

CULTURAL COMPLEXITY IN MARITIME CULTURES:
EVIDENCE FROM PENOBSCOT BAY, MAINE

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INTRODUCTION

Modern professional archaeology in Maine is in its second decade, and only recently has begun to produce syntheses beyond the culture-historical sequence. This synthesis is based largely upon data from sites in Penobscot Bay, including the Turner Farm site on North Haven Island, excavated by Bourque between 1971 and 1981 and still undergoing analysis by Bourque, Spiess and others.

The "rockbound" coast of Maine is characterized by a series of large and small drowned river valleys trending generally north-south (Figure 1). Penobscot Bay is the largest such feature, over 20 miles wide at the mouth and 30 miles long before narrowing to the modern estuary. Deer Isle forms the eastern margin of the Bay. North Haven, Vinalhaven, and associated islands (the Fox Island group) form an approximately 100-square-mile area of land and protected waters at the mouth of the Bay. At present the Penobscot Bay coast is covered with mixed coniferous and deciduous tree growth dominated by spruce.

The Turner Farm site, a shell midden, is located on Fish Point on the south side of North Haven Island, midway along the Thoroughfare, an east-west trending deep-water passage that separates North Haven and Vinalhaven. An unknown portion of the

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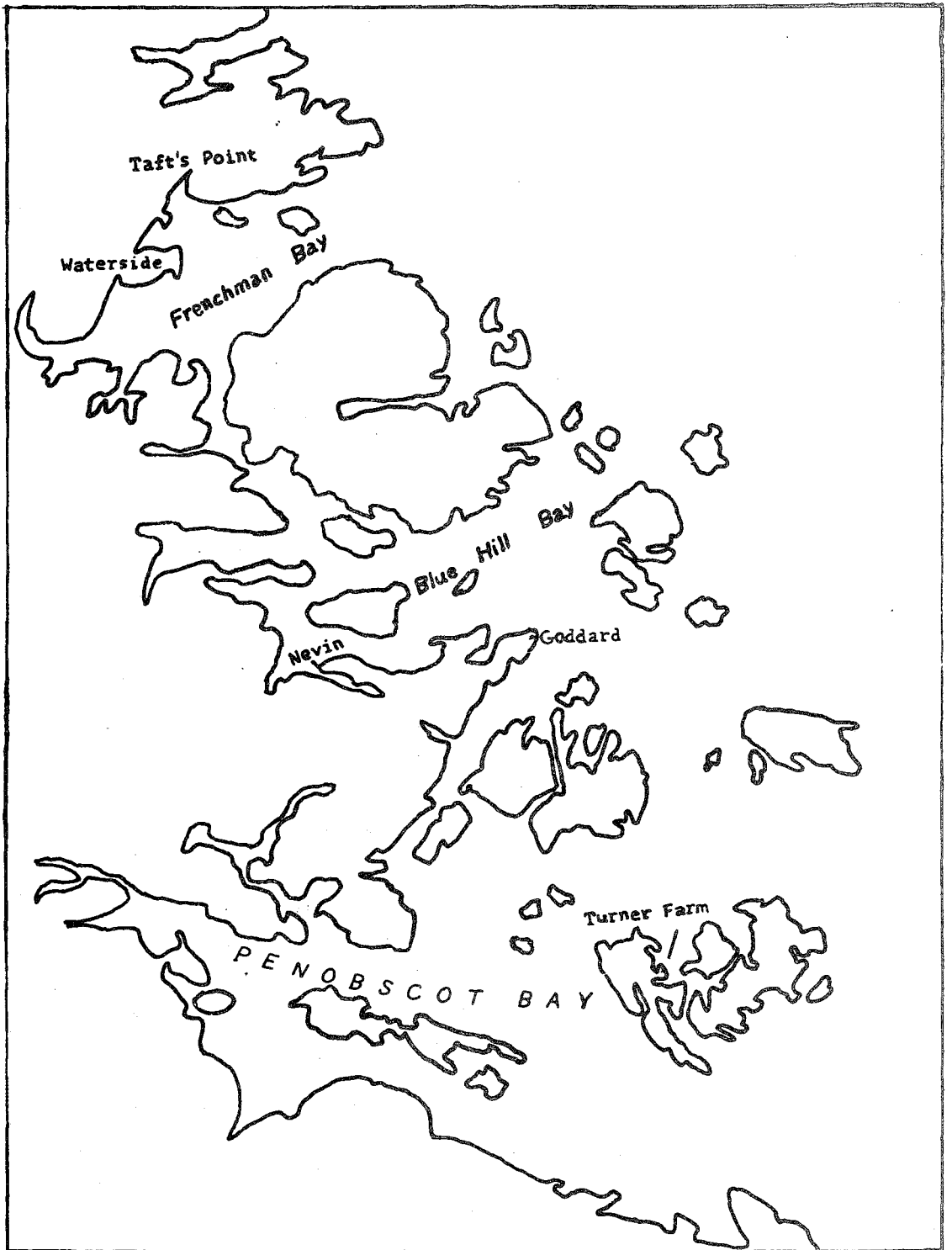


Figure 1. Penobscot Bay and the Turner Farm Site, Maine.

site has been eroded, and other portions are submerged. Bourque has excavated 4,500 square feet (about 15%) of the remaining site area.

EARLY OCCUPATIONS

Our only indications of Paleoindian (12,000 to 10,000 B.P.), Early Archaic (10,000 to 8000 B.P.) and Middle Archaic (8000 to 6000 B.P.) use of what is now the Maine coast are a few isolated finds of diagnostic artifacts. However, subsidence of the land surface along the entire Maine coast has submerged earlier coastlines, and presumably prehistoric coastal sites as well. Paleoindian remains have been found with some frequency near the present coast of northeastern North America, at such locations as Bull Brook, Massachusetts; Quaco, New Brunswick; and Debert, Nova Scotia. However, none of these finds have been in contexts suggesting coastal exploitation *per se*. Evidence from the Early Archaic period is only slightly more abundant along the coast, including a few near-coastal sites in Massachusetts (Dincauze and Mulholland 1977) and two or three point finds in Maine. Middle Archaic presence on the New England coast is indicated by occasional artifact finds in or near surviving multicomponent sites from Martha's Vineyard, Massachusetts (Ritchie 1969) to at least as far east as Penobscot Bay (Bourque 1971; Bourque and Cox 1981).

An indication of the effects of coastal subsidence has recently come to our attention. In an area off Lazygut Islands near Deer Isle commercial scallop draggers working in about 25 feet of water at low tide have recovered large (to approximately 14" in length) oyster shells (*Crassostrea virginiana*) and several artifacts: a ground slate semilunar knife (Rice 1979), two pecked stone mauls or celts, a felsite biface, and rumored other artifacts. No direct association between the oysters and artifacts has yet been proven. The scallop fishermen state that oyster shells are often brought up along a several-mile stretch of water extending north from the Lazygut Island area to Deer Isle. Examination of the area's bathymetry indicates a drowned channel in the area, possibly the former estuarine habitat for the oysters. A radiocarbon date of 6100±65 (SI-4650) has been obtained on one of the oyster shells, which seems consistent with our current estimates for the age span of the one chronologically diagnostic tool form recovered, the semilunar knife. Thus, it is possible that Middle Archaic coastal occupation was associated with oyster-producing areas, perhaps resulting in shell midden deposits. A similar association is reported for Early and Middle Archaic on the lower Hudson River (Brennan 1974). Oysters are not present today in Penobscot Bay, but their availability during the Hypsithermal would be in accordance

with the reconstruction of Gulf of Maine paleo-environment detailed below.

The oldest known surviving component on the central Maine coast is Occupation I at the Turner Farm, which dates ca. 5000 B.P. (Bourque 1976). The component lies at the base of a 4500 year stratigraphic sequence which will be discussed in subsequent paragraphs. Occupation I is characterized by a series of small stemmed points, many of quartz. Typologically similar artifacts are found in the small stemmed point assemblages at the Davis-Tobie site, Sheepscot, Maine, the Neville site, Manchester, New Hampshire (Dincauze 1976), and numerous sites of southern New England (e.g. Ritchie 1969). A very small faunal sample pertaining to Occupation I includes soft-shell clam (*Mya arenaria*), two deer bones (*Odocoileus*), a seamink jaw (*Mustela macrodon*), and a post-cranial fragment of swordfish (*Xiphias gladius*). The occurrence of swordfish in Occupation I antecedes the abundant remains of this species in the next Turner Farm component, Occupation II, described below. However, it should be noted here that swordfish remains of possibly equivalent antiquity have been recovered from the Seabrook Marsh site in coastal New Hampshire (Robinson 1977).

THE MOOREHEAD PHASE

The next identifiable archaeological manifestation in the central Maine coastal area is the Moorehead phase (Bourque 1971, 1976), which spans the period c. 4,500-3,700 B.P. in Maine. Occupation II at the Turner Farm falls near the beginning of the Moorehead phase, with radiocarbon dates ranging between 4,555 and 4,390 B.P. Artifacts recovered from Occupation II strata include a large variety of piercing weapons made of mammal bone and swordfish sword, numerous stone plummets, pecked and ground adzes and gouges, abundant pecking (or hammer) stones, and a small series of long, narrow-stemmed chipped stone bifaces. Typological parallels and in particular decoration of several bone artifacts link this assemblage quite closely to some of the other habitation and cemetery sites of the phase.

Cemeteries of the Moorehead phase, known as "Red Paint" cemeteries, have long been the most visible and famous archaeological remains in the state. Most were carelessly excavated during the early years of this century, but sufficient data from them remain to outline their main characteristics. Though variable in size, they often included more than fifty interments. Burial styles included flexed, extended and probably bundle burials. Burial ceremonialism apparently did not include cremation, though fires were ignited over some graves. Red ochre was included in virtually all graves and

many were well furnished with both utilitarian and non-utilitarian grave goods. In addition to tools similar to those described for Occupation II at the Turner Farm, grave furnishings included ground slate bayonets, marine mammal and fish figurines, and other objects of indefinite function, often beautifully executed in stone and bone. Some cemeteries contain flaked stone bifaces of exotic origin, notably tapered stem points made of Ramah chert from sources in northern Labrador and a series of eared stem points made of exotic lithics of unknown source.

The known distribution of Moorehead phase sites suggests that a variety of environmental zones were exploited by the population. On the coast, substantial habitation components have been identified at the Taft's Point and Waterside sites in Frenchman's Bay, at the Goddard and Nevin sites in Blue Hill Bay, and at the Stanley site on offshore Monhegan Island (Bourque 1971, 1975; Sanger 1975). Cemeteries are also known from the coast, but are more numerous along the estuaries and lower reaches of rivers and their major tributaries from the Kennebec drainage eastward. It now appears that many cemeteries occur near relatively small Moorehead phase camps, and taken together these interior sites suggest a seasonal focus upon anadromous fish resources on navigable river stretches.

Earlier excavations in the coastal components have left us little clear data regarding artifact associations and faunal exploitation patterns. Therefore, a major objective of the Turner Farm project has been to address issues of resource exploitation patterns and seasonality. Spiess has analyzed all mammal and bird bone and has supervised the analysis of fish bone from the Turner Farm. Shell analysis is not yet complete. Seasonality investigation techniques included observation of tooth eruption in young Cervidae (*vide* Spiess 1979, for methodology); tooth sectioning (Bourque, Morris and Spiess 1978); shell sectioning (Hancock, n.d., Kennish, Lutz and Rhoads 1980); observations of growth states in fish vertebrae and otoliths (Williams and Bedford 1975); observation of medullary bone deposits in bird longbones (Rick 1975; Taylor 1970); and species presence/absence.

During Occupation II times, heavy emphasis was placed on offshore fishing for cod during late summer and fall and swordfish during the summer. By late fall the economic focus had shifted to deer hunting, which continued to be the economic mainstay into April or May. There is an apparent hiatus in deer hunting from May or June into September or October. Moose, bear, beaver and seal hunting, bird hunting (for great auk, loons, ducks, and geese), and fishing for species other than cod and swordfish are all definitely of secondary importance.

Although swordfish were apparently taken sporadically during later occupations, there are an order-of-magnitude more swordfish rostrum fragments, and at least three to five times more swordfish postcrania, in Occupation II strata than in any later ones. Likewise, the relative importance of codfish is three to five times greater in Occupation II than in any later occupations. By contrast, bird bone in Occupation II strata is only 1/2 to 1/5 as common (compared with all mammal hunting) as in later occupations, and the relative frequency of seal bones is a whole order-of-magnitude lower in Occupation II. Moderate use was made of shellfish (*Mya arenaria*, *Mytilus edulus*) during Occupation II, although quantification has not been completed.

Definite evidence for the use of the Turner Farm site in April or May exists in the form of a foetal/newborn deer jaw, and a great auk longbone with medullary bone desposits. Fishing in May-June can be certainly demonstrated for tomcod (*Microgadus*); however, general intensity of site use appears to have been low during late spring and early summer. Seasonal interpretation of cod fish vertebral growth rings suggests that the codfishing intensified by September, peaked in October-November, and probably continued into early winter. The codfishing pattern gives us an impression that storage of cod for winter use may have been important.

The April/May/June period coincides with the heaviest anadromous fish runs in Maine rivers (principally shad, then alewife, then Atlantic salmon). The low frequency of Occupation II bone attributable to the late spring at Turner Farm, combined with the presence of Moorehead phase riverine sites, suggests that at least part of the population moved inland to fish during the spring.

A number of other Moorehead phase coastal sites, including Taft's Point, Waterside, Nevin, and Goddard, have produced swordfish remains. However, faunal collections from most of these sites have not been adequately quantified or analyzed. The Goddard site, located on an exposed point of land in Blue Hill Bay, contained a large Moorehead phase component but produced little bone from the period due to a lack of shell in the site and consequent poor bone preservation (Bourque and Cox 1981). A sample of about a dozen identifiable calcined bones from Moorehead phase features produced roughly equal counts of deer and swordfish postcrania, suggesting vertebrate faunal exploitation patterns similar to those at Turner Farm.

The Stanley site on Monhegan Island (an isolated island 15 miles off the coast of Maine and southwest of the Turner Farm) has also yielded an important Moorehead phase component in a non-shell-

midden context (Sanger 1975:62). Swordfish remains, both rostrum and postcrania, are extremely abundant at the site, and a date of 3750±80 B.P. (SI-1532) has been obtained on swordfish vertebrae. The abundance of postcranial swordfish remains at the Stanley site, and their relative scarcity in Occupation II at Turner Farm, indicates that much swordfishing may have been undertaken from relatively offshore marine exploitation camps like Stanley involving only the more able bodied members of the community, with meat and sword (an industrial raw material) being returned to the base camp. Early season codfishing may have begun at these offshore sites, with a move to more protected inshore waters during the fall.

At present, the available data suggest that between ca. 4500 and 3700 B.P., Moorehead phase populations were rather strongly oriented toward coastal resources. Sites such as Turner Farm, and possibly Waterside and Taft's Point, were multi-seasonal villages, perhaps best regarded as base camps. The numerous estuarine and interior camps seem to be oriented primarily to anadromous fishing, presumably in the spring, though some use as fall or winter camps cannot be ruled out. Thus, Moorehead phase settlements were probably divided between relatively permanent coastal multiseasonal villages and relatively transient interior and offshore sites situated for advantageous access to special resources.

The Moorehead phase has been included within the Newfoundland/Labrador Maritime Archaic tradition by several researchers (Tuck 1971; Snow 1980), in part on the basis of implied similarities in subarctic maritime hunting strategy (seals, other sea mammals and caribou supposedly) between Maritime Archaic and the Moorehead phase. Data from Turner Farm and other sites directly contradict that hypothetical subsistence parallel. Sea mammals were relatively unimportant in the Moorehead phase economy, and caribou have played no demonstrable part in prehistoric subsistence patterns of the central Maine coast since at least 5000 B.P. This lack of congruence has caused most Maine workers to reject the Maritime Archaic appellation for the Turner Farm Occupation II and related sites, although not all have agreed upon the appropriateness of the more provincial term "Moorehead phase" used herein.

SUSQUEHANNA TRADITION

Occupation III at the Turner Farm is a component of the Susquehanna tradition (Witthoft 1953; Dincauze 1968, 1972; Bourque 1975, 1976). In coastal Maine, this manifestation appears to have replaced the Moorehead phase as far east as Penobscot Bay around 3700 B.P. Dincauze (1975), Bourque (1975), and Sanger (1975) have

hypothesized that this change represents a population replacement. The Turner Farm is currently the easternmost well-defined component of this tradition, though it is known to have extended, perhaps in attenuated form, as far east as the mouth of the St. John River in New Brunswick.

The technological changes between Occupations II and III are marked. Unlike Occupation II, the Occupation III midden yielded virtually no bone artifacts. The most abundant tools recovered are broad, straight to expanding stem bifaces which fall within the morphological range defined for the tradition south of Maine by Dincauze (1968, 1972).

Faunal remains indicate that deer (*Odocoileus*), moose (*Alces*) and bear (*Ursus americanus*) were staples during Occupation III. Seal were taken twice as frequently (relative to all other mammal bone) at Occupation II, with seasonal data indicating that both grey and harbor seals were generally taken at rookeries during pupping/mating seasons. Birds were also twice as frequently taken relative to mammals as in Occupation II, and shellfish were collected in abundance. Some swordfish, sturgeon and other fish species were also taken. In sum, we reconstruct Occupation III at the Turner Farm as the least marine-oriented occupation of the site. Seasonality data strongly suggest year-round use of the site, though fluctuating group size and even brief periods of total abandonment cannot be ruled out. The presence of Susquehanna tradition components at a number of interior riverine and lacustrine sites indicates the possibility of a spring focus on anadromous fish resources.

The Susquehanna tradition, like the Moorehead phase, includes well defined cemeteries with elaborately furnished graves. However, these burials and their contents are strikingly different from those of the Moorehead phase. Such a cemetery was encountered and partially excavated in a portion of the Turner Farm site. Burial forms included primary interments, secondary bundle burials and, most numerous, secondary cremation deposits. Burial furnishings included flaked bifaces like those from the midden, a variety of distinctive flaked and ground adzes and gouges, and, in surprising contrast to the midden, a wide variety of unique bone ornaments, tools and weapons, better preserved here by the high shell content of the midden than at other known Susquehanna tradition cemeteries.

CERAMIC PERIOD

The Susquehanna tradition occupation of central Maine appears

to have been short-lived compared to its tenure further south, ending ca. 3400 B.P. or slightly earlier. The millenium which follows is perhaps the least understood in the region's prehistoric sequence. After 2500 B.P. the number of known sites show a steady increase, perhaps reflecting a real population increase. Maine researchers include the subsequent prehistoric sequence in the Ceramic period. The term "Woodland," widely used for this period elsewhere in the northeast, is eschewed by Maine researchers because of its implications of agriculture, sedentism and Adena-Hopewell ceremonialism. In Maine, agriculture apparently never penetrated further east than the Kennebec River during prehistoric times, and a continuing primary reliance on hunting and gathering activities is indicated for the entire region by both archaeological and ethnohistoric data.

The Ceramic period in Maine is commonly subdivided on the basis of ceramic styles: early (ca. 2500-2000 B.P., Vinette I-like pottery); middle (ca. 2000-1000 B.P., grit tempered dentate rocker-stamped pottery); late (ca. 1000-400 B.P., cord-wrapped stick decorated pottery with grit or shell temper). Thin, collared, incised vessels similar to those of southern New England also appear occasionally in late prehistoric sites, and it appears that pottery use was discontinued either just prior to European contact or very early in the contact period.

At the Turner Farm, the earliest post-Occupation III strata have a faunal character very similar to that of Occupation III. However, by 2000 B.P. we see a dramatic increase in relative reliance upon moose, flounder and birds, a noticeable increase in relative reliance on seals, beaver and sturgeon, and a drop in relative reliance upon deer and cod. A gradual increase in the use of bear and sea mink (*Mustela macrodon* -- presumably for fur) occurs between 2000 B.P. and ca. 900 B.P. After ca. 900 B.P. another increase in moose, seal and flounder relative frequencies occurs. Finally, the plow zone contains evidence of an even greater proportionate reliance on seals and another relative increase in moose hunting at the expense of deer.

We can detect no seasonal hiatus in occupation within the Turner Farm Ceramic period strata, and we suspect that the site was used during all months of the year. If a shift toward more seasonal use of the coast occurred at the end of the period of occupancy its evidence has been smothered by mixture within the plow zone.

However, this perceived pattern of year-round residence at a single site may not be the norm for the Ceramic period. Earlier research by Bourque (1973) on shell middens in the Deer Isle region

and by Sanger (1979d) on Ceramic period sites in the Passamaquoddy and Frenchman Bay areas produced evidence for late fall or winter to spring occupations for most or all of the investigated shell middens. This evidence, together with the presence of numerous Ceramic period sites on interior waterways, led both researchers to suggest that the Ceramic period seasonal round may have seen occupation of the coast during the late fall to spring months and a shift to interior riverine resources during the warmer months.

More recently, investigations at the Goddard site have revealed a major late Ceramic coastal village occupied during the warm weather months (Bourque and Cox 1981). Associated faunal data show a heavy focus upon grey and harbor seal, and upon sturgeon supplemented by other fish species, moose, deer, and furbearers. Seasonal data indicate that occupation of the site occurred between April/May and September/October.

Thus, the available evidence suggests that late prehistoric populations adopted a mix of settlement options ranging from fairly continuous occupation of a single site to seasonal transhumance between coastal sites or between coastal and interior sites. There is clearly much that we still do not understand about Ceramic period settlement patterns, but continuing analysis of fieldwork data from the past decade of research on Ceramic period sites promises to redress the earlier imbalance toward the spectacular Moorehead phase cemeteries and to clarify our understanding of what was probably a complex system of seasonal settlement choices.

By around 1600 A.D., when we begin to get significant information from European accounts, Maine Indian populations were gathering in large villages at coastal or estuarine locations, at least during the summer. The influence of European trade upon this practice is unclear (Bourque 1973; Snow 1980). However, it may be that coastal settlement during the summer to facilitate trade is a precontact phenomenon. The late component at the Goddard site, for example, has produced substantial evidence of participation in an extensive precontact exchange network primarily oriented to the northeast. Exotic lithics recovered there include Ramah chert worked into a variety of late Ceramic tool forms and clearly not part of the site's late Archaic assemblage, hundreds of endscrapers and bifaces made of Nova Scotian chalcedonies, and a number of varieties of New York cherts, including Onandaga and Normanskill. Other exotics include nuggets and artifacts of native copper, probably from Bay of Fundy sources, an eleventh century Norse coin, and a Dorset Eskimo burin-like tool (Bourque and Cox 1981).

The prevalence of furbearer remains in the Turner Farm and

Goddard late components, and butchering practices similar to those employed in the historic fur trade, hint that furs may have played a role in late prehistoric exchange networks. If future research bears out the hypothesis of intensifying trade during the late prehistoric period, this may explain the ease with which Europeans induced Maine's population into extensive economic contact.

We have little evidence for elaborate mortuary ceremonialism during the Ceramic period. Burials range from individual interments to mass graves. The latter, however, may pertain to the post-contact period when Indian mortality reached extremely high levels. No instances of cremation have been reported, though bundle burials may have occurred and red ochre is occasionally present. Grave furnishings, if any, are usually meagre and seem to represent personal adornment and equipment.

At some point just before or shortly after European contact, the Ceramic period pattern of mortuary practices appears to undergo intensification, if not elaboration. Individual graves were occasionally furnished with large volumes or complex arrangements of copper and shell jewelry as well as metal tools and weapons. Both males and females have been identified in such graves, including an infant accompanying its mother in one instance. Some burials are located near habitation sites, but some appear not to be. Beyond these general observations, little is known about these late burials.

It may be that these relatively well furnished burials are those of local headmen and their relatives. Certainly, the existence of such individuals during the post-contact period is attested in the historic record, and it is not unreasonable to suggest that they emerged, or became increasingly differentiated from their peers, as a result of the development of exchange systems among native populations or with Europeans.

GULF OF MAINE PALEOENVIRONMENT

We shall now present a summary of some oceanographic changes between ca. 6000 B.P. and the present together with some suggestions regarding the influence these changes may have had on regional culture history.

Grant (1970) has proposed that after ca. 4000 B.P. sea level rise led to increasing tidal amplitudes in the Gulf of Maine. Sanger (1975) has argued that these changes led to "... upwelling and water mixing, followed by a cooling of surface water, and finally by affecting marine organisms, especially warm water fauna

such as swordfish and cold water adapted soft shell clams" (*ibid*:72).

More recent data on tidal amplitudes, however, place the onset of increase apparently earlier than Grant believed (Amos 1978). Between 8600 and 6300 B.P., the Minas Basin (part of the Bay of Fundy) was non-tidal. Since 6300 B.P., the tidal amplitude has been increasing linearly. Thus doubt is cast upon the oceanographic basis for Sanger's model. Nevertheless, there remains convincing evidence at the Turner Farm for decreasing water temperature in Penobscot Bay by ca. 3700 B.P.; the disappearance of quahog (*Merceneria merceneria*) from the sequence, the drastic decline of swordfish and the increase in average cod size after Occupation II. Tidal increase now seems the most likely explanation for these changes.

Fillon's sedimentological study of the shallow Hamilton Bank off southern Labrador suggests broad scale oceanographic changes during the Holocene (1976). He concludes that shallower ocean depths and weaker Labrador current before ca. 3500 B.P. allowed the Hamilton Bank to deflect a significant portion of the cold Labrador current east of the bank, pushing it to the seaward edge of the Grand Bank. This situation "... permitted northward penetration of warmer water along the coast as far north as Newfoundland ... and might have locally amplified the effects of the climatic optimum." The stronger modern Labrador current, he claims, began ca. 3500 years ago as a result of climatic cooling in the Canadian arctic.

Today, the Labrador current influences the Gulf of Maine by contributing to the cooling of subsurface water entering near the bottom of the Northeast channel (Apollonio 1979). This water is upwelled by a vertical eddy which parallels the Maine coast from Matinicus Island to Jonesport, producing a surface cooling effect (*ibid*:38-9). The absence of this cold Labrador current water prior to ca. 3500 B.P. in the Gulf of Maine, and incidentally in the Gulf of St. Lawrence as well, would presumably have meant warmer waters in both.

Thus, the decline of swordfish at the Turner Farm site after Occupation II may well reflect a real decline in their abundance in the area, and we agree with Sanger (1975:72) that such a decline might help explain the cultural changes which had occurred in the region by Occupation III times. Following Occupation III, however, the importance of continued oceanographic change for subsequent shifts in subsistence patterns, which we have outlined above, is unclear. Fillon suggests that cooler water near the coast would have reduced the coastal-interior climatic contrast after ca. 3500 B.P., and Amos' model implies a continuing rise in shoreline,

particularly intertidal zone, productivity and a decrease in surface water temperature. Added to these possibilities is the probability that sea level rise has continually affected the Gulf's environment significantly. The full implications of these kinds of variables and their interaction remain unclear at present.

DISCUSSION: MAINE AND THE NORTHWEST COAST

In comparing cultural development in Maine and the Northwest Coast some general similarities and a rather larger number of specific differences appear to be present. General similarities may include economies focused on marine resources and anadromous fish, burial elaboration, and some technological complexes such as the ground slate industry in the late Archaic. Yet even within these general patterns of similarity we see a number of specific differences not only between the northeast and northwest, but also between different prehistoric cultures within Maine.

In the following discussion we will focus briefly on three aspects of culture: subsistence-settlement systems; economic exchange systems; and mortuary complexity as a possible reflection of social complexity. We make the following assumptions about Northwest Coast cultures:

1. at least during the later stages of Northwest Coast prehistory, social ranking is present and is expressed in part through burial elaboration;
2. economy focused on marine resources and anadromous fish, with the fall salmon harvest providing the major source of stored food during the winter. Food storage technology was well developed;
3. exchange systems were well developed and included acquisition of exotics from outside the region as well as internal redistribution networks; and
4. the largest population aggregates and the greatest social/ceremonial intensification occurred in winter villages.

Subsistence-Settlement Systems

We have presented evidence that during the late Archaic period, the Turner Farm was occupied on a year-round basis, though fluctuations in group size and brief periods of abandonment are

probable, especially during Occupation II. Other sites such as Goddard may have experienced similar patterns of use during the Moorehead phase. However, despite the apparent use of the coastal base camps, local populations paid a significant amount of attention to other resource zones, particularly those associated with anadromous fish runs. Pelagic fishing stations are also indicated for the Moorehead phase. A generally similar pattern of use of the Turner Farm site apparently persists into the Ceramic period, though data from other coastal sites indicate a variety of seasonal options which we are only beginning to explore. Interior resources, particularly anadromous fish, continue to be exploited during the Ceramic period.

Within the Maine sequence there are variations through time in relative dependence on marine resources, even in coastal sites. The Moorehead phase, with a primary dependence on cod and perhaps swordfish, and the late Ceramic period with an emphasis on seal hunting and fishing for a variety of species represent economies strongly focused on marine species. At the other end of the spectrum, Susquehanna retained an emphasis on terrestrial species (mainly deer) in its coastal sites, apparently using insular situations to more effectively drive deer populations.

Both the Archaic and Ceramic period patterns of settlement and subsistence in Maine contrast with what we understand to be the basic Northwest Coast pattern in two ways. First, though there may have been some storage of cod for winter use during the Moorehead phase, we see nothing in the Gulf of Maine sequence which approaches the magnitude of food storage and consequent winter village population aggregation attributed to the Northwest Coast. We must temper this statement, however, with the observation that certain food storage techniques will not leave visible or readily interpretable archaeological remains; and we may therefore be missing significant instances of food storage in the Maine prehistoric record.

Second, though anadromous fishing was important to both areas, it occurred under very different circumstances. Although early depletion of salmon stocks in Maine makes reconstruction of pre-contact conditions difficult, Maine anadromous fish runs (salmon, alewives, shad, sturgeon) are primarily spring and early summer phenomena. The salmon run peaks in June, although Atlantic Salmon runs are not tightly restricted seasonally, and numbers of fish move upstream all summer (Bigelow and Schroeder 1953). There are no major anadromous fish runs in the fall, although the catadromous eel runs downstream in September/October, when it is easiest to harvest on small streams.

The Northwest Coast salmon runs peak in late summer/early fall, and we feel that this difference in timing may be significant culturally. Since summer in Maine is a time of relative plenty, motivation to preserve and store spring surplus catches was probably low. During the late Ceramic period at least, the largest population aggregates occurred during the summer, at a time when game availability was at a peak and there was a heavy focus on subsistence activities. This is in contrast to the Northwest Coast winter villages where resource availability and subsistence activities were at a low point, perhaps leaving more time/energy for social and ceremonial intensification (Fladmark 1975:92-93).

Two additional factors relating to anadromous fishing may have had cultural significance. We lack data to compare the relative numbers of available salmon in Maine and the Northwest Coast rivers during the pre-contact period, but it may be significant in terms of resource stability, if not absolute numbers, that there is one species of Atlantic salmon (*Salmo salar*) versus five species of Pacific salmon. Secondly, to a greater extent than on the Northwest Coast, Maine's anadromous fishing stations usually occurred relatively far in the interior, or at the heads of long estuaries, making transportation a significant added cost of any preserved surplus intended for winter consumption on the coast.

Exchange Systems

There is evidence for the presence of significant long-distance exchange networks only twice within the Maine prehistoric sequence: in the Moorehead phase and during the late Ceramic period. In the Moorehead phase exotics were imported in the form of finished tools, primarily bifaces, and appear only in burial assemblages. In contrast, during the late Ceramic period, tools and ornaments made of exotic materials are commonly found in habitation sites and appear to have been a part of everyday life. For example, several hundred Ramah chert resharpening flakes have been recovered from the Goddard site late Ceramic component. Both early historic accounts and the archaeological evidence indicate that ornaments made of native copper and other materials were commonly worn in addition to appearing as grave goods during the late prehistoric period.

Exchange systems involving exotic goods are certainly also present on the Northwest Coast; but the evidence from that region also indicates that the development of structured internal and regional redistribution systems involving both exotic and local products and of the concept of individual and lineage wealth were of much greater social importance than the acquisition of exotic items

alone. Unfortunately, we have very little data pertaining to redistribution systems in Maine. Evidence from burials, discussed below, indicates that concepts of status differential and individual wealth were not well developed during the late Archaic, or at least were not expressed in burials. During the late Ceramic and early contact period there is limited evidence from burials and early accounts of status differential, possibly based in part on differential access to exotic goods, but none of the early historic accounts give evidence of the existence of complex, structured redistribution mechanisms comparable to those of the Northwest Coast.

Mortuary Complexity

Mortuary ceremonialism reaches peaks of relative complexity in Maine during the Moorehead phase, the Susquehanna tradition, and at the end of the aboriginal cultural sequence, either just before or after contact with Europeans. Each seems historically unconnected to the others, and each manifests itself somewhat differently. Although burial complexity in Maine as measured by grave size, numbers of grave goods, presence of exotics and, in some periods, artistic expression, rivals that of the Northwest Coast, there appear to be some significant differences between the two regions in terms of the social correlates of mortuary ceremonialism.

At Nevin, the one Moorehead phase cemetery which contained preserved human remains, there was no demonstrable age/sex specificity in burial goods, nor other indications of status differential (Byers 1979). The same is true of the similar and possibly culturally related Maritime Archaic cemetery at Port au Choix, Newfoundland (Tuck 1976b). Unfortunately, data are not available for age/sex correlations within Susquehanna burials. Although no systematic comparative studies have been done for Ceramic period and early contact burials, it is our impression that there is no evidence to contradict the hypothesis that the relatively small numbers of grave goods found in late Ceramic burials are the personal property of the deceased, and there are no dramatic differences in grave wealth which would suggest significant status differential. It is only with the beginning of European contact that we can definitely see a significant shift in burial patterns, with a few graves containing large numbers of artifacts, presumably reflecting the development of increasing status differential at least in part as a result of differential access to European trade goods.

CONCLUSIONS

There is no evidence within the Maine prehistoric cultural sequence for social complexity (specifically status differential) approaching that of the Northwest Coast. Mortuary complexity does not seem necessarily to correlate with individual status differential. It is only in the early contact period that we see clear evidence for increasing status differential, but even then there is no evidence for the presence of the highly structured redistribution mechanisms or formal social ranking present on the Northwest Coast.

Data from the Turner Farm indicate a surprising degree of sedentism through the Maine sequence, but again this sedentism does not seem to result in increased social complexity. Might it be that a large gathering of people in an intense social situation, albeit temporary, has greater correlation with social/ceremonial intensification than do small groups maintaining residence at one place through the year?

We have suggested several environmental and cultural factors which may have limited the development of social complexity in Maine relative to that of the Northwest Coast. These factors include the timing of anadromous fish peaks, development of food storage mechanism, and location of anadromous fishing stations.

Although we have emphasized the cultural differences within the Maine prehistoric sequence, we do find it interesting, and probably significant, that two of the three cultures which exhibit mortuary complexity in Maine, Moorehead and late Ceramic, share with Northwest Coast cultures a strong economic focus toward marine resources and are the only ones which exhibit long-distance exchange systems. The exception is the Susquehanna tradition, which developed outside of the northern New England region and enjoyed a relatively brief life span in Maine. While recognizing the probable relationships between a maritime economy, long-distance exchange, mortuary complexity, and possibly social complexity, the differences in manifestation and detail that we see in the Maine sequence suggest that any single model for interaction between these variables may be inadequate to explain the full range of cultural variability we see in the northeast and northwest.

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