconstruction of environmental conditions during the Early Contact period have been attempted. The ethnohistoric sources, particularly Denys (1671/2), do however contain a wealth of anecdotal information about the geographic and seasonal distribution of fauna and flora, and some information about abundance, from Penobscot Bay eastward into the Maritime Provinces.

Theme 11: Non-Mortuary Religious Behavior

French priests made occasional references to Native "sorcerers" or "magicians" (or shamen) and their practices of healing or other rites. Despite the efforts of the priests, and at least partial acceptance of Christianity as evidenced, for example, by construction of a "little chapel of boards, made in their manner" for Dreuillettes on the Kennebec in 1646 (Thwaites 31:189), the old religion and its practices survived at least among some groups. Morain, in 1676, complained that the Etchemin "have not been instructed...averse to Christianity, and are exceedingly addicted to drunkeness, to juggling [shamanism], and to polygamy" (Thwaites 60:263).

There is at least one eyewitness account of a collective Native ceremony, before Christian influence. It occurred on the St. George islands on or about June 2nd, 1605, related by Owen Griffin who spent the night ashore as a guest. Griffin reported to Rosier "their maner, and (as I may terme them) the ceremonies of their idolatry; which they performe thus. One among them (the eldest of the Company, as he judged) riseth right up, the others sitting still, and looking about suddenly cried with a loud voice, Baugh, Waugh; then the women fell downe, and lie upon the ground, and the men all together answering the same, fall a stamping round about the fire with both feet, as hard as they can, making the ground shake, with sundry outt-cries, and change of voice and sound. Many take the fire-sticks and thrust them into the earth, and then rest awhile: of a sudden beginning as before, they continue so stamping, till the yonger sort fetched from the shore many stones, of which every man tooke one, and furst beat upon them with their fire sticks, then with stones beat the earth with all their strength. And in this maner (as he reported) they continued above two houres. After this ended, they which have wives take them apart, and withdraw themselves severally into the wood all night" (Burrage 1887:122). This ceremony occurred approximately two days after the arrival of the Indians in the Georges Islands, and their seeming surprise at discovering Waymouth's ship.

Approximately 28 Native Americans were present (Burrage 1887:118). Whether the ceremony was appropriate for arrival at a seasonal camp, or appropriate for the discovery of a strange interloper, or for some other reason, we have no record. Incredibly, the reported movement of stones and firebrands could leave some archaeological traces of the ceremony under ideal conditions.

Theme 12: Cultural Boundaries

The Early Contact Period presents an opportunity to examine the congruence between material culture, subsistence, and other patterns amenable to archaeological data analysis, and the distribution of known ethnic groups on the landscape. Champlain's comment that the Almouchiquois were still basically in the stone age in 1605, while the Etchemin and Souriquois had access to iron tools (Bourque and Whitehead 1989) begs for archaeological analysis. Given a few excavated components of the time along the Maine and New Hampshire-Massachusetts coast, would the incidence of European goods, and iron tools in particular, decline slowly in frequency from one end of the coast to the other, or would there be a sharper clinical frequency change at ethnic group borders? Was Onemechin's rebuff of the trade overtures by Meesamouet and Secoudon (Bourque and Whitehead 1985:333) in 1605 at Saco a reflection of habitually poor relations between the Armouchiquois and their northern neighbors? If so, we might expect that such trade relationships contributed to the pattern of access to European trade goods.

It is possible to interpret the ethnic boundary between Etchemin and Abenaki, and between Etchemin and Almouchiquois (if the Almouchiquois were not Abenaki) as the boundary between horticulturalists and hunter-gatherers. Can we detect this boundary in the archaeological record? If not, that fact must lower the resolution with which we can study situations of horticulturalist-hunter-gatherer contact.

Given that any of the ethnic boundaries recorded for the Early Contact period can be detected archaeologically, how far back can we follow them in time? For example, Petersen and Sanger (1990) have detected a difference in some ceramic decorative attributes (cordage twist) between coastal and interior Maine, on the Saco, Androscoggin, Kennebec, Penobscot, and eastern Maine drainages, during part of Maine prehistory. The dynamic ethnic situation of the 17th and 18th centuries, characterized by village dispersal, adoption, amalgamation, and wholesale movement of people from one place to another (Prins 1988 and elsewhere), placed a short "lifetime" on Native American ethnic groups before they changed or realigned themselves. Perhaps the processes of change during the period were just tremendously accelerated because of European contact. If not, however, it seems that specific ethnic groups might usually be traced backward into the prehistoric archaeological record for only relatively short time spans.

IV. EVALUATION

Two broad types of archaeological research questions can be applied to the Early Contact Period. The first involves comparison of the archaeological record with the ethnohistoric record and the relatively great detail that written statements give us about some aspects of Native American life. The second focuses upon questions of culture contact and cultural dynamics that may be different in kind or intensity from those of preceding periods. In either case clearly defined and datable archaeological components are necessary, since so many of the research questions discussed above depend upon fine chronological control and "pure" assemblages.

National Register Eligibility Criteria

To be eligible for National Register listing under the Early Contact context, a Maine site must contain a component clearly datable to the Early Contact Period. Such dating is most easy to demonstrate by the presence of certain types of European-manufactured goods (certain bead types, clay tobacco pipe types, European ceramics). Early Contact period sites also are apparently marked by evidence of Native American remanufacture of European materials (such as copper, brass, glass, or ballast flint), into Native American cognate items (such as endscrapers made of bottle glass or flint, or copper triangular points). These "remanufactured" items should exist without evidence that the site dates from after 1676, if they are to be used to date the site to the Early Contact Period. Therefore, National Register eligibility of a site, based upon its Early Contact component, is minimally dependent only upon the archaeologist's ability to demonstrate that some or all of the Early Contact component is either a "pure" component or that it can be clearly separated (material culture assemblage) from preceding or later admixture. National Register eligibility is enhanced by the presence of features, house or village plans, and/or floral or faunal remains that can be securely associated with the Early Contact component. A plausible association of the archaeological site with a site mentioned in an ethnohistoric text also enhances National Register eligibility, but a textual association cannot by itself be used to "prove" an Early Contact date for a site in the absence of material culture or other confirmation. Moreover, any site with an Early Contact period component that can make an extraordinary contribution to any of the Research Significance Themes presented above is also eligible.

V. PROTECTION

Written records in the ethnohistoric sources would seem to make Early Contact Period sites vulnerable to discovery and looting. However, intermittent professional archaeological effort has not been highly successful in finding such sites. The presence of metal goods on these sites

might make them more vulnerable to detection (e.g., with a metal detector), but it takes a trained eye to recognize much of the remanufactured material that would appear on these sites. Because conservation of Euroamerican goods on such sites might be a problem, and because the research questions applicable to the period are so far relatively untested and unexplored, delaying excavation into the future would tend to increase data derived from excavation of an Early Contact Period component. Therefore, preservation in situ with full legal and physical protection is preferable to data recovery, other factors being equal.

Armstrong, Joe C. W.
1987 Champlain. MacMillan of Canada, Toronto.

Barbour, P. L.
1980 The Manuscript "Instructions for a Voyage to New England". Papers of the Elevent Algonquian Conference. Ottawa.

Biard, Pierre
1891 Extracts from the letters of the Jesuit Missionary in Maine, Father P. Biard. Translated by Frederick M. Warren. Maine Historical Society Collections, 2nd Series, Vol 2: 411-427.

Biggar, H.P. ,ed.
1922-36. The Works of Samuel de Champlain. 6 volumes. The Champlain Society, Toronto.

Bourque, Bruce J.
1989 Ethnicity on the Maritime Peninsula, 1600-1759. Ethnohistory 36:257-284.

Bourque, Bruce J. and Ruth Holmes Whitehead
1985 Tarrentine sand the Introduction of European Trade Goods in the Gulf of Maine. Ethnohistory 32:327-341.

Bradley, James
1983 Blue crystals and other trinkets: glass beads from 16th and early 17th century New England. In Charles F. Hayes, Ed. Proceedings of the 1982 Glass Trade Bead Conference. Rochester Museum and Science Center Research Records 16:29-39. Rochester, New York.

Bradley, Robert
1981 Assessment of the Nahanada Settlement Site from the Perspective of Primary Sources and Historical Archaeology. Manuscript on file, Maine Historic Preservation Commission.

Burrage, Henry S.
1887 Rosier's Relation of Waymouth's Voyage to the Coast of Maine, 1605. Gorges Society, Portland, Maine.

Charlevoix, Pierre Francis Xavier de,
1870 History and General Description of New France. John Gilmary Shea translation. New York.

Cook, David
1985 Above the Gravel Bar: The Indian Canoe Routes of Maine. Published by the author, Winthrop, Maine.

Cranmer, Leon
1990 Cushnoc: The History and Archaeology of Plymouth Colony Traders on the Kennebec. Occasional Publications in Maine Archaeology 7. The Maine Historic Preservation Commission, Augusta.

Denys, Nicholas
1671/2 The Description and Natural History of the Coasts of North America. Reprinted 1908, William F. Ganong (ed.). Toronto, The Champlain Society.

Faulkner, Alaric and Gretchen Faulkner
1987 The French at Pentagoet: An Archaeological Portrait of the Acadian Frontier. Occasional Publications in Maine Archaeology 5, Maine Historic Preservation Commission.

Grant, W. L.
1907 Voyages of Samuel de Champlain 1604-1618. Charles Scribner's Sons, New York.
1907/14 Marc Lescarbot. The History of New France. Toronto Champlain Society.

Heckenberger, Michael, James B. Petersen, and Louise A. Basa
1990 Early Woodland Period ritual use of personal adornment at the Boucher site. Annals of the CarnegieMuseum 59:3:173-217.

Josselyn, John
1883 An Account of two Voyages to New-England. Collections of the Massachusetts Historical Society 3rd series, 3:228-311.

Kaplan, Susan
1985 Evergreen goods and socio-economic change in early Labrador Inuit Society. Pp 45-70 in W. W. Fitzhugh ed. Cultures in Contact. Smithsonian Institution Press.

Levett, Christopher
1847 A Voyage into New England, Begun in 1623 and Ended in 1624. Maine Historical Society Collections. 1st Series, Vol 2:72-109.

Lescarbot, Marc
1907/11 The History of New France. Translated by W. L. Grant, 3 volumes. The Champlain *Society, Toronto. Originally published 1618.

Petersen, James B. and David Sanger
1990 An Aboriginal Ceramic Sequence for Maine and the Maritime Provinces. Manuscript in press.

Pierce, T. Douglas and James A. Brown
1987 Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity. Academic Press, Orlando.

Prins, Harald E. L.
1988a Tribulations of a Border Tribe: A Discourse on the Political Ecology of the Aroostook Band of Micmacs (16th-20th Centuries). Doctoral Dissertation, New School for Social Research. University Microfilms #8827013, Ann Arbor, Michigan.
1988b Amesokanti: Abortive Tribe Formation on the Colonial Frontier. Paper delivered at the Annual Conference of the American Society for Ethnohistory, Williambsurg, Virginia.
1990 Ketakamigwa: The Homeland of the Wabanaki. Manuscript in press, ThThe Land of Norumbega: Maine in the Age of Exploration. University of New England Press, 1991.

Prins, Harald E. L. and Bruce J. Bourque
1987 Norridgewock: Village Translocation on the New England-Acadian Frontier. Man in the Northeast 33:137-158.

Purchas, Samuel
1625 The description of the country of Mawooshen in the yeere 1602, 3, 5, 6, 7, 8, and 9. Pp 400-405. In Hakluytas Posthumous or Purchase, His Pilgrimes. Reprinted 1905-7, J. MacLehose, Glasgow.

Quinn,D. B.
1962 The Voyage of Etienne Bellenger to the Maritimes in 1583: A New Document. Canadian Historical Review 43:328-339.

Sanger, David, Arthur Spiess and Robert L. Bradley
1983 Nahanada, a 17th century site on the coast of Maine. Paper presented to ESAF, Salem, Massachusetts, November 1983.

Smith, John
1614 A Description; of New England. Reprinted as Old South Leaflets No. 121. Boston.

Snow, Dean R.
1978 Eastern Abenaki. In Bruce G. Trigger, Editor. Handbook of North American Indians. Volume :137-147.
1980 The Archaeology of New England. Academic Press, New York.

Spiess, Bourque and Cox
1983

Spiess, Arthur and Robert Lewis
1990 The Turner Farm: 5000 Years of Hunting and Fishing in Penobscot Bay. Manuscript on file, Maine Historic Preservation Commission

Spiess, Arthur and Bruce Spiess
1987 New England Pandemic of 1616-1622: cause and archaeological implications. Man in the Northeast 34:71-83.

Thwaites, Reuben Gold, Ed.
1896-1901 The Jesuit Relations and Allied Documents. Reprinted edition, Pagent Book Co., New York. 60 volumes.

Trigger, Bruce
1983 American archaeology in native history: a review essay. The William & Mary Quarterly, 3rd series 40:413-452.

Turgeon, Laurier
1991 Basque-Amerindian trade in the Saint Lawrence during the Sixteen Century: New Documents, New Perspectives. Man in the Northeast 40:81-87.

Will, Richard and Rebecca Cole-Will
1989 A preliminary report on the Ann Hilton Site. Maine Archaeological Society Bulletin 29:2:1-12.

Will, Richard
1991 Phase I Assessment of Prehistoric Archaeological Resources in the Edwards Dam Impoundment Area. Report on file, Maine Historic Preservation Commission.

Willoughby, Charles Clark
1935 Antiquities of the New England Indians. Peabody Museum, Cambridge, Massachusetts.

F. Associated Property Types

I. Name of Property Type Habitation and Workshop Site

II. Description

Throughout prehistory and the Early Contact period, Maine's Native American population supported themselves primarily by hunting and gathering. Sociopolitical organization was relatively simple compared with some other areas of North America. There was no construction of monumental architecture. Life included a varying mix of sedentism and travel and was primarily focussed on waterways and shorelines. Craft specialization was relatively low-level, and craft activities occured in and around habitation areas. Thus, any particular habitation site could have been used for short or long periods (a variable mix of sedentism and travel), and for a variable

III. Significance

Based on diagnostic artifacts and radiocarbon dates, aboriginal populations were present in the area covered by the Androscoggin River Drainage multiple resources nomination beginning at least during the Early and Middle Archaic period and throughout much, if not all, of the subsequent Archaic and Woodland (Ceramic) periods, as well as the Contact period. Early or Middle Archaic remains have been obtained from several stratified sites: the Cape site (ME 36-27), the Wood Island site (ME 36-37), the Smith I and II sites (49.9, 49.10), and the Rumford Falls V site. At the Cape site a radiocarbon date of 8050±90 B.P. was obtained from a cultural feature containing calcined bone and lithic flakes, while at the Wood Island site charcoal from a stratified feature, feature 7, returned a date of 8040±80 B.P. Middle Archaic remains were recovered from feature 4 at the Wood Island site where charcoal associated with lithic tools and debitage returned a date of 6900±80 B.P. Early Woodland (Ceramic) period remains were recovered from

IV. Registration Requirements

Registration requirements vary slightly among the Historic Contexts presented above. A deeply stratified site is considered to be significant if one or more of its vertically separated components meets significance criteria presented in one or more Historic Context(s). Unless specifically excluded in the individual site nomination form by virtue of excessive disturbance (such as in a plowzone), all prehistoric or Contact Period components in a significant site are also significant, by virtue of the fact that they can contribute information to culture history (minimally) by relative stratigraphic placement and comparison with a significant and well dated component. A shallowly stratified, or non-stratified site is considered significant if one or more of its components meets significance criteria presented in one or more Historic Context(s). Unless areas of the site are specifically excluded in the individual site nomination form as not significant, then the entire site is considered significant.

[X] See continuation sheet

[ ] See continuation sheet for additional property types

G. Summary of Identification and Evaluation Methods

Discuss the methods used in developing the multiple property listing.

Until the decade of the 1980s little archaeological survey had been accomplished in the Androscoggin watershed above Brunswick, and there were no substantial reports or publications. At the time of submission of this Multiple Resource document, there is only one archaeological site in the management area listed on the National Register of Historic Places: site 14.108, a Late Ceramic or Early Contact period component in Topsham. This document nominates or request eligibility determinations for 13 more sites, which are the result of intensive survey effort in the drainage between 1984 and 1990.

In 1978 Gramly (1979) accomplished a short field season of survey, including shallow shovel testpits in river valley alluvium, in the townships of Bethel and Gilead. No sites were found. This work was related to research at the lithic outcrop and related workshop sites of Mt. Jasper, upriver in Berlin, New Hampshire (Gramly 1980, AA, book).

[X] See continuation sheet

H. Major Bibliographical References

Bradstreet, Theodore E., and Ronald B. Davis
1975 Mid-Postglacial Environments in New England with Emphasis on Maine. Arctic Anthropology 27(2):8-12.

Cowie, Ellen and James B. Petersen
1987 An Archaeological Phase I Survey of the Gulf Island/Deer Rips Project, Androscoggin County. Report on file, Maine Historic Preservation Commission.

Cowie, Ellen and James B. Petersen
1988 An Archaeological Phase II Testing of the Gulf Island/Deer Rips Project, (FERC No. 2283). Report on file, Maine Historic Preservation Commission.

[X] See continuation sheet

Primary location of additional documentation:

- [X] State historic preservation office
- [ ] Other State agency
- [ ] Federal agency
- [ ] Local government
- [ ] University
- [ ] Other

Specify repository: _____

I. Form Prepared By

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mix of activities including subsistence practices, lithic and other tool preparation activities, etc. It is not possible to subdivide the general category of interior habitation and workshop site, at present, on the basis of length of stay or activity mix. The only site type exception to the rule of mixed habitation/domestic and craft activities known in the area is the special case of a workable lithic material outcrop located on terrain not also suitable for habitation (because of precipitate topography and/or distance from navigable water). Such locations can be characterized as "quarry sites". An example would be the Mount Jasper quarry in Berlin, New Hampshire, just outside the political boundary of this thematic nomination (Gramly 1980). We include sites which contain a high proporation of quarry and lithic reduction activity on a habitable spot near navigable waters in the general "Habitation and Workshop" site type.

So far as survey has progressed to date within the Androscoggin drainage, there are no cemeteries known as separate sites, nor are there petroglyph or other special purpose sites. Those few sites exhibiting evidence of quarry activity also seem to have included a habitation/workshop component.

The geological context of interior riverine and lacustrine sites varies from deeply (3 meters) to shallowly (less than 1/2 meter) or not stratified (all prehistoric cultural material in an active A/B soil). This continuum is caused by the variable rates of sediment deposition (or erosion) on various landforms, coupled with variation in the intervals between and intensity of human habitation. Again, we cannot divide the prehistoric sites, without making arbitrary distinctions. However, better stratified sites are more likely than poorly stratified sites to be National Register eligible under various criteria in the Historic Contexts presented above, because of better prehistoric component separation.

Consequently, for this Multiple Resource Nomination, at this time, we present one prehistoric property type: a generally defined Habitation and Workshop site.

the Cape site (ME 36-27), the Wood Island site (ME 36-37) and the Rumford Falls I-IV site (49.24,25,26, and 27). Middle Woodland (Ceramic) period remains have been recovered from several sites: the Wilson I site (ME 24-33), Caldwell site (ME 36-22), Wadsworth site (ME 36-25), Cape site (ME 36-27), Moyer site (ME 36-28), C. Varney site (ME 36-30), and the Big Ram site (ME 36-32), and the Rumford Falls I-IV site. Late Woodland (Ceramic) period remains have been recovered from eight sites in the project area, including the Irish site (ME 24-32), Lovewell site (ME 36-26), Cape site (ME 36-27), Moyer site (ME 36-28), C. Varney site (ME 36-30), the Wood Island site (ME 36-37), the Town of Rumford site (49.20) and the Rumford Falls I-IV site. Several sites preserve features which returned dates assignable to the Late Woodland period.

A Late Woodland or Early Contact period occupation is documented at site 14.108. Contact period remains have breen recovered from the Quartz Scraper site(ME 36-29) where shell tempered ceramics were found in association with European trade beads.

These sites, singly and as a whole, contribute information to many of the Research Significance Themes outlined in the State Plan, including topics of culture history, subsistence, settlement pattern, and transportation, travel trade and commerce. Further detail is presented in the Historic Contexts in this document, and in significance discussions in individual sites nomination papers.

Archaeological survey work on hydroelectric project (re)licensing began in 1984, with a Phase I archaeological survey for a proposed new dam at Dixfield, located 3 miles downriver from Rumford Falls. Substantial testpit excavation along 5 km of river located only one prehistoric archaeological site, and it had been heavily disturbed (Petersen et al 1985). This site was located on a remnant high terrace, 10 to 12 meters above the floodplain. Survey of 4.5 km of river behind the Pejepscot dam on the lower Androscoggin just upstream from Brunswick resulted in the identification of one and only one prehistoric archaeological site (14.108) (Hamilton et al 1985). Subsequent testing indicated the presence of a single component, terminal Ceramic or Early Contact Period occupation (Hamilton et al 1986), now listed on the National Register (NR 6/12/87). To this point, it seemed that the Androscoggin River valley contained few significant prehistoric archaeological resources.

However, archaeological survey of about 24 river kilometers of pool margin behind the Gulf Island and Deer Rips dams, between Lewiston-Auburn and the Dead River confluence in 1986 resulted in the discovery of prehistoric sites (Cowie and Petersen 1987). Subsequent site specific archaeological work (Cowie and Petersen 1988) has produced sufficient data to judge eight of those sites significant. Either as Nominations or Requests for Determination of Eligibility, those eight sites are part of the initial submission of this Multiple Resource nomination. Survey of five kilometers of river behind the Rumford Falls dam identified approximately 20 prehistoric sites (some are equivocal) (Putnam et al 1989). Subsequent intensive survey (Hamilton et al 1990) has identified five significant sites, which likewise accompany this submission.

Smaller archaeological survey projects have also resulted in site identification and perspective on culture history, although none have yet yielded information resulting in a Nomination. In the upriver portion of the project area, examination of 1 km of Androscoggin River floodplain in Bethel for the Colonel Dyke airfield failed to locate prehistoric archaeological sites (Hamilton and Petersen 1985). Survey for The Chamberlain development in Hanover, however, located one prehistoric lithic reduction station on a high bluff on the site of the Androscoggin Valley and three sites on the floodplain, upstream from the Rumford project area (Thomaso and Hamilton 1990; J. Mosher pers. comm.).

Small tributary river valleys of the Androscoggin upstream from Dixfield also contain prehistoric sites in alluvial context on their floodplain. Ex situ prehistoric lithic material was found in the Ellis River floodplain during a water line survey (Will and Clark 1990). A large prehistoric site upstream on the Ellis River is indicated.

On the downstream portion of the multiple Resource Nomination area there has been one small addition project. A survey of approximately 1 km of river valley edge in Lisbon Falls resulted in discovery of one small prehistoric site, although its significance is currently undetermined (Spiess and Trautman 1991).

Archaeological survey work on the small lakes and rivers tributary to the lower and middle Androscoggin has been sporadic, and primarily based upon review of amateur's collections from eroded context. Sabattus Lake is the location of several eroded Early and Middle Archaic sites (Spiess et al ??w Gramly and Bourque), and one multicomponent site near its outlet (24.10). Androscoggin Lake is likewise the location of several eroded sites. However, followup professional work on Androscoggin Lake has resulted in discovery of an intact Late Archaic site on a fossil lakeshore (Spiess, fieldnotes site 36.14), and possibly significant Ceramic period sites (Petersen and Newcomb 1986). These smaller tributaries of the Androscoggin require more intensive survey effort before their archaeological potential is well known.

Gramly, Richard M.
1979 Report on Archaeological Reconnaissance of the Gilead and Bethel 7.5' Quadrangles, Oxford County, Maine. Ms. on file, Maine Historic Preservation Commission, Augusta.
1980 Raw Materials Source Areas and Curated Tool Assemblages. American Antiquity 45 (4):823-833.

Hamilton, Nathan and James B. Petersen
1985 An Archaeological Phase I Survey of the proposed Colonel Dyke Airfield Runway project, Bethel, Oxford County. Report on file, Maine Historic Preservation Commission.

Hamilton, Nathan, James B. Petersen, Cynthia Thayer, David Putnam, and Peter Ewing
1985 An Archaeological Phase I Survey of the Proposed Pejepscot Water Power Project, Androscoggin, Cumberland and Sagadahoc Counties, Maine. Report on file, Maine Historic Preservation Commission.

Hamilton, Nathan, James B. Petersen, and Cynthia Thayer
1986 Archaeological Phase II testing of Me 14-108 in the proposed Pejecpsot Water Power Project. Report on file, Maine Historic Preservation Commission.

Hamilton, Nathan, John Mosher, Cynthia Thayer, and Jennifer Theberge
1990 Archaeological Phase II Testing of the Rumford Falls Project, Oxford County. Report on file, Maine Historic Preservation Commission.

Osberg, Philip H., Arthur M. Hussey, and Gary M. Boone (editors) 1985 Bedrock Geologic Map of Maine. Maine Geological Survey, Augusta.

Petersen, James B., and Ron Newcomb
1986 An Aboriginal Ceramic Vessel from Androscoggin Lake, Androscoggin County, Maine. Maine Archaeological Society Bulletin 26(2):3-13.

Petersen, James B., Jon T. Oplinger, David E. Putnam, and Robert N. Bartone
1985 An Archaeological Phase I Survey of the Proposed Dixfield Hydroelectric Project, Oxford County, Maine. University of Maine at Farmington Archaeology Research Center. Submitted to BRC (Brown and Root Company, Inc.), Boise, Idaho.

Putnam, David, Patricia Baker, and James B. Petersen
1989 An Archaeological Phase I Survey of the Rumford Falls Project (FERC No. 2333), Oxford County. Report on file, Maine Historic Preservation Commission.

Troutman, Elizabeth and Arthur Spiess
1991 Lisbon Falls By-Pass: Archaeological Phase I Testing. Report on file, Maine Historic Preservation Commission.

Spiess, Arthur, Bruce J. Bourque and R. M. Gramly
1983 Early and Middle Archaic site distribution in Western Maine. North American Archaeologist 4:225-244.

Stuiver, Minze, and Harold W. Borns
1975 Late Quaternary Marine Invasion in Maine: Its Chronology and Associated Crustal Movement. Geological Society of America Bulletin 86:99-104.

Thomaso, Matthew and Nathan Hamilton
1990 Archaeological Phase I survey of the proposed Chamberlain Development, Hanover. Report on file, Maine Historic Preservation Commission.

Thompson, Woodrow B., and Harold W. Borns (editors)
1984 Surficial Geologic Map of Maine. Maine Geological Survey, Augusta.

Westveld, Marinus, R.I. Ashman, H.I. Baldwin, R.P. Holdsworth, R.S. Johnson, J.H. Lambert, H.J. Lutz, Louis Swain, and Myles Standish
1956 Natural Forest Vegetation Zones of New England. Journal of Forestry 54:332-338.

Will, Richard and James Clark
1990 Archaeological Phase I survey of the propsoed pump station and water main across the Ellis River, Rumford. Report on file, Maine Historic Preservation Commission.

Willard, James H.
1986 Turner After 1886. Heritage Books.