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The BULLETIN OF THE MASSACHUSETTS ARCHAEOLOGICAL SOCIETY is published semiannually, with a spring Volume 1 and a fall Volume 2. Institutional subscriptions are $30; individual memberships in the Society are $18 and include the Bulletin. Information on special rates for family members, seniors, students, etc., and requests for back issues of the Bulletin should be addressed to the Museum Office Director, Thomas Lux, Massachusetts Archaeological Society, P.O. Box 700, Middleborough, MA 02346 (508-947-9005). Manuscripts and communications for the Bulletin may be sent to the editor, Shirley Blancke, 579 Annursnc Hill Rd., Concord, MA 01742.
EDITOR’S NOTE

The interdisciplinary papers in this issue shed light on varied aspects of Native American culture past and present. Strandings of the Long-Finned Pilot Whale or Blackfish appear to have provided an important dietary source over a long period for the Native people of outer Cape Cod. An investigation of stone pile features in Cranston, Rhode Island, required a nuanced approach to a present-day Native American belief that they marked burials. The rediscovered quarry site and lithic identity of "Melrose green" are discussed, and a radiocarbon date for Adena artifacts from Gill, Massachusetts, is reported. Some strange places where artifacts have been found, and some more familiar, are described by a long-time collector who emphasizes the importance of recording artifact discoveries with the appropriate organizations to aid in site preservation. In a study of 17th century sources about the Natick Praying Town, Richard Cogley takes issue with Elise Brenner’s interpretation.

Note on Peer Review

In response to queries, the Editor is willing to arrange for peer review on request. A peer-reviewed article will be noted as such in the Bulletin. The purpose of peer review will be to suggest improvements to a paper, not to determine whether it will be published, a decision which will remain with the Editor.
LETTERS TO THE EDITOR

To the Editor: I read with interest Russell Gardner's article concerning Annawan Rock in Rehoboth, Massachusetts (Gardner 1997).

While I found the article informative, I would like to correct a few of the facts presented. The site is presently a Town Historic Site and the rock itself and land about it to the distance of 16.5 feet belongs to the Rehoboth Antiquarian Society, and the surrounding property is owned by the Town of Rehoboth Historical Commission. The Commission maintains the site, although there are virtually no funds available. The State has no involvement with the site.

The date of the capture of Annawan shown on the sign is August 28, 1676, based on Samuel Drake's estimate of the full moon cycle. Drake was a leading 19th century historian who published edited versions of Church's, Hubbard's and Mather's accounts of the war. While none of the contemporary writers give the date, Drake notes Church's description of the hour of the rise of the full moon. This would be the second day after the full moon, which was August 28, 1676, by the Julian calendar. This was the calendar used by England and her colonies up to the mid-1700's. It is about two weeks behind the Gregorian calendar. Mr. Gardner's date of September 11, 1676, for the full moon is likely from the Gregorian calendar. It is standard practice for historians to use the calendar of the day as it would be confusing to convert to the present calendar.

Squanakonk Swamp has been inaccurately described at various times as a huge swamp in the southeast corner of Rehoboth. It is actually only about 600 acres (about 1 square mile) in the east-central part of Rehoboth. Historians often have included the large Munwhague Swamp in southeast Rehoboth as part of the Squanakonk Swamp. But they are distinctly separate.

The hole that Mr. Gardner found in Annawan Rock has been noted in the past. I am sure that it was used by the natives, and that this site was a well-used camp and refuge area. However, the close proximity of the hole to the campsite does not fit Church's description of Annawan's long delay in returning with Philip's royalties. Church may not have remembered the story correctly since his book was written 40 years after the fact. There are inconsistencies in his telling of the account of the war compared with other contemporary writers. His account of the capture, however, is the most detailed and is therefore relied upon.

The Rehoboth Historical Commission and the people of Rehoboth are justifiably proud of the Annawan Rock Site, where an important event of history took place. It is one of the few physical links we have today with those distant past times.

E. Otis Dyer, Jr., Chairman,
Rehoboth Historical Commission

REFERENCE:

Gardner, Russell H.
Author's response: As to the specifics of ownership and control of the Annawan Rock site in Rehoboth, Massachusetts, it was by State legislative act that local Historical Commissions were created, and thus it was assumed that the Rock was a State Park. It appears that this is not the case. It is a Town Historic Site, and the Rock itself and 16.5 feet about it belong to the Rehoboth Antiquarian Society. The Rehoboth Historical Commission owns the surrounding property and maintains the site.

As to sources for dates, whether based on Old or New Style, and the Squanakonk swamp area, see the following references: Travers 1961: 209, Speck 1928:65,66, (re: Church's own account), and also Peirce 1878:204 (re: the area of Squanakonk Swamp).

Russell H. Gardner, Wampanoag Tribal Historian

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Travers, Milton A.
Figure 1. A Natural Stranding of Blackfish (n=97), October 7, 1984. Boat Meadow Creek, Eastham, MA. (Photograph courtesy of the New England Aquarium.)
MASS STRANDBINGS OF THE LONG-FINNED PILOT WHALE ON CAPE COD: IMPLICATIONS FOR NATIVE AMERICAN SUBSISTENCE AND SETTLEMENT

James W. Bradley, Arthur E. Spiess, Greg Early

Abstract

The Long-finned pilot whale (Globicephala melaena) or blackfish is a medium-sized, pelagic whale that frequents Cape Cod waters during the summer and fall months. A highly gregarious species, blackfish often become stranded when they come inshore. Analyses of 191 stranding events between 1620 and 1990 indicated that stranding is a patterned behavior and occurs with considerable seasonal and locational predictability. Analyses of archaeological and documentary evidence suggested that these patterns are of long duration and that blackfish may have been the largest source of animal fat in the diet of outer Cape Natives. Both the predictability and variability of stranding events may have been important factors in defining Native social organization.

The long-finned pilot whale is a toothed, medium sized (1000-1200 kg) member of the family 'Delphinidae' that inhabits pelagic waters of the North Atlantic from Newfoundland south to New Jersey (Geraci and Lounsbury 1993:123; Nowak 1991:996-98). While strandings have occurred episodically along the North Atlantic coast, these events have been reported most frequently on Cape Cod and the adjacent islands, Nantucket and Martha's Vineyard (McFee 1990; Early and McKenzie 1991)(Figure 1). Mass strandings of blackfish have been observed on Cape Cod since 1620 (Mourt [1622] in J. Fiore ed. 1985:29). Causes proposed for this unusual behavior have ranged from echolocation disturbances to population density, adverse weather and tidal conditions, to migratory barriers (Sergeant 1979; Wood 1979; Geraci 1978). Analysis of 191 mass stranding events (ones involving two or more adult individuals) indicated that, while it is unclear precisely why strandings occur, the behavior is a patterned, and probably cyclical, one (Bradley and McFee 1992; McFee 1990).

Two types of stranding events were recorded. Natural strandings occurred when blackfish beach themselves; induced strandings resulted when the animals were driven ashore through human intervention. Data from both documentary and ethnological sources were analyzed from 91 natural and 100 induced stranding events (ibid). Results indicated seasonal and locational patterning. In terms of seasonality, mass strandings, whether natural or induced, were late summer to early winter phenomena (Figure 2). Natural strandings showed a strong tendency to occur within Cape Cod Bay, particularly along the eastern shoreline. Of the 91 events for which locational data were available, 82 (90.1%) occurred within Cape Cod Bay. Of those, 52 (63.4%) took place within the towns of Wellfleet and Eastham (Figure 3). We hypothesize that within Cape Cod Bay, mass strandings are a patterned behavior whereas outside the Bay these appear to be random events. Archaeological evidence suggests that this pattern has substantial time depth, extending...
Figure 2. Seasonality of Strandings, and Comparison of Natural versus Induced Stranding Events.
back at least a millennium, and possibly as far as 2,000 BP when sea level rise slowed and stabilized (Oldale 1992: 98-100). Sites with blackfish included in the faunal assemblage are summarized in Table 1.

Blackfish have been hunted extensively since the late 17th century. Initially, stranded animals were butchered for their blubber, a process European colonists learned from Native Americans (Starbuck 1964 [1878], 1:4-8). During the 18th century, the emphasis shifted to driving pods of blackfish ashore whenever they were sighted. Commercial hunting ceased in the early 20th century when the market for whale oil collapsed. Inspite of its intensity, human predation appears to have followed the patterns of blackfish availability rather than shaped them. For example, the seasonal distribution of induced strandings parallels that of natural events quite closely (Figure 2).

Both documentary and archaeological evidence indicate that whales were of great importance to Native people on the Cape and Islands (Little and Andrews 1982; Speck and Dexter 1948:264). While medium to large whales may have been hunted, and dead whales occasionally drifted ashore, blackfish strandings represented a unique subsistence resource. A stranding event provided the opportunity to obtain, with minimal risk, a caloric reserve that was exponentially greater than that of other food resources. In terms of caloric value based on fat, one blackfish represented the equivalent of 60 deer.
Table 1. Archaeological Sites with blackfish remains.

<table>
<thead>
<tr>
<th>Chronology</th>
<th>Site I</th>
<th>Location</th>
<th>Skeletal Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle Woodland</td>
<td>Ram Pasture I</td>
<td>Nantucket</td>
<td>vertebra, modified into a gorget</td>
</tr>
<tr>
<td>940 A.D.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Late Woodland</td>
<td>Hornblower II</td>
<td>Gay Head, Martha's Vineyard</td>
<td>not identified (n = 23)</td>
</tr>
<tr>
<td>based on dates</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1380 ± 80 A.D.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indian Neck</td>
<td></td>
<td>Wellfleet</td>
<td>vertebra</td>
</tr>
<tr>
<td>650 ± 115 B.P.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1300 ± 115 A.D.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>based on associations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Squam Pond</td>
<td></td>
<td>Nantucket</td>
<td>rib</td>
</tr>
<tr>
<td>John Henry</td>
<td></td>
<td>Brewster</td>
<td>vertebral, rib, cranium (n = 19)</td>
</tr>
<tr>
<td>Ryder Shell Heap</td>
<td></td>
<td>Truro</td>
<td>rib, cranium (n = 4)</td>
</tr>
<tr>
<td>Corn Hill</td>
<td></td>
<td>Truro</td>
<td>rib, vertebral, humerus (n = 4)</td>
</tr>
<tr>
<td>Baker Hill</td>
<td></td>
<td>Wellfleet</td>
<td>unknown</td>
</tr>
<tr>
<td>Taylor Hill</td>
<td></td>
<td>Wellfleet</td>
<td>unknown</td>
</tr>
<tr>
<td>Late Woodland/Contact</td>
<td>RCA</td>
<td>Chatham</td>
<td>unknown</td>
</tr>
<tr>
<td>Red Paint Burial</td>
<td></td>
<td>Chatham</td>
<td>mandible, modified into a comb</td>
</tr>
</tbody>
</table>

1 The following footnotes identify the information sources for each site.
2 Stockley 1964; Waters 1965
3 Ritchie 1969:31
4 Boissevain 1943; Bradley and Spiess 1994:47
5 Bullen and Brooks 1947:56
6 Dunford 1984;Spiess personal observation
7 Luce nd; Spiess personal observation
8 Luce nd; Spiess personal observation
9 Boissevain 1943
10 Boissevain 1943
11 Eteson et al 1978:33
12 Johnson 1944
Given that the average stranding event involved approximately 70 animals, blackfish may have been the largest source of animal fat in the diet of Native people on the outer Cape.

Documentary accounts indicate that blackfish were butchered on the tidal flat where they stranded (Mourt [1622] in J. Fiore, ed. 1985:29). The blubber was then rendered and stored, like seal fat, in bladders or 'bottles' (ibid. p.22; P. Biard [1616] in Thwaites, ed. 1897 3:79; W. Wood [1634] in A. Vaughan, ed. 1977:108; N. Denys [1672] in W. Ganong, ed. 1908:349-50, 403). The low archaeological visibility of these processing and storage methods may explain why whales have been overlooked in previous assessments of coastal subsistence (Bernstein 1993; Snow 1980:77,333-34; Perlman 1976; Ritchie 1969:45,53,233).

While a stranding represented a major subsistence opportunity for Native people, three factors shaped the utility of and limited the reliance on this resource:

(i) Predictability. Although frequent (177 events between 1800 and 1990), strandings were a highly variable phenomenon (Figure 4). During this period, strandings were recorded in only 75 of 190 years (39%); in the remaining 115 years, no strandings were reported. Predictability appears to be better at a longer time interval. During 17 of the 19 decades represented, at least one event occurred (89%). While the data suggest a long term periodicity in stranding behavior, the probability that an event would occur in any given year must be considered low;

(ii) Size of Stranding. The number of animals involved in a stranding also fluctuated widely. While the average size for a natural stranding (based on 86 events) was 70 animals, the range was from 2 to +500 with a standard deviation of 90.7 (one sigma). Since the standard deviation is larger than the mean, extremely high variability is indicated;

(iii) Duration. A stranding event was an opportunity of short duration, one tidal cycle. While fortuitous winds and currents might allow more time, 6 to 8 hours was all that could be counted on for collection of blubber and meat.

Blackfish strandings may have been a factor in determining the size of Native groups on the

<table>
<thead>
<tr>
<th>Animal Species</th>
<th>Average Weight Kg</th>
<th>Fat Content %</th>
<th>Caloric Value Based on Fat Kcal</th>
<th>Person-days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deer</td>
<td>50</td>
<td>10</td>
<td>45</td>
<td>15</td>
</tr>
<tr>
<td>Blackfish</td>
<td>1000</td>
<td>30</td>
<td>2700</td>
<td>900</td>
</tr>
</tbody>
</table>
Figure 4. Distribution of Stranding Events between 1800 and 1990 by decade.
outer Cape and the relationships among them. For example, the resource potential of a stranding may have encouraged the formation of groups large enough to provide the labor required to utilize the opportunity most effectively. At the same time, the variability in strandings may have served both as a limiting factor on local group size, and as an inducement for the establishment of alliances or intergroup collectives (Johnson and Earle 1987:194-99). This form of social organization would have provided maximum flexibility to exploit a stranding whenever and wherever it occurred. It would have also minimized the risk of shortage by spreading it through a larger reciprocal network.

In sum, blackfish strandings, though not highly visible in the archaeological record, appear to have played a significant role in the lives of Native people on Cape Cod and the Islands. Not only were blackfish an important food resource, the need to utilize strandings efficiently may have been an important factor in the evolution of Native social organizations.

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A BRIEF NOTE ON SUBMISSIONS

The Editor solicits for publication original contributions related to the archaeology of Massachusetts. Manuscripts should be sent to the Editor for evaluation and comment. Authors of articles submitted to the Bulletin of the Massachusetts Archaeological Society are requested to follow the style guide for American Antiquity 57:749-770 (1992).

Authors with IBM-PC compatibles are encouraged to mail disks with files in Microsoft Word or WordPerfect; and another plain text file in ASCII. If you are using other programs send an ASCII file if possible. If not, or if you have MAC, please send a text copy only (no disk). Text copies should be on 8 & 1/2 in x 11 in (21cm x 28 cm) paper in a clear font of at least 10 points for scanning, and no written markings should be added. Additional instructions for authors may be found in the Bulletin of the Massachusetts Archaeological Society, Volume 50 (2):76 (1989).

Radiocarbon ages should be reported as radiocarbon years ± sigma B.P. Please state whether δ¹³C-corrected (give δ¹³C) or uncorrected and what material was assayed. If calibrated dates are submitted, please provide information on what calibration method was used. For further instruction in how to report radiocarbon ages, see Elizabeth A. Little Bulletin of the Massachusetts Archaeological Society, Volume 58 (2):64-65 (1997).
Figure 1. Location of the Orchard Valley Estates project area on the North Scituate USGS Quadrangle map.
Abstract
A series of stone piles within the Orchard Valley Estates residential subdivision in Cranston, Rhode Island, became the focal point of anthropological inquiry when representatives of the Sovereign Abenaki Nation (Massachusetts Area) issued a cease and desist order to developers, stating that construction was desecrating an Indian burial ground. The Public Archaeology Laboratory, Inc., was contracted to conduct informant interviews and develop a scope of work for archaeological examination of features identified by Native American interested parties as burial features. This article discusses the results of the investigations and interpretations based upon those results.

Introduction
The firm of Picerne Properties is the principal developer of the Orchard Valley Estates, a single-family residential subdivision located in Cranston, Rhode Island (Figure 1). The development is situated in the near-interior uplands of western Narragansett Bay, within the upper Pawtuxet River drainage area. Historically, the landscape has been characteristically agrarian, dominated by orchards, pasturage, and dairy farms. Throughout the latter 20th century, area farms have increasingly been subdivided and built up as residential neighborhoods. Orchard Valley Estates is one of several residential subdivisions transforming Pippin Orchard Road from rural to suburban.

Project History
On June 4, 1997, the City of Cranston and Picerne Properties were notified by representatives of the Sovereign Abenaki Nation Massachusetts Area Office of Tribal Judge on behalf of the Cowsuck Band of the Republic of the Abenaki Nation that a Native American burial ground existed within the Orchard Valley subdivision. In a document faxed to City Hall, the Abenaki Nation indicated that an Indian burial ground was being impacted by ongoing construction and alleged that "truck loads of potential artifacts and Indian remains were taken for disposal." The document requested that the City of Cranston take appropriate action to protect the alleged burial ground and related cultural materials. The Abenaki concern for impacts resulting from ongoing construction was further conveyed in the press; covered on local television and in newspaper articles between June 4, 5, and 6, 1997. Dr. Paul Robinson, Senior Archaeologist of the Rhode Island Historical Preservation and Heritage Commission (RIHPHC), and John Brown, Narragansett Indian Tribal Historic Preservation Officer, visited the construction site, noting that a number of stone piles existed within the greater Orchard Estates subdivision.

On June 4, 1997, Picerne Properties requested that The Public Archaeology Laboratory, Inc. (PAL Inc.) provide consultation regarding the concerns of the Abenaki Nation and observations of the Narragansett Indian Tribe. On June 6, 1997, staff of PAL Inc. visited the Orchard Valley Estates project area and formulated a proposed scope of work to document and investigate the Orchard
Estates landscape to address the question of whether or not extant stone piles represented a Native American burial ground. The investigation would include mapping stone features within the project area, conducting informant interviews with interested parties, and the excavation of two of the target features. The firm of DiPrete Engineering Associates, Inc. provided subdivision design plans to utilize as base maps.

Prior to the investigations background research included a review of published and unpublished sources of information on regional Native American mortuary practices (Snow 1978, Day 1978, Laurent 1983) and investigation of stone pile features (Jett 1994, Leveillee 1997).

**Informant Interviews**

A series of informant interviews was conducted between June 26, 1997, and July 22, 1997. These interviews took place during telephone conversations, on-site visits, meetings at PAL Inc. facilities, and at the home of Mrs. Peggy Linton, a former resident of the property in question.

The initial meeting between PAL Inc. staff and representatives of the Abenaki Nation was an informal one initiated by Ray Lussier (Chief Looking Glass) and Dan King (Wounded Pony). This meeting took place during PAL Inc. fieldwork on RI 2050, a site undergoing archaeological data recovery along Phenix Avenue. On or around June 2, 1997, Ray Lussier and Dan King learned that archaeologists were working along Phenix Avenue and visited to inquire about the excavations. They identified themselves as representatives of the Abenaki Nation and informed us that a nearby burial ground was being impacted by housing construction. They discussed their intentions to protect the site from further impacts. During the visit Dan King showed PAL Inc. staff a Xerox copy of a photograph taken during the winter several years ago. According to Dan King the illustration includes an image of a spirit, a Native American male who is a guardian spirit associated with a large burial ground that exists within the site under development.

On June 5, 1997, as project Principal Investigator for PAL Inc., I met with Rasim Moid of Picerne Properties. During that meeting he expressed a desire for an objective evaluation of the presence or absence of a burial ground within the Orchard Valley Estates subdivision. PAL Inc. committed to meeting with concerned parties, mapping stone pile features within the development, and systematic excavation of two stone piles. PAL Inc. applied to RIHPHC for a permit to conduct the excavations. Permit # 97-15 was received on June 24, 1997.

On June 18, 1997, Alan Benoit (Three Grey Feathers), an Abenaki Indian, called PAL Inc. and spoke about the Orchard Valley Estates project. He indicated that the general area around the construction site has been known as a burial ground for ten generations. He expressed concern that because of disruptions to the spirits of the people buried there, the former residents of a house in the development area can no longer live there. Alan Benoit made reference to a photograph taken by the former resident, Mrs. Linton, that clearly shows a spirit. The telephone conversation concluded with a commitment that PAL Inc. would solicit input from a number of interested parties prior to conducting field investigations and that we would be happy to meet Mr. Benoit on-site to discuss any specific features or areas.

On June 26, 1997, we contacted Mrs. Peggy Linton and requested an opportunity to meet and speak with her about the Orchard Valley Estates project area. Mrs. Linton was a long-time resident of a house located within the development. Several generations of her family have resided along Pippin Orchard Road, in the existing house and a former dwelling, since the eighteenth
century. Mrs. Linton reported that her father-in-law, Robert Linton, was raised on the farm that occupied the project area. He told her that local history says that there was an Indian village and burial ground on the property. She also said that in years past shell deposits had been found across the farm.

Mrs. Linton produced a number of photographs of the property. They included an early (1920s?) view of the original farmhouse, which appeared to date from the eighteenth century. More recent photographs, taken by Mrs. Linton, included scenic views of the farm in winter, including the image referred to as representing a spirit interpreted by Dan King and Alan Benoit and mentioned by them in previous discussions. The image is a view of the edge of woods during a light snowfall. The setting, weather conditions, and lighting combine to cast mist and shadows along with the effects of falling snow across the scene. A misty image is centrally situated in the scene. It is this image that has drawn the attention of the Abenaki representatives. Mrs. Linton reports that once the image was pointed out to her she could clearly visualize the features of a male Native American with a braided headband, facing down and to the right in the photograph. Mrs. Linton suggested that I speak with her father-in-law, Robert Linton, about his knowledge of the reported burial ground. Mrs. Linton attributed construction-related noise and disputes with Picerne Properties about a purchase price for her house as motivating her to relocate.

We spoke, over the telephone, with Mr. Robert Linton on June 27, 1997. He grew up on the farm within the greater project area during the 1920s and 1930s. He reported that the original structure was one of the oldest in Rhode Island prior to its destruction in the early 1940s. The existing house was built on the site of the former dwelling in either 1944 or 1945. Mr. Linton recalls finding arrowheads in freshly plowed fields in his youth. He also reported that when water was being brought into the original house, in the 1920s, workmen found a layer of shells about 30 inches below the surface.

According to Mr. Linton, the entire project area was once cleared of trees from the farm to Scituate Avenue and the land supported many small dairy farms. He reports that in his youth he often walked through the woods and became aware of the stone piles scattered throughout the farm. He says they would occasionally be referred to as an Indian burial ground by old timers.

On June 30, 1997, Ray Lussier (Chief Looking Glass) visited PAL Inc. facilities to discuss the Orchard Valley Estates project area. During a taped interview he discussed how the development came to the attention of the Abenaki Nation. Mr. Lussier reports that during a Native American powwow a general disturbance on a spiritual level was perceived by a group of participants. Mr. Lussier attributed the perception of this disturbance to an intimate spiritual relationship between Native peoples and the environment. Mr. Lussier reports that after the powwow a number of Abenaki people who reside in the region commenced on a series of "walkabouts" to attempt to locate the source of the perceived disturbance in the spiritual balance. The construction at the Orchard Valley Estates subdivision came to their attention and was targeted as the source of the spiritual disruption. Members of the Abenaki Nation collected oral tradition information, reviewed maps of the greater project area (Matteson 1976), and became convinced that a burial ground was being destroyed during housing construction and related landscaping. Mr. Lussier indicated that he believes the burials are not Abenaki but are Narragansett, and that the Narragansett Tribe and the Abenaki Nation have been in contact. Mr. Lussier's concern was that the spirits of the dead be allowed to rest in peace.
On July 15, 1997, we spoke with John Brown, Narragansett Indian Tribal Historic Preservation Officer. We discussed our ongoing research and invited him to provide input and to visit the site to point out any features of concern to the Narragansett Indian Tribe. Mr. Brown declined to meet on-site indicating that the Abenaki Nation would communicate with the Narragansetts. Mr. Brown acknowledged that we should proceed with our investigations and inform his office of our results.

We met with Dan King (Wounded Pony) on July 22, 1997, at the Orchard Valley Estates project area. He was asked to point out specific features of concern to the Abenakis. He indicated that the main "mound" that was a burial mound was destroyed during construction of the houses and landscaping on lots 11 through 15. He said the mound was bulldozed and the soil with burials was removed.

Dan King also stated that there is one or more stone piles under a large pile of dirt in the lot 50 area. He said that he was on-site when the stone pile was covered and was unsuccessful in attempts to persuade the machine operator to avoid the feature.

We asked Dan King for some clarification about whether the Abenaki Nation was concerned with stone piles or other features. He said that the stone piles PAL Inc. had flagged during mapping were the correct features. He stated that these are burials and they are scattered throughout the area. He said the landscape was never farmed and that he had proof that it was a burial ground. He then produced color Xerox copies of the photograph that Peggy Linton showed me on 6-29-97. He stated that the photograph clearly shows the image of a "guardian spirit and a wolf." Dan King reported that every Native American that has seen the image recognizes the spirit.

Dan King stated that he had walked the woods and has seen our flagging marking the stone piles. He said these are what they (the Abenaki Indians) are concerned about and that we have the correct features. Aside from the now removed mound, and the stone feature(s) under the dirt pile, there were no other features of concern pointed out. He referenced the Matteson Providence Purchase Lands Map (1976) as additional verification of both a Native presence and as documentary evidence for the burial ground.

**Mapping the stone piles within the project area**

On June 26, 1997, staff of PAL Inc. met on-site with DiPrete Engineering surveyors. Through the day the mapping team conducted a walkover survey to locate and flag the locations of stone piles within the Orchard Valley Estates subdivision. When a pile was located it was assigned a number and plotted utilizing global positioning satellite (GPS) equipment. A total of 36 stone piles was identified within the development. The data generated during the field survey were plotted on subdivision plans (Figure 2).

Supplemental mapping data were collected on August 5, 1997, when PAL Inc. staff identified and mapped 5 additional piles within the project area. To date a total of 41 stone pile features has been located and mapped across the project area. It is anticipated that additional piles will be identified as the project proceeds.

**Hypothesis formulation**

Two alternative hypotheses for stone pile origins were formulated as testable through archaeological inquiry based upon results of documentary research, informant interviews, and observed correlations between topographic features and stone pile locations. It was projected that each hypothesis would enable the formulation of associated and distinct predictive correlates expected to be manifested in the archaeological record.
Figure 2. Location of stone pile features within the Orchard Valley Estates project area.
Consequently the systematic excavation of a representative sample of stone piles would be expected to result in empirical data that could be compared and contrasted to the projected correlates for both hypotheses, supporting one above the other. It was also recognized that archaeological data may lead to the formulation of additional, alternative hypotheses.

Native American Burials Hypothesis

The first hypothesis formulated was based upon the interpretations of the Native American community, particularly the Abenaki Nation, that the stone piles represent places of human burial; that each stone pile marks a specific location where one or more individuals of Native American ancestry was interred. It is anticipated and expected that if stone piles mark burial locations there will be tangible and observable physical evidence including one or more of the following: below ground evidence that a burial pit or shaft has been dug into top soils and subsoils; human skeletal remains; and grave goods as offerings or possessions of the deceased.

Anthropological and archaeological research supports the contention that burial features will convey cultural patterning (Saxe 1970, Binford 1971). Snow, for example, notes for the Eastern Abenaki that "a dying man distributed some of his belongings to relatives; the rest were buried with him" (1978: 141). Day (1978: 156) reports that for the Western Abenaki the dead were always buried when possible, since spirits of the unburied remained around the corpse as "Ghost Fire." Those who died in winter were placed on a scaffold until it was possible to bury them. The coffin was a full-length roll of bark tied with a cord, and the grave was covered with a tent shaped structure of wood. Weapons and utensils necessary for support in the spirit world were buried with the dead. Day also reports that the graves of Western Abenaki chiefs were ringed by plantings of tree saplings (1978:156). Laurent, an Abenaki elder, noted that it was customary to keep a fire burning over a fresh grave. It was the conviction that it took seven days for the souls of the departed to reach the spirit world, and "they must on no account be left in the dark, lest they lose their way"(1983:283). These cultural observances would clearly leave an archaeological record at places where the dead were buried.

Within greater Narragansett Bay, burials ranging from the Transitional Archaic Period (3,600-2,300 years ago) (Simmons 1970) to the Contact Period (ca. 350 years ago) (Robinson et al. 1985) have been documented to conform to parameters of cultural patterning. If the stone piles within the Orchard Valley Estate subdivision are markers for human burials there will be archaeological evidence of Native American mortuary practice within and/or beneath them.

Steven Jett (1994) has synthesized published data regarding Native American cairn and brush travel shrines throughout eastern and southeastern sections of the country. It is unclear how far back into prehistory such practices occurred: the artifact record of such features would not be expected to contain temporally diagnostic cultural materials. Jett notes that Atlantic coast Algonquian-speaking groups constructed stone and brush piles upon which to place additional stone, brush, or whisky (in later years) as commemorative offerings. References to these shrines appear in the literature as early as 1796 (Jett 1994:65, Leveillee 1997). It is expected that stones in such piles would be more uniform in size, being transported over some distances, than those resulting from agricultural field clearing activity discussed below.
EuroAmerican agrarian practices hypothesis: Stone Walls and Stone Piles

In 1871, the United States Department of Agriculture conducted a study of fencing, including stone walls, within the country. Of the 14,030 miles of fencing recorded in Massachusetts at that time, "almost half" were of stone (Allport 1990). This statistic raises two important points. First, stone walls represent a common New England landscape feature. Second, there was an almost equally intensive use of other forms of fencing (e.g. wood rails, stumps, and eventually wire) that decompose over time. Thus stone wall segments that today appear to begin and end abruptly, in ways that do not indicate practical use as enclosures, must be examined with the awareness that other forms of fencing may have originally been used in conjunction with the stone walls. Walls encountered today that do not seem to make sense in terms of EuroAmerican agricultural activities can fit when broader ranges of data are considered (Allport 1990, Leveillee 1997).

Factors described in relation to stone walls also apply to stone piles. Stone piles are often found in association with lands cleared for agricultural purposes.

Hypothesis number two states that the existing walls and stone piles within the Orchard Valley Estates subdivision have their origins in specifically EuroAmerican agrarian practices. The land would have served as wood lots, orchards, and pasturage; the project area was cleared of trees by the nineteenth century to meet increasing demands for firewood and to open pasture lands. Glacial boulders and smaller fieldstones from across the immediate area served as the raw material for the numerous stone walls and piles interlacing the project area.

The hypothesis for stone piles having origins in EuroAmerican land clearing practices would be supported by a relative lack of cultural materials or features beneath them. The piles would consist of stones, cobbles, and boulders of glacial origin. The lithics would be of variable sizes and not culturally modified. Recent archaeological investigations have noted that stone piles within remnant agricultural lands are often built upon large glacial boulders located at, or just below, the surface (Leveillee 1997).

Archaeological excavation of three stone piles within the Orchard Valley Estates subdivision

On August 5, 1997, staff of PAL Inc. selected three representative stone piles within the Orchard Valley Estates subdivision and systematically sectioned them and excavated beneath them to test the operating hypotheses. Stone piles #3, #4, and #38 were targeted for excavation.

The methodology for excavation included bisecting the pile along a north-south axis in the approximate center, dismantling one half of the pile by hand and excavating a test pit at 10 cm intervals, in the freshly exposed surface beneath the pile. All soils were screened through 1/4 inch hardware cloth to recover cultural materials. The process was documented with photographs and standard recording forms.

Results

The excavation of stone piles #3, #4, and #38 indicate uniformity in construction. They consist of variably-sized field stones concentrated in generally circular, conical piles approximately 1 m in diameter and 75 cm in height. They are predominately unmodified granitics. Culturally unmodified quartz cobbles were observed intermittently. Variably decayed organics cover the piles and create an interlacing web throughout the piles. There is evidence of insect and rodent activity throughout this organic network.

The subsurface strata beneath all three
piles was characteristically undisturbed. A compressed strata of organics beneath the stones was atop a generally thin A1 lens of dark brown sandy loam. Beneath the loam was a medium to finely textured silty, sandy yellowish brown subsoil. The stratigraphic profiles beneath all three piles indicated a natural progression, with no evidence of intrusion by cultural processes. At, or just beneath the surface of piles #3 and #4, large glacial boulders were at the base of the pile, extending beyond the limits of excavation. No cultural materials were recovered during excavation beneath the stone piles. The excavation of each stone pile was terminated once a clear 10 cm level of undisturbed subsoil was documented.

**Interpretations**

Hypothesis 1, that the stone piles within the Orchard Valley Estate subdivision mark human burials, is not supported by the archaeological data. Results of investigations document that the soils beneath the stone piles are undisturbed and do not contain cultural features. No artifacts were collected during the investigations and no bone, charcoal, or shell fragments were observed.

The projections that stone piles within the Orchard Valley Estates subdivision represented burials is based upon oral traditions and the application of contemporary Native American spiritual views upon the landscape; upon operating belief systems and a reliance on an ability to interpret events through perceptions that transcend space and time. Such perceptions may be subject to numerous influences and are best addressed in ideological and theoretical forums. For purposes of this study the data collected indicate that the initial perceptions of the Abenaki, that spiritual imbalance existed as a result of the Orchard Valley Estates subdivision construction, may have been based not so much on a disruption of specific mortuary related features but a more generalized spiritual empathy with the landscape setting itself being impacted by large-scale development.

The reliance upon the Matteson Providence Purchase Lands Map (1976) is misguided. The map is a compilation of historical place names, generalized site locations, historical events, and landscape and hydrological features. In the map legend Matteson cites "notes from Grandpa's figuring book" as a source for the information depicted. The map is not cartographically reliable in scale or projection and cannot be used to fix locations with any degree of accuracy. Additionally, relative to the Pawtuxet River as indicated on the map, the specific project area would not appear within the borders of this map, but extends to the east, outside of the graphic.

The photographic evidence presented by Mrs. Linton and interpreted by Alan Benoit, Ray Lussier, and Dan King as an image of a guardian spirit is subject to debate, depending upon one's perception, open-mindedness, and creativity. In that any photographic image is seen from an individual perspective, it is subject to interpretative projections by the viewer. These projections may vary depending upon cultural and individual experiences. This is the case with the Linton photograph. While neither the sincerity nor the perceptions of the Native American interested parties are called into doubt, I respectfully suggest that the image in the Linton photograph is subject to different interpretations.

**Conclusions**

The results of the archaeological investigations of stone piles within the Orchard Valley Estates subdivision best support hypothesis 2 that states the stone piles are the result of EuroAmerican agricultural activity, specifically field clearing.

There is a spatial relationship between constructed stone walls, stone piles, and hydro-
logical landscape features. Stone walls within the subdivision are generally oriented to cardinal directions, running either north-south or east-west. Stone piles 1 through 6, and pile 7, are distributed non-randomly along and adjacent to the stone wall in the southwestern project boundary. Stone piles are situated where there are gaps in the stone wall.

Stone piles 10 through 35 are situated in the northern project area and are oriented generally north-south along the stream bed and wetlands there. Stone piles 36 through 41 are clustered in proximity to stone wall segments running generally east-west in the central project area.

The most parsimonious explanation to account for the stone piles within the Orchard Valley Estates subdivision is that they result from the process of clearing wood lots, pasturage, orchards, and plowed fields, and the subsequent practice of building stone walls. This process is a legacy of the New England landscape being transformed by a EuroAmerican agriculturalist society between the late seventeenth and early twentieth centuries.

Acknowledgments

The Public Archaeology Laboratory, Inc. gratefully acknowledges the participation of representatives of the Abenaki Nation and the Narragansett Indian Tribe during our research. We also appreciate the information provided by Mrs. Peggy Linton and Mr. Robert Linton, who resided within the project area. The assistance of DiPrete Engineering and the unqualified request for an objective evaluation of the data by Picerne Properties is also acknowledged. Jay Waller, PAL Inc. Project Archaeologist, assisted in the fieldwork element of the investigation. Dana Richardi and Gail VanDyke produced Figures 1 and 2.

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Introduction

A fine-grained gray-green lithic material known colloquially as "Melrose green" has presented many problems for archaeologists working in eastern Massachusetts. Its source was discovered in the 19th century but then lost again. Some archaeologists in the region are not familiar with the material, and most are not aware of the full range of variability in its appearance. It has been called everything from felsite to silicified siltstone to chert, and when identified as the latter it has usually been attributed to the Normanskill Formation in NY. In some cases, this may have led archaeologists to postulate long distance trade networks where none actually existed.

For all these reasons, we decided to begin a long-term project researching Melrose green to answer some of the basic questions about it, including what kind of rock it is, what geological formation it comes from, where its quarry is located, whether it has been misidentified in the past, and how it is distributed in space and time at sites in the region. This report provides preliminary answers to some of these questions, though much work remains to be done. We are working on a second report that will include more geological information about the outcrop area, as well as more thorough presentation of the geochemical data.

Wyoming Quarry

"Melrose Green" was first described in print in 1886 by Henry Haynes, who wrote of finding artifacts at sites along the north shore of Massachusetts Bay "... made of a compact, unicolored felsite, of a light green color." For some time he was unsuccessful in locating a source for this material; "Last summer, however, I succeeded in finding a spot where it occurs in large quantities, and where manifest traces appear of its having been extensively worked in former times. The soil in the immediate vicinity is filled with chips and broken fragments, many of which, by their disintegrated condition and weathering, show marks of great antiquity. The locality is a hill in Melrose, about a quarter of a mile northeast of Wyoming Cemetery." (Haynes 1886:333).

Almost a century later, a site survey form was prepared for this site, which was named Wyoming Quarry and given the number BST-N-2 in the numbering system for that survey. Later it was assigned the site designation 19-MD-251 in the Massachusetts Historical Commission’s state site file system. The form states that the site itself could not be located because the area was now thickly settled.

However, our investigations in the area in 1994 revealed what appeared to be a quarry site near the northeast corner of Wyoming Cemetery. Chipping debris was visible wherever erosion had exposed the soil, with most flakes highly weathered to a pale green or gray. There are numerous bedrock outcrops in the vicinity, but a cursory examination at that time produced no obvious signs of quarrying. Return visits in 1997 revealed the probable bedrock source for the material. Fortunately, the site is located on protected land, which should guard it from unauthorized digging or surface collecting.
This location does not agree with the description in Haynes’ report, as it is much closer to the cemetery. However, local histories state that Wyoming Cemetery, which was established in 1856, covered only 21 acres in 1886, when Haynes published his article (Goss 1902: 143; Kemp 1950: 143). In 1887 the city purchased "... from Charles Pratt a deed of his farm on the westerly side of Lebanon Street" (Kemp 1950:143), thus adding 28 acres to the cemetery. Twelve more acres were added later. Pratt’s farmhouse was made into an almshouse, Melrose Pratt Farm, which was used until 1918 (Kemp 1950:143). The rest of the Pratt parcel was apparently used for gardens and fields to be worked by the inmates of the almshouse. In fact, as depicted in the Atlas of Middlesex County for 1889, Wyoming Cemetery still did not extend all the way to Lebanon Street. The Pratt parcel was apparently not used for burials until quite recently; most of the gravestones in that area date from the last few decades.

Thus, the Wyoming Cemetery of Haynes’ day covered a little more than a third of the area of the present Wyoming Cemetery, and much of its subsequent growth took place toward the northeast. Therefore, the quarry site found in 1994, which is located across Lebanon Street from the northeast corner of the current cemetery boundary, could well be the same site that Haynes described. However, we felt further evidence was needed to prove that the "new" quarry site was actually Haynes' Wyoming Quarry site.

Haynes gave his small collection from the quarry site to Harvard’s Peabody Museum, so our next step was to examine this collection to see if it was similar to the material present at the newly discovered quarry site. The Collections Department at that institution allowed one of us (Luedtke) to examine the collection, which is catalogued under numbers 56-48-10/35561 and 86-17/38957. It consisted of 17 blanks, cores, and flakes, as well as one quartzite hammerstone and three projectile points: a Greene-like point and a Levanna point made of Melrose green, and an Orient fishtail point made of a fine-grained gray-brown material that could possibly be Melrose green but may also be another felsite or even a quartzite. Most of the raw material in the Haynes collection was identical to the debitage found at the "new" quarry site, on the basis of visual criteria.

However, visual characteristics can be misleading, especially in New England (Calogero 1992) so we also sought to characterize the material from the "new" quarry petrographically and chemically. For this purpose, three quarry fragments from the "new" quarry were thin-sectioned and also subjected to X-ray fluorescence. In addition, one sample of Normanskill chert was analyzed in the same ways for comparison, and a flake from a site on Thompson Island (19 SU 33) that was suspected to be Melrose green was thin-sectioned.

The Peabody Museum kindly gave us permission to perform the same analyses on artifact 86-17/38957, a dark green core from the Haynes Collection that had already been thin-sectioned in an earlier investigation by an unknown person. This artifact was selected partly because it was already damaged, and partly because it had areas of both fine-grained and coarser-grained textures, suggesting that it might provide information of geological interest. In addition, it had the words “Wyoming (Melrose)” written on it, presumably in Haynes’ handwriting, so there could be no doubt of its provenience.

Petrographic and geochemical analyses demonstrate that the Haynes sample was compatible with the samples surface collected at the "new" quarry, and also with the flake from Thompson Island (Luedtke, Hermes, and Ritchie 1996). Normanskill chert is very different, both petrographically and geochemically. We therefore
conclude that the "new" quarry and Haynes' Wyoming Quarry are one and the same. Further research will be necessary to determine whether this is the only source of Melrose green rhyolite, as other outcrops of the same or similar material may also exist.

**Melrose green rhyolite**

When fresh, this material appears dark grayish-green (5G4/1 to 5G4/2 in the Munsell system). In general it is very fine-grained and structureless, but phenocrysts, flow banding, and areas of coarser grain are occasionally present. Flakes of the material that have been buried in soil since they were dropped appear to retain most of their color, but when this material is exposed on the surface it weathers dramatically (and probably rapidly) to grayish-green (5BG5/1 to 5G5/1) and then to a pale greenish gray (5GY6/1 to 5GY7/1).

Petrographic analysis indicates that this material is clearly of igneous volcanic origin, and that it shows similarities, such as the presence of epidote, to rocks of the Lynn-Mattapan volcanic complex. While most of the material is very fine-grained, the sample from the Haynes collection shows two distinct textural varieties. Very fine-grained rock dominates the sample, but an area of coarser-grained material is visible at one end of the sample. This part of the rock represents a shallow-level, subvolcanic stage of crystallization, followed by a more rapid cooling stage that quenched the interstitial liquid to form the fine-grained matrix.

Three samples from the newly discovered quarry and a sample of the fine-grained portion of the Haynes rock were powdered and subjected to x-ray fluorescence. The results confirm that Melrose green is of rhyolitic composition, and that the material at the new quarry is geochemically similar to materials from the quarry found by Haynes.

**The Quarry**

Wyoming Quarry itself consists of a bedrock source area and an adjacent workshop area where preliminary chipping took place. The dominant rock comprising the hillsides in the quarry area is a massive, relatively coarse-grained volcanic rock containing abundant phenocrysts, as well as rock clasts mainly of volcanic origin. Locally this rock unit is cut by at least two different-trending dikes of very fine-grained aplitic rock. Thus, the earlier coarse-grained volcanic deposit forms the country rock that was subsequently intruded by late-stage injections of extremely fine-grained phenocryst-poor igneous material. Such late-stage dikes are common in many volcanic complexes, and may represent volumes of magma remaining after the earlier major eruptive episode. At most locations on the outcrop, the dike rocks are only a few tens of centimeters wide; they are also steeply dipping, and appear to pinch-out along a strike distance of several meters. However, one northward-trending dikelet appears to widen along strike, and it is this wide dike that appears to have been the primary source in the area. Several of the dike surfaces have patches that appear oddly battered or pockmarked, and as these patches are also heavily weathered, they may be traces of prehistoric quarrying.

Both the exposed sections of the dike and the talus around it appear to have been quarried for large chunks, which were then worked down into blanks or preforms. The workshop area is adjacent to the bedrock source in a sheltered saddle-shaped swale, similar to the pattern found at other quarry sites in this region (Ritchie and Gould 1985:42-44). Debitage can be seen wherever erosion has affected
this area, and there are also three apparent "pothunter holes" with considerable debitage exposed in the backdirt piled around them. Further mapping is planned for this quarry.

**Has Melrose green rhyolite been misidentified?**

Without a doubt. Luedtke 1(980:44) mentions artifacts and flakes from the Calf Island site made of "green chert," now she would identify these artifacts as Melrose green rhyolite. Russell Barber became aware of the existence of Melrose green rhyolite, as it is listed as one of the materials found at the Wheeler's site (Barber 1982:53). However, the equivalent list in his dissertation, upon which the later book is based, does not list this material (Barber 1979: 533), suggesting that it was still unknown to him in 1979. Nevertheless, in his preliminary report on testing at a site (19-SU-33) on Thompson Island he states that 234 flakes (39% of the assemblage) are made of Normanskill green chert (Barber 1983: Table 5). A second project at the same site the next year reported lower proportions of the material, but still identified it as "New York chert" (Shaw 1984: Table 1). Later research at that same site has noted high proportions of a material identified as probably being Melrose green (Luedtke and Kerber 1987; Luedtke 1996). As noted above, the single flake of this material from this site that has been thin-sectioned was determined to be Melrose green. This suggests that Barber systematically misidentified this raw material at this site.

Misidentification of lithic raw materials is not a problem only for Boston area archaeologists. The archaeological literature is increasingly full of efforts to derive trade and exchange systems, often largely from distributions of lithic materials (e.g. Ellis and Lothrop 1989; Baugh and Ericson 1994). The majority of these attempts are based only on macroscopic identifications of the lithic raw materials. There is simply no way to know whether these identifications are accurate.

**Spatial and temporal distribution of Melrose green rhyolite**

Haynes said he had found the material in "... shell-heaps and village sites along the north shore of Massachusetts Bay" (Haynes 1886:333). Ritchie reports that the material is found on sites throughout the Boston Basin and also from a number of assemblages in the Sudbury and Concord River drainage. Luedtke has found that it is a common minor component at sites on the Boston Harbor Islands, especially those islands in the northern part of the harbor (Luedtke 1997). We expect that these preliminary notions of Melrose green rhyolite's distribution will change as we learn more about the material.

Dincauze pointed out that the frequent association of this material with shell middens suggests attribution to the Woodland period (Dincauze 1972), as most shell middens in this region are of Woodland (and especially Middle and Late Woodland) age. This is supported by the ages of the Boston Harbor Island sites where the material occurs (Luedtke 1997), and by the fact that the three point styles recovered by Haynes at the quarry site are all of Woodland age. Again, though, the temporal distribution of this material may change as we get more information.

**Summary**

This report is intended to make all regional archaeologists more aware of the existence and characteristics of Melrose green rhyolite. We certainly hope that this will not encourage them to identify all fine-grained green materials as Melrose green rhyolite; similar-looking fine-grained green argillites are also found in this region, and both Normanskill green chert and Munsungen green chert do occasionally make their way into eastern
Massachusetts. Furthermore, there may be undiscovered dikes of similar material elsewhere in the Lynn-Mattapan volcanics, or in association with other volcanic formations. For example, a similar fine-grained green material of only slightly different color and texture is present in bedrock exposures at Rocky Neck in Hingham, MA.

We strongly encourage archaeologists who think they may have artifacts made of Melrose green rhyolite in their assemblages to incorporate some form of technical analysis into their source identification projects, rather than relying solely on visible characteristics for identifications. Obviously, not every artifact in an assemblage can be subjected to technical analysis, but a sample of the artifacts can. In addition, all archaeologists working in the region should attempt to gain as much familiarity as possible with the full range of variation of the different local raw materials, in both weathered and unweathered form. Finally, we encourage those readers who know of other bedrock sources or quarry locations to publish as much information about them as they can, so that the slow process of building a lithic database for New England can proceed.

Acknowledgments

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WAS NATICK A RESIDENTIAL PRAYING TOWN IN THE PERIOD BEFORE KING PHILIP'S WAR?

Richard W. Cogley

In 1651 John Eliot, the Roxbury minister known as the "Apostle to the Indians," convinced the Massachusetts General Court to establish for his proselytes a two-thousand acre reservation on the north side of the Charles River, in an unimproved area called Natick. Eliot wanted Natick to be a residential community with English-style buildings and English-style plant and animal husbandry. As he explained in 1648, when he first began to contemplate the creation of a central praying town for the Christian Indians:

A place must be found . . . where they [can] have the Word constantly taught, and government constantly exercised, means of good subsistence provided, encouragements for the industrious, means of instructing them in letters, trades, and labors, as building, fishing, flax and hemp dressing, planting orchards, etc. (Winslow 1834:81).

The land was part of the two-hundred square mile grant that the Court had assigned to Dedham in 1636. The Dedhamites reluctantly consented to the reservation's creation, provided the praying Indians surrendered any claims to land elsewhere in Dedham (Massachusetts Colony Records 1854:246; Dedham Town Records 1894:253).

Construction on the north side of the Charles River had commenced by the time the General Court awarded the land in 1651. In the fall of 1650 the future Natick residents built a "fair house . . . after the English manner high and large . . . with chimneys in it" as well as a bridge across the Charles. By late October 1651 the natives had installed a small room, with a bed, in a loft above the main floor of the "fair house." Eliot used this room when he visited the settlement; the residents also stored their valuables in it (Whitfield 1834b: 177). Between April and October 1651, the Indians built a fort for defense against native marauders. This "strong palizado" stood ten or twelve feet high and filled a quarter acre of land (Whitfield 1834a: 143; Whitfield 1834b: 171, 191). Construction of a meetinghouse and a schoolhouse began shortly after the completion of the fort. The meetinghouse - twelve feet high, fifty feet long, and twenty-five feet wide - was done by mid-October 1652; the schoolhouse was under construction in 1652 and was finished by 1662 at the latest (Eliot and Mayhew 1834: 224, 227, 256; Dedham Town Records 1894: 259). In the early 1650s the Indians also began building houses for families, and by 1654 fifty residential lots had been optimistically laid out for this purpose. In this case, however, planning outstripped performance. Eliot's principal colleague in the missionary work, Daniel Gookin, wrote in his Historical Collections of the Indians in New England (1674) that "some" Natickers lived in English-style houses but that the residents "generally" preferred to dwell in wigwams because houses were expensive to build, harder to heat, impossible to move during invasions of insects, and difficult to decorate in traditional fashion (Whitfield 1834b: 177; Eliot 1834: 270; Gookin 1792:181).

The "fair house" was situated "near" the fort but outside it (Whitfield 1834b: 177, 191). Eliot's original plan was to place the meetinghouse and the schoolhouse inside the fort (Whitfield 1834b: 168). There is good evidence for thinking that the meetinghouse was within the fort, and that
the fort stood on what is now the site of the Eliot Church in South Natick (Carlson 1986:29-30). The locations of the schoolhouse and the residential houses are not known. The compilers of the Massachusetts Historical Society edition of Gookin's *Historical Collections* (1792) propose that the "fair house" also served as a meetinghouse and schoolhouse prior to the start of King Philip's War in June 1675 (Gookin 1792: 181). The seventeenth-century sources, however, establish that these were three separate buildings.

The settlement expanded in size in the 1650s, when the Indians fenced in two common fields to the south of the Charles and laid out streets on both sides of the river (Whitfield 1834b: 177; Dedham Town Records 1894: 256, 268). The land on the south side of the river, which had not been part of the General Court's 1651 grant to Natick, was used for agriculture. Over the course of the 1650s, the residents planted apples, hay, maize, beans, squash, and hemp; and raised pigs, cows, and goats (Whitfield 1834a: 143; Whitfield 1834b: 168; Thorowgood 1660: 53; Kellaway 1960:201; Eliot 1882: 296; Gookin 1792:150). The expansion of Natick south of the Charles - which took place with Eliot's authorization - precipitated a boundary dispute with Dedham, located some seven or eight miles away. Dedham wanted the Indians to remain in the area to the river's north that had been assigned them in 1651. The dispute was not officially resolved until 1662, when the General Court directed Dedham to cede the land south of the river to Natick in exchange for a compensatory grant in the future Deerfield (Morrison 1995:122-49 passim).

In a 1984 dissertation, Elise M. Brenner questioned whether Natick was a residential community prior to King Philip's War:

Instead of a mission town composed of clusters of nuclear family houses around a meetinghouse and agricultural fields, we may be dealing with an unbounded area in which and through which the praying Indian community moved about seasonally, stopping periodically in the town center for Eliot's visits, for formal church occasions, and for burying the dead. The praying town was never a geographically bounded entity; it never existed as a 'site' with circumscribed boundaries (Brenner 1984: 169).

Her argument, which has been accepted by Neal Salisbury, a well-known historian of Puritan-Indian relations (Salisbury 1990: 84-85; 1992: 503), rests primarily on two bodies of evidence. In my judgment, there are problems with both of them.

First, Brenner and her colleagues dug test pits in the areas surrounding the present-day Eliot Church and detected no evidence of settlement in the Seventeenth Century. For understandable reasons, she did not dig underneath the Eliot Church. She plausibly assumes that this church sits on the site once occupied by the fort, and that the original Natick meetinghouse was located inside the fort. She then follows the editors of the Massachusetts Historical Society edition of Gookin's *Historical Collections* and equates the meetinghouse with the "fair house" (Brenner 1984: 129, 140-76). The seventeenth-century literary evidence given earlier in this essay, however, indicates that the meetinghouse and the "fair house" were separate structures, and that the latter was outside the fort but close to it. Hence her probes did not turn up evidence of a building - the "fair house . . . high and large" - known to have existed in the vicinity of the fort.

Second, Brenner uses evidence found in the Natick gravesites, which were disturbed on three past occasions (in the early Nineteenth Century, in 1879 during the construction of the cellar of the Bacon Free Library, and in 1923 during the installation of South Natick's water system). The grave shafts contained various European and native
goods. She observes that the European goods found with the bodies do not correspond to the goods that appear on several lists of materials shipped to the Natick Indians by the New England Company, the London-based missionary corporation that funded Eliot's work, and by private benefactors in England. This observation leads her to suggest that the allegedly sedentary Natick Indians traveled throughout the region and exchanged missionary goods for non-missionary ones (Biglow 1830: 14-16; Natick Citizen 1879; Natick Tribune 1923; Brenner 1984: 169-74, 229-33, 291-92). There appear to be two difficulties here. First, the European goods found in the Natick burial shafts were so few in number as to call into question the validity of the survey: glass beads, metal spoons, a leather fragment, a green glass bottle, a glass rod, a thimble, a sleigh bell, a porringer, a skillet, a ladle, and a few other objects. Second, Brenner has a narrow definition of what constitutes a European good supplied through missionary channels to the Indians. She bases her judgment on four shipments sent by the New England Company between April 1651 and May 1652 and on an inventory of goods supplied by benefactor Jonathan Hanmer in 1653. The Hanmer shipment is of little relevance because it consisted entirely of clothing and cloth; more importantly, there are other extant lists of European goods sent by the Company, or ordered from England by Eliot, or purchased in New England for use by the mission Indians. Utensils and sewing implements appear in many of these lists (Eliot 1882: 297; Kellaway 1960: 200-01; Plymouth Colony Records 1855-1861a:166; 1855-1861b:133, 138-39, 165-66).

Brenner also cites several additional pieces of evidence (Brenner 1984:131, 139-40, 236-37, 248-49). First, there is "some doubt that the quality of soil in South Natick . . . would have been suitable for the practice of full-time agriculture." However, the Dedham opponents of Natick never challenged Eliot's argument that the Indians had improved the lands south of the river, where the crops were grown and the animals raised in the prewar period; moreover, the land in question was sufficiently desirable to the Dedhamites that they went to court to recover it. Second, she notes that Gookin stated in 1674 that many of the Natick Indians lived in wigwams, a mobile form of housing. He did not say, however, that these natives were not residents of the town, only that they preferred wigwams to English style-houses for the reasons already given. He also did not condemn the Natickers for living in wigwams. Third, Brenner argues that there are no literary descriptions of Natick Indians using tools supplied them by the New England Company and by private benefactors. While perhaps technically true, this claim does not take into account circumstantial evidence to the contrary. The town's residents constructed the central buildings with minimal help from English craftsmen, refused to eat food that they had not produced, and declined New England Company compensation for work done on the settlement's behalf (Whitfield 1834a: 139; Whitfield 1834b:177,179; Eliot and Mayhew 1834: 224).

Brenner's argument is overstated but not entirely wrong. There were clearly mobile Indians at Natick: transients who lived in the settlement for a time and then dropped out of the mission, residents who chose to move into other praying towns established later in the prewar period, and natives whom Eliot assigned to these other towns as teachers or rulers. Furthermore, the Natick Indians continued traditional subsistence practices in addition to developing European forms of husbandry (Gookin 1792:181,188). Gookin did not condemn the proselytes for engaging in these subsistence activities, and Eliot apparently became reconciled to them as well, even though they were contrary to his original objectives for Natick. In
1662 he approved the sale of a tract of land near Mendon to two men from Braintree. The praying Indians who sold the land retained easements to "fish, foul, and hunt" on it (Suffolk County Registry of Deeds 1892:288-89). This evidence for mobility, however, does not change the fact that Natick was a residential community prior to the relocations that took place during King Philip's War. A committee created by the General Court in 1662 to investigate the Natick-Dedham dispute reported that "about sixty families" lived in the settlement (Dedham Town Records 1894:273). Although most of them resided in wigwams, these families resided in Natick.

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At a Trustees' meeting of the Massachusetts Archaeological Society in 1983, a fine grooved axe was brought in by Kathryn Fairbanks, then our Recording Secretary. Its unique discovery prompted this short article. After some negotiation the owner, Marie Long, agreed conditionally to sell me this axe for my collection. She related the following story:

During the 1950's her husband, Frank Long of Mattapan, owned and operated Long's Burner Service. While converting coal furnaces to oil, he found the stone axe inside a coal stove, propping up the grate. The homeowner said he found it while digging a vegetable garden in his backyard. The owner gave the axe to Mr. Long, who kept it mostly out of curiosity. Eventually a newspaper article concerning local archaeological finds rekindled interest and Mrs. Long sought additional information about the axe.

While the property owner's name is not known, his home was at the Blue Hills end of Canton Avenue in Milton. This location is quite close to the Neponset River, an area that has produced other fine Indian relics in the past. The axe is 7 in (17.8 cm) long and 3 1/4 in (8.3 cm) wide, with a 1 1/2 in (3.8 cm) wide, highly polished groove from extensive usage. Although blackened from the ashes, the underlying surface is brown, probably a local granite or hornfels (Figure 1).

After 55 years of hunting relics, some unusual places of recovery come to mind. Stonewalls have through the years yielded some remarkable finds. An early farmer, while plowing, would find an implement and place it on a nearby wall. Years later some collector would stumble across this artifact and recognize it as Indian. One of my best relics was found in this manner, a 17 in (43.2 cm) pestle, 2 1/8 in (5.4 cm) in diameter and highly polished. It was rediscovered on top of a stonewall on the Earl Gummow Farm, located along the Town River in West Bridgewater, Massachusetts (Figure 1). My brother-in-law, Bradford Cushman, also found an axe on a wall on Vernon Street, North Middleborough, Massachusetts.

After several years of searching stone walls near my favorite sites, I had found no artifacts. Then from a kitchen window, I made my first discovery. Mertie E. Romaine, Editor of the Middleborough Antiquarian, and I were reviewing an article I had written for the magazine. Six inches of snow covered the ground as we watched the birds feeding outside her window. The late afternoon sun lay on a stonewall, some 35 feet away. Suddenly a familiar object came into focus atop the wall. I quickly grabbed my coat and went outside. There sitting in plain view was a small mortar. It would measure 7 in (17.8 cm) wide by 8 1/2 in (21.6 cm) long, and 6 1/2 in (16.5 cm) high. The best part was the dish, 2 in (5.1 cm) in diameter, and 1 in (2.5 cm) deep on both sides. Mrs. Romaine gave this prize to me and it is a memorable find.

Under the eaves of farm buildings, such as a chicken house, is another good place to look. Rains falling from the roof expose a gully in time, and often arrowheads are washed out. I have personally found several fine points on our farm, in this manner. One such instance that comes to mind...
Figure 1. (Above) Woodland pestle, highly polished, found on a stone wall in West Bridgewater, Massachusetts. Length 17 in (43.2 cm).

(Left) Full-grooved axe found inside a stove in Milton, Massachusetts. Axe is 7 in (17.8 cm) long and 3 1/4 in (8.3 cm) wide, with a groove 1 1/2 in (3.8 cm) wide.
was a large chicken farm located along Sabbatia Lake in Taunton. Here a local collector reported an exposed cache of over 500 argillite points. While the number may be exaggerated, the find is real.

Riverbanks, brooks, pond and lake shores at low water levels during dry seasons, are always an excellent area to search. Indian sites along the coast are sometimes only visible during low tides. High waters may have eroded banks that yield relics once exposed. Karl Dodge once found a fine atlatl weight along an exposed lakeshore. This was at the Bowdish Reservoir in the northwest corner of Rhode Island (Dodge 1966).

Dirt roadways to lake cabins or summer cottages at the beach provide another good spot to look. Constant wear and erosion expose artifacts and the first collector along often finds some nice pieces.

Motor bike trails, horse trails and logging roads through wooded areas are excellent spots to check. One of my most unusual discoveries was a quartz point that lay on top of pine needles, in a grove near a sandpit at Fort Hill. It took several minutes before I figured how this point could be where I found it. Trail bikers were using this sandpit to ride up and down the banks. A spinout at the top had apparently dug out the point and fired it several feet from the edge, where it landed on top of pine needles.

Exposed artifacts along riverbanks, beaches, horse trails, or wood roads, and other similar kinds of locations mentioned above, frequently reveal unknown sites since these areas have remained unplowed for hundreds of years. Any artifacts in such places, and in particular, strong evidence of burned rocks, debitage, and complete arrowheads (not stray hunting arrows), may indicate a site, and these locations should be recorded on maps with the Town Planner and the Massachusetts Historical Commission for future reference. Then before destruction by housing developments, surveys or excavations may be conducted and much valuable evidence and information saved.

It all comes down to a hard fact: relics are where you find them and one should not be too surprised at their location. Usually there is a good explanation for the location and the reason for being there.

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REPORT OF A RADICarbon DATE FROM THE QUINNETUK NARROWS SITE, GILL, MASSACHUSETTS

Reported by: John Pretola, Springfield Science Museum, Springfield, Massachusetts.
Site name, town, state: Quinnetuk Narrows site, Gill, Massachusetts.
Site #: 19-FR-326.
Sample description: QN.F1.1,2,3; charcoal from hearth (fire-cracked stone-filled pit); associated with artifacts (Figure 1).
Conventional age ($\delta^{13}$C corrected): 2330 $\pm$ 80 $^{14}$C yrs. ($\beta$-66216) before 1950 $\pm$ 1 sigma.
$\delta^{13}$C = -27.1 o/oo. Errors are from counting of modern standard, background, and sample.
$^{14}$C half-life: 5570 years; 95% NBS Oxalic Acid Standard.
Norwottuck Chapter, Greenfield MAS Matching Funds Follow-Up; Beta Analytic Report.

Figure 1. Artifacts from the Quinnetuk Narrows site, Gill, Massachusetts (scale in cm).
(Top left to right): Adena point, gray-green rhyolite (#863); boken-base point, probably Adena, grey chert (#864).
(Bottom left to right): stemmed biface knife, notched stem, Normanskill chert (#862); abrading stone or hone, probably weathered gray-green Normanskill chert (#866); corner-notched biface knife, weathered dark gray Normanskill chert (#865).
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