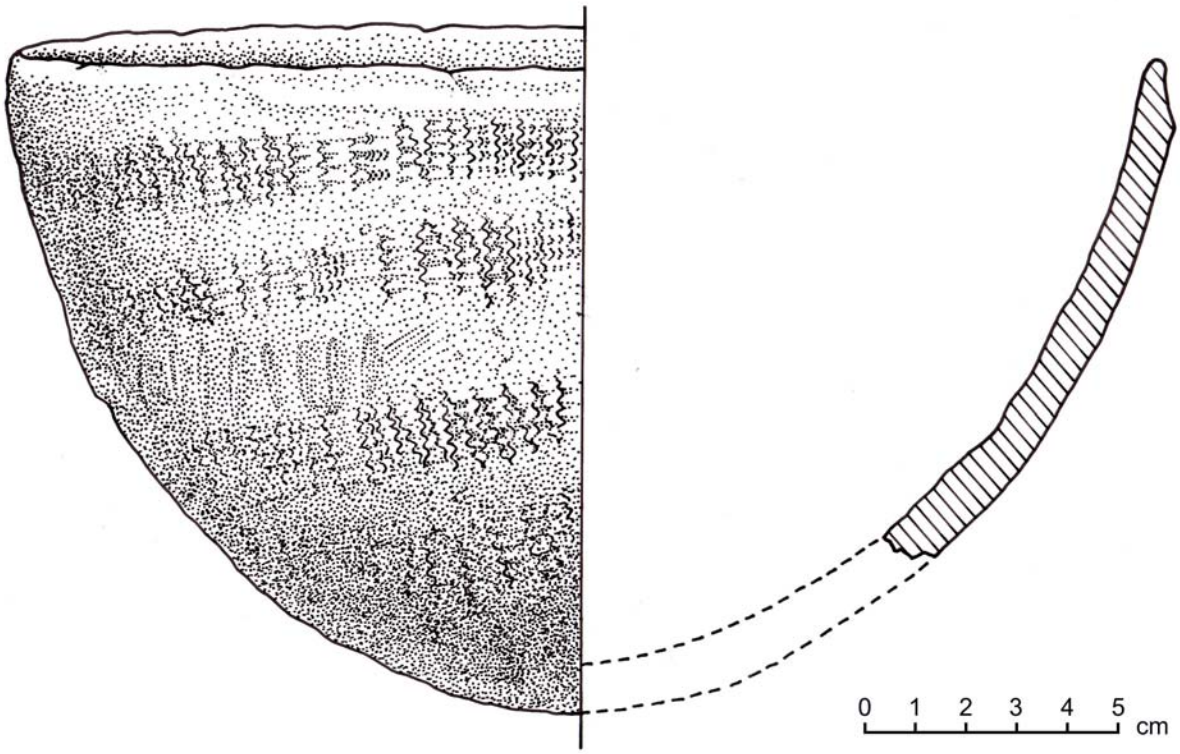
OCCASIONAL PUBLICATIONS IN FIELD ARCHEOLOGY
NUMBER 3

Archeological Investigations at the Carns Site, Coast Guard Beach, Cape Cod National Seashore, Massachusetts

James W. Bradley



NORTHEAST REGION ARCHEOLOGY PROGRAM
NATIONAL PARK SERVICE
U.S. DEPARTMENT OF THE INTERIOR
2005

Report Certification

The archeological report *Archeological Investigations at the Carns Site, Coast Guard Beach, Cape Cod National Seashore, Massachusetts* by James W. Bradley, has been reviewed against the criteria contained in 43 CFR Part 7.18(a)(1) and upon recommendation of the Support Office Archeologist has been classified as "Available."

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Cover: Illustration of Vessel #15, Locus 10, Feature 83A. Drawn by Ellen Chase.

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Management Summary

In November 1990, the Archeology Branch of the Cultural Resources Center (CRC), National Park Service (NPS) was contacted to assess an eroding feature at Coast Guard Beach within the Cape Cod National Seashore. The feature was determined to be undisturbed and of Native origin. Additional exploratory excavation was recommended and revealed a deeply buried ground surface and the likelihood of additional significant deposits. Over the next sixteen months, five episodes of fieldwork were conducted on portions of the Carns site exposing more than 300 square meters of site area.

Two factors were responsible for converting an exploratory investigation into a full-scale data recovery. First was the active, ongoing threat to the site from erosion. During the course of the project, several severe storms did scour the area, removing a significant percentage of the site. The second factor was a belief that the Carns site contained cultural components of great antiquity. This premise was based on the recovery of artifact forms similar to those from the Early and Middle Archaic periods. Broader consultation early in the process, especially with the Massachusetts SHPO and professional colleagues outside the NPS, would have provided other interpretations. Preliminary analysis of the excavation data confirms that the Carns site did contain significant archeological resources and that these features and artifacts date primarily from the end of the Early Woodland Period through the Middle Woodland Period, or approximately 2,100 to 1,100 years ago. This period is poorly understood and the Carns site represents an important contribution to our knowledge of Cape Cod's history. No evidence of earlier occupations was found.

An additional consequence of the greatly expanded fieldwork was the creation of a very large laboratory component. To date, all the artifacts from the site have been catalogued and most have received at least a preliminary level of analysis. However, after ten years, more than 200 boxes of feature fill and soil samples have yet to be processed. Much of the processed material remains to be analyzed. Based on the results obtained from the limited analysis done to date, significant information most likely remains buried away in these samples.

The Carns site has several lessons to teach, given the project's extent and high level of public visibility. This report summarizes what has been learned so far through excavation and initial analysis. Recommendations are also made for the ongoing issues of collections management and site management as well as public education and interpretation.

Acknowledgments

This report would not have been possible without the dedicated and diligent work of many people over many years. First and foremost are the Carns site field staff members, those NPS employees and volunteers who worked on the site. These include Project Manager Linda Towle, Project Supervisor George Stillson, Assistant Project Supervisor Gerald Kelso and the members of the field crew. For December 1990 through May 1991, the crew included: Neil Abelsma, Maria Capozzi, Patrick Carnahan, Martine Cherau, Louise DeCesare, Frederica Dimmick, Emilie Donlan, Theresa Doyle, Alison Dwyer, Tonya Largy, Natalie Liberace, Tom Schley, Alan Synenki and Mary Troy. From May 1991 through March 1992, the crew included: Christine McDonnell, Nancy Pendleton, Stephen Bayly, William Byrne, Susan Chase, George Claxton, Thomas Doyle, Evelyn Fowler, Todd Harral, Paul Lagreze, Deborah Marcaurelle, Leslie Mead, Chester Mitchell, Clark Moses, Elizabeth Nelson, Christopher Seufert, Grace Ziesing, Frederica Dimmick, Emilie Donlan, Tonya Largy, and Mary Troy. Without the fieldwork, the story of the Carns site would have been lost.

A second group to thank includes those individuals who contributed their expertise and experience to the analysis of the Carns site, its environmental context and its material remains. Among them are Dr. Jon C. Boothroyd, University of Rhode Island for assistance in reconstructing the environmental history of Nauset Marsh; Glenn A. Jones, National Ocean Sciences Accelerator Mass Spectrometry Facility (NOSAMS) for assistance with radiocarbon dating; Dr. Gerald Kelso for pollen analysis; Tonya B. Largy for analysis of floral and faunal remains from the site; and Robert N. Oldale, United States Geological Survey, for his generous help in explaining the site's geological context.

Particular thanks also go to Dr. James B. Petersen, University of Vermont, for his assistance in identifying the native ceramics from the site and to Ellen Chase for her illustration of Vessel #15 from Locus 10, Feature 83A. Finally, I want to acknowledge the support and encouragement provided by George Stillson and Gerald Kelso when I undertook this project.

Two individuals, Dr. Steven R. Pendery, Senior Archeologist, and William A. Cooney, Senior Archeological Technician, at the Northeast Region Archeology Program in Lowell, Massachusetts made preparation of this report possible in large part. Steve's commitment and encouragement have been essential to getting this report completed. In a similar way, Bill's excellent work organizing and cataloging the collection from the Carns site made writing a report possible. The detailed artifact inventories from the site, presented as Appendices 4 and 5 of this report, as well as the figures, are another indication of Bill's contribution to this project. I am pleased to express my deep personal thanks to both colleagues.

Several other colleagues provided helpful comments on drafts of the report. These include Hope Morrill, Bill Burke and Frederica Dimmick at the Cape Cod National Seashore, as well as Frank McManamon and S. Terry Childs at the NPS Archeology and Ethnography Office in Washington D.C. Sarah P. Turnbaugh edited the manuscript to its final draft. Marianne McCaffery prepared the manuscript for printing. It was also my good fortune to have former crewmembers Tonya B. Largy, Beth Nelson and Mary Troy read sections of the report for accuracy and clarity. Finally, conversations with Fred Dunford, Leonard Loparto, Brian Robinson, Arthur Spiess and Eugene Winter helped clarify my thinking about the Carns site and its place in Cape Cod's past.

JAMES W. BRADLEY

Introduction

The history of Native people on Cape Cod is a long and complex one. It is a story of the interaction between land and water, and how Native people lived in and changed with this dynamic environment over at least 12,000 years.

Much has been written on the archeology of Cape Cod and the Islands. Among the major studies are Ross Moffett's (1957) review of Cape Cod archeology, William Ritchie's (1969) report on his excavations around Martha's Vineyard, Frank McManamon's (1984c) survey of the Cape Cod National Seashore and the Massachusetts Historical Commission's (Bradley 1987) survey of Cape Cod and the Islands. While these works provide much information, some significant periods remain poorly understood. One such period occurred between 2,100 and 1,100 years ago (100 B.C.–A.D. 900), or during what archeologists call the end of the Early Woodland Period through the Middle Woodland Period.

This was a time of change, environmentally and culturally. It was a period of climatic fluctuation with a shift from colder than present to warmer than present conditions. Rising sea level slowed, stabilized and began to create the landscape of salt marshes and estuaries that characterizes the Cape today. Not surprisingly, it was also a time of cultural transition. Evidence suggests that new ideas, technologies and even people moved into New England from population centers in the Ohio valley during this period. These new technologies included the widespread use of pottery and the introduction of the bow and arrow. The advent of cultigens, especially corn (maize) and beans, also may have occurred during this interval. This dynamic period is the best represented at the Carns site.

OBJECTIVES

This publication is a preliminary account of a long and complex project, one that began with the discovery of an eroding feature at Coast Guard Beach in November 1990. Research continues to the present day. This report has three objectives.

1. To review the work done to date and what has been learned.

The Carns Site Project has included field excavation, laboratory processing, and analysis and report preparation. Chapter 2 of this report summarizes the five episodes of salvage and excavation that the NPS conducted at the Carns site between November 1990 and March 1992. Even before the fieldwork was over, processing and analysis began on the large volume of artifacts and soil samples recovered from the site. This work has continued, off and on, ever since and is not yet complete. Summaries of what has been learned to date about the site's environmental setting, its internal structure and its significance are presented in Chapters 3, 4 and 5.

Reporting the results of an excavation is an essential part of any archeological project. Two versions of draft reports were prepared shortly after fieldwork was completed. Linda Towle oversaw the first in 1992. George Stillson prepared a second, more detailed version in 1994. While neither was considered complete enough for publication at the time, these drafts have been of great importance in the preparation of this report. Their significance is discussed in more detail below.

2. To provide some insight into how archeologists interpret a site such as Carns.

With its dramatic discovery and lengthy excavation, the Carns site excited considerable public interest on Cape Cod and beyond. As a result, this report attempts to strike a balance between a technical study, intended largely for a professional audience,

and a popular summary, oriented toward a broader readership. One way to achieve the latter is to explain how archeologists interpret a site, its features and artifacts. Three basic concepts are used throughout this report:

Context – How reliable is the information and its source?
Sample – Is there sufficient information to answer the question?
Scale – Is the question being asked at the right level? Is it too general or specific?

By keeping these questions in mind, the reader will understand better how an archeologist tries to determine what a site means, and how much of a story it can tell.

3. To provide a framework for further study.

The story of the Carns site is far from finished. While this report presents what has been learned to date, much of the Carns site assemblage remains unanalyzed. I hope that this report will encourage additional work on the Carns site collection and bring forth a more complete understanding of this site and the time period it represents.

OUTLINE OF THE REPORT

Following this Introduction (Chapter 1), Chapter 2 reviews the discovery of the site by Dan Carns and the five episodes of fieldwork that followed, including a review of the goals, methodology and initial results for each episode. I have based this section largely on two existing reports: Linda Towle's (1992) "Project Management Overview," or Chapter 1 of the 1992 draft report, and George Stillson's (1992) "Excavation History," Chapter 4 of the same document.

Chapter 3 summarizes the site's environmental setting. This synopsis is drawn primarily from Oldale's (1994) excellent summary on the geological setting of the Carns site, or Chapter 2 of Stillson's (1994) report. Additional information, especially on sea level rise and the formation of Nauset Marsh, comes from Boothroyd et al. (1992) and Uchupi et al. (1996). Finally, several of the observations on vegetation and land-use patterns were drawn from chapters 1 and 5 that Stillson and Kelso, respectively, prepared for Stillson's (1994) report.

Chapter 4 reviews the stratigraphy, features and diagnostic artifacts from each of the site's three major loci. Each locus differed in size. The sampling strategy used for each varied as well. Locus 1 was by far the smallest area excavated. As a result, all available information is discussed. Locus 2 was considerably larger. The focus is on three clusters of C-14 dated features and their associated excavation units (EUs). The materials from these units probably represent 60 percent of what was recovered from Locus 2. Locus 10 was the largest excavation. Here, the focus is on six features that were radiocarbon dated and their associated artifacts. Although this sample represents only a small percentage of the Locus 10 features, it includes those that contained the most significant artifacts.

Chapter 5 provides an overview of the Carns site and what we have learned as a result of this archeological investigation. In addition to a chronological review, the significance of the Carns site is discussed at three different scales: Coast Guard Beach, the Nauset area, and Cape Cod and beyond. The report concludes with a series of recommendations on future use of the collections, management of the site, and public education and interpretation.

A few words also have to be said about artifact descriptions and conventions for handling data. In an effort to keep the text more readable, most of the technical information has been placed in the appendices. Tables are embedded in the appendices. Each appendix also contains a brief introduction describing the terminology and conventions used. Appendix 1 treats radiocarbon dates from the Carns site, for both cultural data

(Table 1) and environmental data (Table 2). Appendix 2 inventories the features from the Carns site. Appendix 3 considers lithics from the Carns site and includes definitions plus Tables 3 through 9. Appendix 4 opens with a list of identifiable ceramic vessels (Table 10a), followed by an inventory of ceramics from the site (10b). Finally, Appendix 5 includes basic definitions for debitage and fire-cracked rock, as well as Tables 11 through 23.

A final comment pertains to the references used and cited in this report. Most are readily accessible. The exceptions are the draft site reports on the Carns site as well as other unpublished, project-related reports such as Borstel (1991) or Boothroyd et al. (1992). These documents are on file at the Northeast Region Archeology Program, NPS, Lowell, Massachusetts and at the Cape Cod National Seashore, NPS, Wellfleet, Massachusetts.

Discovery and Excavation

During the time we were there it blew a gale from the north-east which lasted four days, with the sky so overcast that the sun was hardly visible at all.... However, I believe this was exceptional, just as often happens in other localities out of season.
Samuel de Champlain, 1605
(Ganong 1922)

On 20 November 1990 a gale, similar to the one that Champlain had witnessed during his visit to Nauset, hit the outer Cape Cod area. The following day Dan Carns, an amateur archeologist familiar with the Coast Guard Beach area, walked the beach (Figure 1). In the past Carns had found artifacts on the beach following major storms. On this occasion he observed a pit with fire-cracked rock eroding out of the newly cut marine scarp. This feature appeared to be deeply buried and was near an area where he had collected artifacts on previous visits (Figure 2).

Carns drove to the National Seashore Visitor Center and reported his discovery to NPS staff members. They in turn notified Dick Ping Hsu, the NPS Regional Archeologist in Boston. Hsu came to Eastham the next day. He examined the artifacts but was unable to inspect the site due to high tides. At Hsu's request an archeologist from the Archeology Branch of the Cultural Resources Center (CRC) of the North Atlantic Regional Office was assigned to investigate the area more carefully. Two days later, George Stillson met Dan Carns and Cape Cod National Seashore Curator Mark Hertig at the site.

Stillson determined that the pit was undisturbed and probably of Native American origin. He also observed a buried ground surface, consisting of a layer of dark organic soil, which extended several meters to the south of the feature as well as west beneath the sand dunes. Back at the Visitor Center, Stillson looked at the artifacts that Dan Carns had collected from the Coast Guard Beach area and turned over to the National Seashore staff. Among these was a fragmentary stemmed point, similar in style to Neville points of the Middle Archaic Period ca. 8,000 to 6,000 years ago. Carns reported that this point had been found approximately 50 meters (m) north of the exposed feature. Based on these observations, Stillson recommended that exploratory excavation take place before further erosion destroyed the feature. Fieldwork began two days later on 24 November 1990.

During the next two years, five episodes of fieldwork were conducted on the several loci defining what is now called the Carns site (19-BN-646). This chapter summarizes each of those episodes with a focus on goals and field methods, and why these changed over the course of the project.

EPISODE 1: NOVEMBER AND DECEMBER 1990

Project Goals

Initially, fieldwork had three goals. The first was to establish the extent of the site's integrity. Previous archeological work in the Coast Guard Beach area had indicated little evidence for deeply buried features or ground surfaces (McManamon 1984a:374–377). The second goal was to make a preliminary estimate of site boundaries. The third was to determine what temporal components were represented, especially given the potential for a Middle Archaic site. Sites of this antiquity are rare on Cape Cod. Finally, since Carns' collecting areas and the eroding feature were located within an active tidal zone, there was great concern that continued erosion, as well as unauthorized digging, would quickly destroy the evidence.

Field Methodology

Fieldwork was carried out under the direction of Project Manager Linda Towle and Project Supervisor George Stillson. A site datum, or control point, was established at the paved drop-off area north of Coast Guard Beach bridge and a grid of 50-x-50-cm EUs was laid out. Several areas were identified based on Carns' collecting (Figure 3). After initial investigation, two of these were targeted for excavation. Locus 1, approximately 50 m north of the fire-cracked rock feature, was the location where Carns had found the possible Neville point. Locus 2 was centered on the eroding feature and an adjacent area where Carns had also recovered artifacts. The other loci were determined to be individual features or artifact find spots.

Excavation within the tidal zone proved difficult. The newly exposed marine scarp was unstable and sections often collapsed into the areas being cleared (Figure 4). Work also had to be scheduled around tidal cycles. Even with machine assistance to build berms, work areas were frequently inundated. In addition, storms and unusually high tides alternately buried the excavations under cubic meters of new sand or threatened to wash them away altogether.

Given these difficulties, as well as the need to understand how far the site extended beneath the dunes, other testing strategies were tried. In early December, an attempt was made to trace the buried ground surface through the use of small soil cores. When it became evident that the overlying dune sand was too deep for this approach to be effective, heavy machinery was used to clear the sand in two locations. The first trench extended from an old drainage ditch to about 20 m west of Locus 2. Once the dune sand had been removed, a grid of 58 quads (50-cm^2 units) was established within this dune trench. Several units were excavated between 31 November and 6 December. The area to the west and north would later be designated as Locus 10 (Figure 5). A second machine-excavated trench was dug along the beach approximately 35 m south of Locus 2, with the expectation that this wetland trench would also reveal the buried ground surface that appeared to characterize the site. Instead, a deep layer of peat overlying a clay lens was encountered.

Excavation efforts initially focused on recording the exposed stratigraphy at both loci. However Locus 2 soon became the center of activity for two reasons. On the second day of excavation, the base of a lobate-stemmed point was found near the eroding fire pit. This possible Stark point seemed to confirm the potential for a Middle Archaic component in the immediate area. The second factor was the continued unusual weather. On 4 December another severe storm struck the outer Cape. At first it appeared that a significant portion of the site would be lost. As the archeologists watched, huge waves broke off large chunks of the scarp that defined the western edge of Locus 2 and carried the material out to sea. However, when the storm passed and the site could be inspected, it became apparent that the record high tides had removed mostly the overlying dune sand. The dune scarp had been eroded back nearly 10 m exposing large areas of the previously buried ground surface that contained the site. Based on what they had just witnessed, the project managers decided that the only way to protect this newly exposed portion of Locus 2 from further erosion was to excavate as long as the weather allowed. December 1990 proved to be one of the mildest on record and excavations continued at Locus 2 for another two and one-half weeks (Figure 6). The sense of urgency and excitement that marked these events was captured well in the video *Of Time and Tides*, which was produced locally and sold through the Eastern National Bookstore at the Salt Pond Visitor Center.

Media interest was an additional, and unanticipated, complication. November and December are traditionally slow news months on Cape Cod and discovery of the Carns site quickly became front-page local news. In early December, weather forecasters began to predict a major Northeaster.

With it came warnings of severe coastal erosion. When the storm struck on 4 December, television stations descended on the Cape looking for a story. To their delight, they found the Carns site. Stories such as "Archeologists Race to Save 8,000 Year Old Site before it Washes Out to Sea!" ran on the evening news from Boston to Providence. When the storm uncovered more of the site and the decision was made to continue excavating, the story became national news. Media attention culminated on 24 December with a live broadcast from the site on *Good Morning America*. While this high-level visibility was useful, especially in making the case for funds to continue working on the site, it also further complicated a difficult project.

On 24 December, a decision was made to close the excavations for the season. Those areas that had not been fully excavated were covered with protective cloth and backfilled. A monitoring program was also put in place to see how well the site areas were protected.

Results

After thirty-two consecutive days of fieldwork, much had been learned about the site, its extent and its temporal components.

- Several of the excavated areas showed considerable vertical integrity. At both Locus 1 and Locus 2 there appeared to be 1 to 2 m of dune sand above the cultural levels.
- Several areas showed evidence of Native occupation but the boundaries of these areas remained unclear.
- Significant differences also existed between the excavated areas. The stratigraphy of Locus 1 and Locus 2 was similar but not the same. The presence of two pottery concentrations at Locus 1 suggested a Middle Woodland occupation, dating between 2,000 and 1,000 years ago. However, the discovery of a possible Kirk drill on the last day of excavation at Locus 2 kept alive the belief that a Middle, or even Early, Archaic component might be present.
- A large area, more than 300 quads, had been partially or completely excavated, including five quads at Locus 1, 252 quads at Locus 2 and 54 quads in the dune trench. In addition, 10 features had been excavated at Locus 1 and another 39 at Locus 2. Procedures were set up at the Archeology Branch lab in the Charlestown Navy Yard to process the many artifacts and other materials recovered. Soil samples, which had been taken from most units and all features, represented the largest quantity of material. Details of processing methods are described in Stillson (1992:12–16).
- Finally, and most important, in the minds of the NPS archeologists the site remained threatened.

EPISODE 2: FEBRUARY 1991

Project Goals

Constant monitoring throughout January and early February indicated that erosion was affecting different parts of the site in different ways. Locus 2 remained buried in sand, while at Locus 1 each high tide undercut the glacial substrate exposing and eroding the cultural levels above. By mid-February archeologists decided to return to Locus 1 briefly. The goals were both to salvage as much data as possible and to determine whether this portion of the site was a single or multi-component Middle Woodland occupation.

Field Methodology

A base line 6.5 m in length was established along the edge of the marine scarp and a series of 50-x-50-cm quads was laid out. Considerable time was spent removing and stabilizing the overlying sand. Stratigraphic profiles were drawn and several pollen samples collected.

Based on December's experiences, a media plan was also developed with the NPS Regional Office. Regularly scheduled press conferences and specific times for the press to interview project personnel

allowed fieldwork to proceed with fewer interruptions.

Results

Three days of fieldwork demonstrated that this portion of the site area remained too unstable for controlled excavation. While additional information on stratigraphy and boundaries was collected, site limits could not be clearly determined. A total of 22 quads were excavated although several could not be completed due to slumping sand (Figure 7). Although few diagnostics were recovered, all the EUs contained lithic debitage. Six also produced ceramics, which seemed to confirm the Middle Woodland identification of the occupation. As before, a large quantity of soil samples was collected for lab processing.

EPISODE 3: APRIL AND MAY 1991

Project Goals

Project goals remained basically the same. The site's integrity, boundaries and cultural components all needed better definition. What changed were the motivations and strategies of the project managers.

After assessing the results of the previous fieldwork, staff members decided to request a determination of eligibility for the site's listing on the National Register of Historic Places. National Register listing would require thorough documentation of the site's vertical and horizontal extent as well as a statement of significance. Increasingly, significance was tied to the belief that the Carns site contained Early Holocene components. Over the winter, the possibility that a Middle Archaic component existed at Locus 2 quietly evolved into a certainty while the more speculative thinking focused on whether an Early Archaic, or even a Paleo Indian, component might be represented as well.

The likelihood that these early cultures were present raised the stakes that resulted from the ongoing threat of erosion. Even though the winter of 1990–1991 had been without major coastal storms (after the Northeaster of 4 December), it was clear from conversations with geologists that the entire site area could be lost in as little as ten years. Given the dynamic changes the project archeologists had witnessed over the past six months, it is not surprising that a sense of urgency underscored the need for additional data recovery.

Funding was secured and plans were drawn up for a four-week field season. The goal was to finish by Memorial Day weekend, the traditional start of the Cape's summer season. In contrast to the salvage-driven field efforts of the previous year, this fieldwork was carefully defined through a series of objectives. These included:

- To determine whether there was an Early Holocene component at the site,
- To determine the nature of the wetland discovered south of Locus 2 and its relationship with the cultural components,
- To determine whether Locus 3, located south of the wetland, had the same integrity and components as Locus 2,
- To conduct selective micro-stratigraphic excavations in order to better determine the characteristics of the buried ground surface and features, and
- To establish the best methods for determining the site's boundaries.

Field Methodology

On 29 April a backhoe removed the sand that had protected Locus 2 since backfilling it on 24 December. It was quickly determined that the site had survived intact. The excavation grid was re-established and extended south toward the wetland area. Four permanent elevation data were also established at that time.

As in previous fieldwork, soil samples from all levels were saved. To maximize the potential for recovery, three additional methods were employed. First, all soil not saved was water screened through 1/8-in. hardware cloth. Second, volumetric sampling was used to better relate the soils screened to those saved. Finally, box cores were used to take soil profiles that could be examined back in the laboratory for micro-stratigraphy, pollen or other attributes.

Excavation strategies also changed as the buried ground surface was encountered on the western and southern margins of Locus 2. At first, the plow zone was removed as a unit. Where its relationship to the buried ground surface was less clear, 10- or 5-cm arbitrary levels were used. When this horizon was encountered, arbitrary levels were reduced to 2 cm and finally to 1 cm. Below the buried ground surface, 2-cm levels were again used until sterile subsoil was reached. All features were sectioned with half the contents screened and the other half saved in its entirety. Each wall profile was drawn upon completion of excavation.

Near the end of May, an initial attempt to determine the extent and depth of the buried ground surface through remote sensing technology was made. Bruce Bevan of Geosight conducted a geophysical survey using a combination of soil resistivity, magnetometer and ground penetrating radar techniques. Project archeologists hoped that these initial surveys would serve as a basis for more detailed remote sensing later in the summer. Unfortunately, Bevan concluded that the existing technologies were not able to identify a relatively thin buried ground surface beneath 2–3 m of unconsolidated sand (Bevan 1991).

On the day after the excavation ended, a backhoe trench was dug from the southern edge of the Locus 2 extension into the wetland area. Samples were taken for pollen analysis and the wall profile was recorded. Then the edges of the excavation once again were covered with protective fabric and the area was backfilled.

Results

Four weeks of excavation had added considerable new information about Locus 2 but had not achieved several of the field objectives.

On the positive side, project archeologists had a much better understanding of Locus 2. Another 78 quads were excavated, some of these overlapping those excavated during the previous November and December. The stratigraphy of Locus 2 was better understood and a master profile of the west wall was compiled. An additional 22 features had been excavated and recorded. Once again soil samples comprised the bulk of the material sent to the lab.

Still, it remained unclear whether Early Holocene components were present on the site. In addition, the nature and relationship of the wetland with the buried ground surface still was not established. Finally, the first attempts at using remote sensing to define site boundaries had not been successful.

EPISODE 4: JULY AND AUGUST 1991

Project Goals

Determining site limits now became the priority. With the failure of remote sensing techniques, the investigation of other field methods was renewed.

Field Methodology

Project staff members decided to pursue two different methodologies. After consulting with several geologists, they determined that the technique most likely to produce the desired results would be to manually core through the thick dune sand and sample the underlying strata. A sand auger and split-spoon corer was purchased and, shortly thereafter, intact stratigraphic profiles were retrieved.

A 9-x-9-m interval grid was established across the area where project archeologists anticipated the remaining portion of the site was located. Project Supervisor George Stillson and Archeology Branch Palynologist Gerald Kelso then spent three weeks driving a total of 67 cores of 3–3.5 m in depth. This coring had three specific goals:

- To establish the extent of the buried ground surface beneath the dune sand,
- To determine its original topography, and
- To define the north and south extent of the buried wetland that separated Locus 2 and Locus 3.

Project archeologists also met Dr. Jon Boothroyd, a geologist at the University of Rhode Island (URI), who was concurrently conducting studies on the formation of Nauset Marsh. Since the Carns site was located on the eastern edge of the marsh, any interpretation of cultural deposits would have to be based on a good understanding of the marsh and how it had formed. As a result, Boothroyd agreed to expand his study by taking an additional 13 cores using vibracoring equipment from wetland areas adjacent to the site. This work was completed during the last two weeks of August.

Results

At the conclusion of this testing, the project archeologists returned to the lab in Charlestown ready to concentrate on processing and analyzing all the data recovered over the previous 10 months. Preliminary results from the coring suggested that the site area was located on a terrace adjacent to a wetland and fed by at least two streams. They were confident that they had collected sufficient information to evaluate the site's significance, estimate its boundaries and proceed with the determination of eligibility for National Register listing. The expectation was that the remainder of the site would remain safely buried while report writing and planning for future work proceeded.

EPISODE 5: NOVEMBER 1991 TO MARCH 1992

Once again capricious weather, which had brought about the site's discovery and shaped much of the subsequent fieldwork, changed everyone's plans. On Halloween Eve 1991 another severe storm battered Cape Cod. This "Great Gale of '91," also known as the "No Name Storm," fulfilled the worst-case predictions that regional meteorologists had made a few days earlier. The remnants of Hurricane Grace moving north along the coast combined with another large system from the Great Lakes to create a tempest comparable to what Sebastian Junger appropriately called *The Perfect Storm*. The deluge resulted in millions of dollars of damage and a federal disaster area declaration for Cape Cod.

The storm's impact on the Carns site was also severe. When project archeologists were able to inspect the site, they found that all of Locus 1 and Locus 2 were gone along with roughly 40 percent of the area between them that had been cored that summer (Figure 5). Worse yet, the sand dunes that had provided some measure of protection to the underlying cultural deposits had been either scoured away or replaced by unconsolidated beachsand. What was left of the Carns site was now vulnerable to further destruction by normal winter weather (Figure 8).

Project Goals

The coring data, combined with the information from the laser transit, indicated that an area as large as 500–600 m^2 had survived the storm and was now covered by less than 1 m of sand. Since the site could not be fully protected, staff decided to excavate a significant portion of the site. Data recovery aside, the goals remained much the same. What cultural and temporal components were represented on the site? To what degree did the presumed Middle Archaic component overlap with the major Middle Woodland presence that had been documented at Locus 1 and 2? Why did the Middle Woodland component(s) appear to be so

different from other known examples in the Nauset Marsh area that were associated with shell middens?

Field Methodology

Given the circumstances, project archeologists decided to open up large areas of the site. They hoped to identify large and small spatial patterns that might help answer these questions. On 15 November heavy equipment cleared the site area and the team tied it into the overall site grid. A berm was also built on the eastward (beach) side to protect the site from further erosion (Figure 9). Within this area, designated Locus 10, a 4-x-4-m block system was established. Each m^2 unit was designated 1 to 4 while the 50-x-50-cm units (quads) were called A to D.

After the overburden was removed, two sampling strategies were employed. Each quad designated 3/B was excavated first, providing a systematic sample across the site. In addition, excavations were conducted along the face of the buried ground surface exposed on the eastern edge of the site. These two sampling operations enabled the site to be evaluated at a 2-m interval, both behind the eroded scarp and continuously along its edge. Once the sampling had been completed, five areas were selected for further excavation. Details of these methodologies are discussed in Stillson (1992:58–65).

When this fifth episode of fieldwork began, it was assumed that with the experience of the previous year, the excavation would be able to proceed without major difficulties. However it quickly became apparent that December 1991 would not have the same mild weather as the year before. By mid-December snow had covered the site, the ground had frozen and the windchill factor was well below zero (Figure 10).

To work effectively under these conditions, a new set of logistics and methods had to be worked out. Electrical power was run to the site, where it was used not only for lights but also ultimately for halogen lights and electric blankets. Six 10-x-10-ft. portable huts were built so that crewmembers could work out of the wind and excavation areas could be kept unfrozen. A final problem was finding a way to keep the 800-ft. fire hose used for wet screening from freezing. After trying several options, archeologists determined the best was to roll up the hose at the end of each day, store it in the Coast Guard building overnight, and then reconnect it in the morning.

Even with electricity and shelter, it was uncertain how long it would be possible to work. As a result the excavation ran seven days a week. After five and one-half months in the field, work ended on 27 March 1992. The remaining portion of Locus 10 was covered with protective cloth and backfilled.

Results

After more than five months of excavation, the goal of opening a large area had been accomplished. A total of 226 square meters containing 181 features was excavated in the Locus 10 area. While additional time and analysis would be required to interpret the vast amount of data, soils and artifacts brought to the lab, a clearer sense of cultural and temporal components had begun to emerge.

As the excavation progressed it became evident that a substantial Middle Woodland component, characterized by Fox Creek points and grit-tempered ceramics, was present. In fact, the results from Locus 10, in terms of density of features and artifacts, were similar to those from Locus 2, which had been located to the southeast and may have been contiguous.

Also of significance were indications that a small, discrete component characterized by lobate-stemmed points existed at the western edge of Locus 10 (area 5). Project archeologists believed that this component was of Middle Archaic age for two reasons. First the recovered points were similar to Stark points. Second the evidence from

vibracoring indicated that freshwater marsh formation had begun in the area about 8,900 years ago. Further clarification of these initial findings would have to await lab processing and evaluation of all the data collected.

EPILOGUE

While the majority of archeological work at the Carns site was done between November 1990 and March 1992, three additional episodes need to be mentioned:

- Between 14–23 December 1992, Stillson and Kelso took another 18 split-spoon cores to the north and west of Locus 10. The goal was to investigate the area west of Locus 1 and to establish a northern boundary for the site (Stillson 1994, chap.1:19, Table 1).
- In January 1993, another Northeaster eroded the Carns site area. With the removal of more overlying dune sand, Stillson and Kelso conducted additional split-spoon coring at the Locus 10 'extension' (Stillson 1994, Chapter 6, p.7).
- From December 1990 until November 1993, Dan Carns continued to systematically collect along Coast Guard Beach. His reports as well as the materials he recovered indicate that a wide variety of archeological material continued to erode from the Carns site/Coast Guard Beach area. Some of these assemblages differ significantly from those recovered during excavation at the Carns site. This is discussed further in Chapter 5.

The five episodes of fieldwork at the Carns site resulted in the excavation of more than 300 square meters at three loci across the site area. This effort makes the Carns site one of the largest archeological investigations done on Cape Cod. Although much analysis remains to be completed, the work done to date gives us a new, more detailed view of why Native people lived in this location between about 2,100 and 1,100 years ago.

Environmental Setting

The environmental setting of the Carns site area, and its development through time, is critical to understanding the ecology of the Carns site. This chapter considers the site's location and surroundings, its geological overview and glacial origins, and its relation to coastal processes and Historic-period land use.

LOCATION AND SURROUNDINGS

The Carns site is located in the Cape Cod National Seashore in the town of Eastham, Massachusetts at 41° 50' 40" North latitude and 69° 56' 40" West longitude. The site area is in a low-lying swale 3 – 4.75 m above sea level. In November 1990, this area measured approximately 125 m across from the marine scarp of Coast Guard Beach on the east to the edge of an overgrown cranberry bog on the west. This swale is part of a small peninsula extending south from the mainland near the intersection of Doane Road and Ocean View Drive to Coast Guard Hill and Nauset Spit. From the Carns site, the land rises abruptly to Coast Guard Hill, which reaches an elevation of 13 m above sea level. To the north, the land rises more gently to the edge of the Eastham outwash plain.

Both Coast Guard Hill and its adjacent beach are located at the northern edge of Nauset Bay, a part of the larger Nauset Marsh ecosystem. A portion of the salt marsh known as Nauset Meadows wraps around Coast Guard Hill to the west and north (Figure 11). A bridge, built for the bicycle path that originates at Salt Pond Visitor Center, crosses Nauset Meadows at its junction with Nauset Bay and ends at Coast Guard Hill. This bridge is located on or near the same location as older bridges that provided the only access to Coast Guard Hill until Doane Road was constructed in the mid-twentieth century. Around 1880, a large dike was built across Nauset Meadows at its narrowest point to create a cranberry bog. This dike was constructed to keep fresh water in as well as the inevitable tidal surges out. The long period of productive use for the bog, which was abandoned sometime prior to 1940, underscores the abundance of fresh water in close proximity to the Carns site.

Coastal landforms dominate the Carns site area. These consist of Coast Guard Beach itself, the related marine scarp and the stabilized dunes atop the earlier glacial and eolian deposits. These dunes support a limited vegetation consisting primarily of American beachgrass (*Ammophila breviligulata*) mixed with dense patches of bayberry (*Myrica pensylvanica*), beach plum (*Prunus maritima*) and poison ivy (*Toxicodendron radicans*).

GEOLOGICAL OVERVIEW

Although the Quaternary-period geology of the site may appear to be incidental to the archeology, it is not. A number of geological reasons account for the location and preservation of the site. The Carns site lies at the edge of the Eastham outwash plain, which was deposited by meltwater from the South Channel lobe of the late Wisconsinan Laurentide ice sheet. The site is located at the base of a south-facing slope that would have provided shelter from cold northerly winter winds. Nearby kettle ponds and swamps likely provided a freshwater source. The sandy upland soil ensured that the site was well drained and, when agriculture arrived, was easily tillable. As sea level rose throughout the Holocene, coastal erosion caused the shoreline to retreat westward. As a result, the coastal dunes also migrated westward burying the site. For many hundreds of years these dunes protected the site from further erosion, plowing and discovery. However, just as these erosional forces exposed the Carns site in November 1990, it is inevitable that, within a few years or at most a few decades, the remaining portions of the site will be washed away into the Atlantic Ocean.

The geology of the Carns site is the result of the growth and decay of the Laurentide ice sheet and the rise in sea level that followed the retreat of the glaciers. The Laurentide ice sheet developed in Canada about 75,000 years ago. During much of the Wisconsin glacial stage, the ice sheet advanced and retreated a number of times but remained far to the north of southern New England. About 23,000 years ago, the ice sheet began a major expansion advancing into New England. It reached its maximum extent between 21,000 and 18,000 years ago (Figure 12). In southern New England the glacial maximum is marked approximately by the end moraines on Nantucket and Martha's Vineyard as well as the moraines on Block Island and Long Island to the west (Oldale 1992). The ages recently obtained from the glacial deposits, both onshore and offshore, suggest that Cape Cod and the southern part of the western Gulf of Maine were ice free by 17,600 years ago (Oldale 1989).

As the Laurentide ice sheet melted, the water stored in the ice returned to the ocean basins. Sea level, then about 100 m below the present level, began to rise. Modification of glacial Cape Cod through coastal erosion and re-deposition had begun by 6,000 years ago. By 2,000 years ago the major marine scarps, spits, and marsh systems were in place (Zeigler et al. 1965; Redfield 1972). Since that time Cape Cod has looked much as it does today.

GLACIAL ORIGINS

The Carns site is located at the edge of the Eastham outwash plain, one of a series of westward sloping outwash plains that occupy the northern part of Cape Cod (Figures 13, 14). The Eastham plain formed as a delta along the shore of glacial Lake Cape Cod. The meltwater streams that built the plain drained the South Channel lobe and flowed westward into the lake. The Eastham plain deposits are fluvial to sea level. Thus, a late stage of the glacial lake, which was at or below present-day sea level, controlled the meltwater streams. Formation of the outwash plain ceased when the South Channel lobe retreated from the head of the Eastham plain and into the Gulf of Maine.

Later, perhaps as much as 6,000 years after deglaciation, ice blocks left behind and buried by the outwash melted to form kettle holes and kettle ponds. The glacial deposits that lie beneath the Eastham plain are the youngest on Cape Cod (Oldale et al. 1971; Oldale 1982). To the north, they occur above the Wellfleet plain deposits. To the south they lie above the Nauset Heights ice-contact deposits, the Harwich outwash plain deposits, and deposits that were related to the early stages of glacial Lake Cape Cod (Oldale et al. 1971).

The Eastham outwash plain deposits are complex and consist of interbedded till, sand and gravel as well as silty clay and scattered boulders (Oldale et al. 1971). The sand and finer grain sizes are composed mostly of quartz. Stone content is dominated by cobbles of felsic and mafic igneous rock as well as quartz, quartzite and granite. A ubiquitous layer of silty sand caps the Eastham plain deposits, like all of the other glacial deposits on Cape Cod. In most places this layer is about 1 m thick and eolian in origin. Numerous stones occur within the eolian layer. Many of these stones, called ventifacts, have been shaped and polished by sandblasting, some to the extent that they are mistaken for artifacts.

Generally, older archeological sites along Cape Cod's eastern shoreline are thought to have been far from the sea when they were occupied. However, on the outer Cape, the sea was never far away (Figure 15). To the east, the depth of the sea floor in the Gulf of Maine meant that the Atlantic shore was no more than 3.5 kilometers (km) from the Carns site area by about 8,000 years ago. To the west, a secondary depression (Cape Cod Bay) brought the shore to within 20 km of the site at the same time period. As a result, the Carns site area existed within a maritime environment throughout the Holocene.

SEA LEVEL RISE, COASTAL RETREAT AND MARSH FORMATION

The rise in sea level following the glacier's retreat was the second factor in shaping Cape Cod in general and the Carns site locality in particular. Initial sea level rise was very rapid, as much as 25 m between 12,000 and 10,000 years ago, as huge volumes of water from the melting ice sheets poured back into the ocean basins (Oldale 1992:98–100). After 10,000 years ago most of the great ice sheets had diminished. The rate of sea level rise slowed accordingly (Figure 16). Between 9,500 and 6,000 years ago, sea level rose at a rate of about 6 m/1000 years, or from 30 to 10 m below its present level. After 6,000 years ago, sea level continued to rise at an even slower rate of 2 m/1000 years, until reaching near-present levels about 1,000 years ago (Uchupi et al. 1996:32). As sea level rose, waves and currents began to erode and redeposit the glacial sediments creating many of the landforms that continue to characterize Cape Cod today.

It remains unclear when Nauset Spit and its related marsh system began to form. Without doubt, these features were initially located some distance to the east, perhaps by a few kilometers (km). The beginning of Nauset Spit may have coincided with the initial formation of the Provincetown spit, which is estimated to have occurred about 6,000 years ago (Zeigler et al. 1965). Radiocarbon dates from Barnstable indicate that salt marsh formation behind Sandy Neck, its protective barrier spit, began about 3,700 years ago (Redfield and Rubin 1962).

Some of the earliest dates for Nauset Marsh come from freshwater peat samples recovered from Coast Guard Pond, a kettle hole bog just south of the Carns site (Figure 17). Two sediment cores were taken from this shallow pond in 1983 as part of a joint field project sponsored by the North Atlantic Regional Office of the NPS and the University of Maryland. Analysis of these cores indicated that freshwater peat began to accumulate near the center of the kettle about 8,900 years ago and along its eastern edge two hundred years later (Borstel 1991:Appendix 1). Another early date 9300 B.P. was obtained from a tree stump in the same kettle hole (Oldale 1994:8). While no species identification was made, it is possible that Atlantic white cedar (*Chamaecyparis thyoides*) may have colonized this kettle hole. Similar white cedar swamps are well documented on the outer Cape and survive to the present day.

By 6,000 years ago, sea level was 10 m below its present level. Long sea cliffs dominated the eastern shore of the outer Cape, much as they do today, but located perhaps 3 km east of their present location. Nauset Marsh was the southern terminus of this sea cliff. As sea level rose, Nauset Marsh began to fill with the sediments eroded from these cliffs to the north. Uchupi et al. (1996:41, 46–47, Figure 40) speculate that a system of barrier beaches formed along this depositional gradient, keeping pace with rising sea levels and retreating steadily westward. Behind these barrier beaches, marshes formed on the landward side; remnants of the sea cliffs were also protected from further erosion. Actual rates of coastal retreat over the past five thousand years are not known. However, with slower rates of sea level rise and a smooth shoreline composed of bay mouth bars and barrier spits, the rate of coastal retreat undoubtedly slowed as well, probably approaching the present rate of about 1 m/year.

As sea level rose, it pushed the water table up with it, raising freshwater levels in kettle ponds and marshes. As a result, Nauset Marsh has grown upward over time as peat was deposited. The marsh also grew outward beyond the bounds of its original embayment, burying older deposits in the process. On the seaward side, older marsh deposits were also buried by beach and dune sands as they migrated westward.

Some of these changes are evident in sediment cores. As mentioned above, the two cores from Coast Guard Pond indicated that freshwater peat

began to form shortly after 9,000 years ago. Peat continued to accumulate rapidly until 5,000–4,000 years ago (Borstel 1991:165). Other studies indicate that sea level rise has flooded the outer portions of Nauset Marsh by 4000 B.P. and that salt marsh colonization of shallower areas had begun by 1,500 years ago (O'Donnell and Leatherman 1980; Leatherman et al. 1981).

These environmental changes, especially in terms of what plant and animal resources were available, would have been extremely important to Native people. To understand the shift from freshwater to saltwater marsh more clearly in the Carns site area, additional sediment cores were taken in 1991. Radiocarbon dates were obtained from two of these cores: NPS CGB-5 located about 400 m west of Coast Guard Hill, and NPS CGB-6 located about 250 m west southwest of the Carns site (Figure 18). Core 5 indicates that freshwater peat began to develop about 2,200 years ago and changed to salt marsh 1,000 years later. In Core 6, located further toward the edge of the wetland, these changes occurred slightly later in time. The freshwater peat began to form about 2,100 years ago while brackish peat was first deposited around 1610 B.P. The final transition to salt marsh occurred by 1150 B.P. (Boothroyd et al. 1992). The profile from Core 6 is illustrated in Figure 19.

Sea level rise, erosion and re-deposition continue to modify the Carns site area today. Rising sea level encroaches on the freshwater wetland in upper Nauset Bay. Ongoing storm-related erosion of the shoreline moves the beach steadily westward and, during scouring episodes, covers the wetlands with sand. Essentially, the same geological processes that created and protected the Carns site over the past two thousand years are now destroying it.

HISTORIC-PERIOD LAND USE

Over the past 350 years, patterns of land use, and particularly agriculture, have had a significant impact on the Carns site area. Just as Native people had learned before them, early European settlers discovered many flats of fertile land well suited to agriculture. The borders of large marsh systems, such as Nauset, were especially valued. Initial attempts were made to grow wheat, rye and other familiar European crops, but the focus quickly shifted to maize, beans and other indigenous crops that were better suited to the local environment. However, by the end of the eighteenth century aggressive plowing and deforestation had depleted the soils and caused massive changes in the landscape (Stott 1987:226–232).

As John Stilgoe (1980) has observed, New Englanders have tended historically to think of beach environments as wasteland, often viewing them with disinterest or disgust. These negative sentiments found particular expression when describing Cape Cod. During his visit in 1800, Timothy Dwight was amazed by what he saw. As he rode down the Cape, he encountered ever-larger regions of sand blowing in from the great beaches and covering the fields. Dwight responded with horror, as any good inland farmer would. Upon reaching Orleans he observed, as he looked over a barren landscape of blowouts and advancing dunes, "Nothing can exceed the dreariness and desolation of this scene." This was not New England, he concluded, it was the African desert (Stilgoe 1980:100–101). Henry David Thoreau (1987[1865]:41–42) voiced similar sentiments when he walked through Eastham fifty years later. On the other hand, Cape residents have learned to live with these changes and have shifted to crops that prefer sandy conditions such as strawberries, cranberries, asparagus and turnips (Stott 1987:238). As Chase (1991:172) has discussed, it is unknown over what period of years the area around Coast Guard Beach was plowed, but no commercial farming was done there after the early 1900s.

Around 1880 a large cranberry bog was constructed in the marsh at the northern end of Nauset Bay. Fortunately, the impact of this activity on the Carns site itself appears to have been minimal. Efforts to construct the bog included building a large dike, digging ditches for drainage and irrigation

around the edges of the bog as well as through it, and placing a layer of sand over the existing peat in which the cranberries would be planted. Large borrow pits can still be seen along the upland edges adjacent to the dike. These undoubtedly provided the natural material for building the dike. Construction of the bog required large amounts of well-sorted beach sand, which was readily available. The primary impact to the Carns site would have been from ditches dug around the bog. Cranberry bogs built during this period tended to follow the natural contours of existing wetlands as opposed to twentieth-century practices that favored straightening out the edges. In March 1992, a backhoe trench was excavated into the bog to see whether the Carns site extended below the present marsh level when sea level was lower. The cranberry bog ditch was located at this time, and archeologists determined that the freshwater marsh deposits sloped down in a westerly direction from the ditch. This finding suggests that nineteenth-century digging had no impact on the Carns site.

Aside from agriculture, the Coast Guard Beach area was little used until 1872 when a life-saving station was constructed on Nauset Spit. Within a few years the station was moved 300 m north. In 1937, the present Coast Guard Station was built back from the beach on the top of Coast Guard Hill. In addition to this station, several crewmembers apparently built houses on Coast Guard Hill and kept gardens as well as livestock. This agricultural activity, while seriously affecting the archeological resources on Coast Guard Hill, also appears to have had no impact on the Carns site itself.

Later in the twentieth century, cottages were built on the dunes to the east of the old access road and additional buildings were constructed on Coast Guard Hill. There is no evidence of any buildings existing within the Carns site area. A more detailed review of Historic-period land use in the vicinity of Coast Guard Beach is provided in Chase (1991).

Excavation Results

Locus 1, Locus 2, and Locus 10 yielded significant data. These are considered in this chapter.

LOCUS 1

Location

Two brief episodes of fieldwork were conducted at Locus 1. The first occurred 5–6 December 1990 when storm erosion exposed a deeply buried ground surface. In many ways, this fieldwork was more a salvage operation than a controlled excavation since rapidly raising tides often determined the scope and pace of the work. The second episode took place 21–23 February 1991 when ongoing tidal erosion threatened to remove remaining portions of this buried horizon. Whatever remained of Locus 1 was washed away during the No Name Storm of 30 October 1991.

Stillson (1994, chap.1:3) described Locus 1 as a small area, one identified by Carns as a flake scatter that came to his attention following two storms in mid-November 1990. It was located below the marine scarp of Coast Guard Beach just north of its junction with the old access road. Stillson reported that a little less than 7 square meters were examined at Locus 1. During both episodes, a N/S grid was established along the base of the scarp and a series of 50-x-50-cm quads excavated. Due to slumping sand from the scarp as well as the disappearance of the buried A horizon at the southern end of the grid, not all quads could be completely excavated.

Stratigraphy

Although artifacts had been found in the area, the primary reason for fieldwork at Locus 1 was to document the deeply buried ground surface exposed by tidal erosion. Two profiles recording this stratigraphy were the main focus of the December 1990 fieldwork.

In his 1994 draft report, Stillson discussed the Locus 1 stratigraphy in detail. It is reviewed here not only for its importance in understanding Locus 1 but also because it served as the model for stratigraphy across the site. A series of six soil horizons characterized Locus 1 (Figures 20 and 21). These horizons are:

1. Dune sand. On top was a deep layer of windblown sand. At Locus 1 this level averaged 2 m thick. Across the site it varied from 50 cm to more than 3 m. No cultural material was found in this level, although Stillson has indicated that some evidence of revegetation was present. Beneath this layer of sand were a series of older ground surfaces that Stillson (1994) referred to as the paleosol.

2. Plow zone. Below the dune sand lay 15–20 cm of plow zone. In the Locus 1 profile this was divided into an upper zone of fairly homogeneous light- to medium-brown sandy soil and a lower zone of darker-brown soil. Elsewhere on the site, the plow zone extended deeply enough to cut into and mix with the cultural levels beneath. Some artifacts were recovered from this level.

3. Eolian sand. A thin (>5 cm thick) level of fine white sand underlay the plow zone. In the Locus 1 profile, the plow blade had cut this stratum in two places leaving characteristic plow scars (Figure 21). No cultural material was recovered from this level.

4. Buried ground surface. Beneath the eolian sand was another thin (>5 cm thick) layer of soil. In contrast to the light-colored sand above, this was a rich, dark brown to black soil. Elsewhere on the site this level varied in thickness from a trace to 20 cm in depth. Stillson (1994) referred to this level as an anthrosol and, noting the high density of charcoal flecks and rod-like phytoliths, he interpreted it as a living floor. Stillson also observed that this level was generally low in artifact content.

5. Transitional zone. Below this rich organic level was a transitional zone 10–15 cm in depth. Stillson characterized this as a Transitional/B horizon and noted that the soils were mottled and variable in color, ranging from a medium brown to an orange that was barely distinguishable from the B horizon, below. Across the site, this stratum contained most of the cultural material.

6. Glacial subsoil. At the bottom was the glacially-derived subsoil, ranging across the site from well sorted sand to gravel and cobbles. At Locus 1 it was primarily a dense yellowish brown sandy gravel. Stillson (1992:2–3) referred to this level as the B horizon. He also noted that artifacts were occasionally found in the subsoil.

While this report uses Stillson's stratigraphy, as described above, some changes have been made in how levels are named to conform to generally accepted usage. For example, in this report, the buried ground surface that Stillson called the anthrosol is termed the buried A horizon. Similarly, Stillson's Transitional/B horizon is referred to as the B horizon, and the glacial subsoil is called the C horizon.

The profile recorded at Locus 1 is impressive in part because of its simplicity. The levels are clear as is their relationship with one another. However stratigraphy is rarely this simple. Significant variability existed, even at Locus 1. A second profile was also recorded in December 1990. Located only 1 m to the east, this profile was recorded where Gerald Kelso (1994:3–4, Figure 2) collected Pollen Profile 9. Although the two profiles are similar, several differences are also evident:

- Two dark "humic layers" occurred with the dune sand. These were interpreted as revegetation episodes.
- The plow zone appeared to be a single level instead of the upper and lower zones seen in the first profile. It also cut more deeply into the underlying cultural levels.
- The eolian sand was contiguous with the buried A horizon instead of being situated above it.
- A large pit feature containing ceramics occurred beneath the buried A horizon/eolian sand level.
- Beneath this feature a new stratigraphic level occurred that was a very dark gray humic layer 5–15 cm thick. This level also contained a small lens of sand and, at its base, a very dark gray streak reminiscent of the buried A horizon.
- The expected Transitional zone, or B horizon, and the glacial subsoil, or C horizon, occurred below this humic layer.

In spite of this variability, the stratigraphy at Locus 1 appears to have been relatively consistent across the excavation, as demonstrated by a longer (5 m) profile of the west wall made during the February excavation (Figure 22). The only significant change was a gradual rise in the slope of the buried A horizon north to south across the site. At the north end, the eolian sand completely covered the buried A horizon. In the middle section, it was cut periodically by plow scars. On the southern end, the buried A horizon had been completely destroyed by plowing. Taken together, this evidence suggests that the original ground surface rose slightly from north to south across Locus 1.

Features

Although no feature log has been found for the Locus 1 excavations, ten features were reported (Stillson 1994, chap.4:6). Four of these features appear to have been found during the December fieldwork. These included two fire pits with pottery, a series of plow scars and a post mold. Six additional features were uncovered during the February excavations, including two linear stains interpreted as plow scars, a possible post mold (later reinterpreted as a rodent borrow), a small pit feature, a concentration of several small pockets of shell, and a gray stain. With the exception of the two fire pits, none of these features were associated with cultural material.

C-14 Dates and Other Analyses

No samples from Locus 1 have been radiocarbon dated. Kelso (1994) analyzed and reported on the pollen collected from Profile 9. The results unfortunately indicated that the pollen was quite recent and did not warrant further study.

Material Culture

A small but significant assemblage consisting of lithic and ceramic artifacts was recovered from Locus 1. Most of the diagnostic materials were found during December 1990. While the vertical position of these artifacts is generally clear, there is little specific provenience information for them. Disappointingly, the better-controlled excavations in February 1991 produced fewer artifacts.

Flaked Stone Artifacts

The lithics from Locus 1 include a range of bifacial projectile points (n=8), biface fragments (n=5) and cores (n=5). The diagnostic points indicate that Locus 1 was probably occupied during terminal Late Archaic and Early Woodland times (3000–2000 B.P.). The presence of preforms, broken bifaces and debitage indicates that stone tools were being made as well as used in this portion of the Carns site.

An evaluation of the Locus 1 lithics by stratum suggests that only minimal post-occupation disturbance had occurred.

Plow Zone. Only one artifact was reported from the plow zone. This is the base of a small, heavily reworked, side-notched point made of fine-grained gray felsite (Figure 23a). With its slightly concave base and well-defined shoulders, this point (#57479) is most similar to the Susquehanna Broad-like or Wayland Notch-like types (Johnson and Mahlstedt 1984:108–111). Similar points have been found on other terminal Late Archaic/Early Woodland sites like Pilgrim Spring, Truro (Moffett 1957:9, Plate 4, #41) and Baxter Neck, Barnstable (Cross and Shaw 1991:Figure 19D). The presence of this terminal Late Archaic/Early Woodland point in the plow zone is the clearest evidence of stratigraphic disturbance from Locus 1.

Buried A horizon. The buried A horizon also produced only one artifact, a non-diagnostic biface tip fashioned from weathered gray felsite.

B horizon. During the December 1990 fieldwork, one biface, three biface fragments and four cores were collected from the upper portion of the B horizon, or the "Interface" as it was then termed. The single projectile point is an isosceles triangle of grayish white quartz with slightly excurvate sides (Figure 23b). While points of this style were used for thousands of years on Cape Cod, this example fits best in the Small Triangle type (Johnson and Mahlstedt 1984:98–99) or Squibnocket Triangle type (Ritchie 1971:127). Even so, these points can represent a temporal range of 5,000–2,000 years ago. The three biface fragments are non-diagnostic and made from varying grades of gray felsite. The four cores represent the initial stages of reducing cobbles into bifaces (Figure 23c–f). They also demonstrate the diversity of lithic raw material available in the local glacial till. Two are of felsite (one gray, fine-grained and without phenocrysts; the other a light purple gray with phenocrysts). The third is a tan quartzite and the fourth white quartz. All four retain varying degrees of cortex, or original cobble surface.

Four additional bifaces were recovered from the lower portion of the B horizon, or the "Transitional" level, in December 1990. The first is a typical quartz small-stemmed point (#57469), perhaps the most commonly occurring projectile point on Cape Cod (Figure 23g). With a rounded, slightly thinned base, this point best fits the Small Stemmed III type (Johnson and Mahlstedt 1984:92–93) as well as Ritchie's Squibnocket Stemmed type (Ritchie 1971:126). Generally small-stemmed points are considered a Late Archaic form used 5,000–3,000 years ago. Recent research has suggested that this form continued to be used into the Early Woodland

Period as well (Mahstedt 1986:10). The second biface (#57482) is an ovate base of slightly translucent gray quartzite (Figure 23h). While this point base is not clearly diagnostic, it could easily fit within a terminal Late Archaic/Early Woodland context. The remaining two point bases indicate stronger evidence for Early Woodland occupation. Both points have weakly defined shoulders and tapering bases and fit well within the Rossville-like category (Johnson and Mahlstedt 1984:116–117). The first (#57481) is made of dark gray felsite with white phenocrysts (Figure 23i). Several similar examples were found in Early Woodland contexts at the Willowbend site in Mashpee (Shaw 1989:37–38, Figure 28b, c, e). The second (#57474) is made from a banded, platy volcanic rock of unknown origin (Figure 23j). This latter point was also unusually large, probably about 10 cm in length, when complete.

During the February 1991 fieldwork an additional biface, a biface fragment and a preform were recovered from the B horizon of Locus 1. This point (N113/E2), excavated at 99 cm below datum (cmbd), has weak, asymmetrical side notches and a slightly expanding base (#57467). Unlike the carefully made Rossville points, this example has an expedient feel and is made of a weathered tan felsite (Figure 24a). While this point does not fit neatly into existing typological categories, it is morphologically consistent with the Cape-stemmed tradition (Mahlstedt 1986:7–10). Moffett (1957:3, Plate 1, #32) illustrates a comparable, though better-made, example from the Warren's Field site in Truro. The biface fragment (N111/E2, 97.5 cmbd) is of tan quartzite (#57472). The preform (N108/E2, 101 cmbd) is a platy light gray quartzite similar to those found in the December excavation (Figure 24b).

C horizon. One final biface was recovered during the February 1991 fieldwork. Located in N109/E2 at a depth of 115–120 cmbd, this biface was the deepest artifact recovered at Locus 1. The point (#57623) is an untyped triangular form with excurvate sides and a roughly finished base (Figure 24c). Although Stillson described this point as made of chalcedony, it is a tan quartzite similar to that used to make other Locus 1 stone tools.

Ground Stone Artifacts

Only two ground stone artifacts were recovered from Locus 1. Both were found during the December 1990 fieldwork. The first is a piece of water-worn, banded red/brown slate found in the B horizon (#57976). The obverse side has a natural concavity, the edge of which has been notched with a series of six V-shaped grooves. These are set roughly 2 mm apart and are about 1 mm deep (Figure 23k). Stillson (1994) described this unusual object as a slate gorget and noted that it was found between two pottery concentrations (vessels #1, #2) at the northern end of Locus 1. Pottery finishing and decoration were more probable functions for this object. The size and shape of the teeth appear to match the dentate stamping on some of the Locus 1 ceramics (cf. Vessel #6, below). The second ground stone artifact is also a small piece of reddish slate (#57468). The central portion has been worn into a shallow concavity through use as a hone. It has also been scored by a series of lateral incisions (Figure 23l). Unfortunately, this artifact has no provenience other than Locus 1.

Ceramics

The ceramics from Locus 1 include eight concentrations of pottery, each probably representing an individual vessel, as well as a thin scatter of fragments across the excavated area (Appendix 4-Table 10). Six of the vessel lots were recovered during December 1990; the remaining two were excavated during February 1991. Although the ceramics found during the February excavations are less impressive than those recovered in December, their excavation provides valuable confirmation as to where pottery occurred in the stratigraphic sequence. All the ceramics appear to have been recovered from the B horizon. These ceramics demonstrate both consistency and variability in terms of temper, surface treatment

and decoration and suggest that this portion of the Carns site was occupied during both the Early Woodland (3,000–2,000 years ago) and Middle Woodland (2,000–1,000 years ago) periods.

Based on her analysis of the ceramics from the 1979–1981 survey of the Cape Cod National Seashore, Childs (1984a:185) concluded that aboriginal ceramics on the Cape were the product of an expedient technology. The Locus 1 pottery suggests a different point of view. Though stylistically simple, these vessels demonstrate considerable technical skill in production as well as precision in decoration. No evidence of pottery making was recovered from Locus 1.

Vessel lot #1 was recovered from the B horizon, or "Transitional" level, in December 1990. This appears to be one of the two "pottery concentrations" reported by Stillson. It contains 33 sherds weighing 257 g. All are gray in color and have coarse grit temper (#57590). Through cross-mending, it is possible to identify much of the vessel's shape and size. The vessel has a simple rounded lip, a straight neck and estimated dimensions of about 25 cm in height and 16 cm in diameter. The vessel is 4 mm thick at the lip and 7 mm thick at the lower end of the neck. Body sherds 7–8 mm thick suggest a vessel with straight sides and a conoidal base. Both exterior and interior surfaces were smoothed although many of the sherds are highly eroded. Carbonized residue occurs on the interior of several of the body sherds. A zone of decoration 3 cm high occurs 1.5 cm below the lip and is composed of three horizontal rows of shallow, oval punctations. These are approximately 1 cm x 0.5 cm in size and appear to have been made by fingertips (Figure 25a). No decoration is found on the vessel's interior.

Vessel lot #2 was also recovered in December 1990 from the fire pit where Kelso's pollen profile 9 was taken. This pit feature, which was capped by the buried A horizon and eolian sand, appears to be stratigraphically related to the B horizon (Kelso 1994:4, Figure 4). Vessel lot #2 appears to be the second of the two "pottery concentrations" reported by Stillson. It contains 20 sherds weighing 113 g. All are gray in color and have coarse grit temper. Though less complete than Vessel #1, this pot is remarkably similar in size, shape and decoration. It has a simple rounded lip, a straight neck at least 4.5 cm high and an estimated diameter of 16 cm (#57488). The vessel is 3–4 mm thick at the lip and 9 mm thick at the edge of the neck. Body sherds are 8–9 mm in thickness and suggest a vessel with straight sides and a conoidal base. Both exterior and interior surfaces were smoothed. As with Vessel #1 a zone of decoration 3 cm high and consisting of three rows of shallow, oval punctations occurs 1.5 cm below the lip (Figure 25b). The vessel's interior is undecorated.

These ceramics are described as two different vessels since each lot has a slightly different provenience. However, given their strong similarities as well as Stillson's (1994) observation that these concentrations were "less than a meter apart," it is possible that Vessel #1 and #2 actually represent different portions of the same pot. The overall shape, size and decoration of these vessels suggest a Ceramic Period 2/3 association with dates of 2,150–1,350 years ago (Petersen and Sanger 1991).

Vessel lot #3 was recovered during the December 1990 fieldwork and identified as "Locus 1, lump 1, cluster 1." Although represented by only two pieces, this vessel also bears a strong resemblance to vessels #1 and #2 and may, in fact, belong with them. Both sherds are gray in color, they have coarse grit temper and they weigh 34 g. The first piece is a rim/neck fragment with a trace of a simple rounded lip and straight neck at least 4.3 cm high (#57510). It is 8 mm thick at the lower edge. One row of shallow, oval punctations is visible on the badly eroded exterior surface. The interior is smooth and blackened with carbon residue. The second piece is a basal fragment 8 mm thick with smoothed exterior and interior surfaces (#57509).

Vessel lot #4 was recovered during the December

1990 fieldwork and identified as "Locus 1, cluster 7." This lot contains three sherds, all gray in color, with very coarse, large angular grit temper. They weigh 25 g. Two represent the vessel's rim and neck, which has a slightly everted lip, a straight neck at least 3 cm high and an estimated diameter of 20 cm (#57519). This portion of the vessel is 4 mm thick at the lip and 7 mm thick at the lower end of the neck. The exterior and interior surfaces are smoothed and undecorated, with the possible exception of a single incised horizontal line 2.4 cm below the lip (Figure 25c). Since the sherd is broken at this point, this incised line is difficult to interpret. The remaining sherd (#57520) is an unblackened body fragment, smoothed on both exterior and interior surfaces.

Vessel lot #5 was also recovered during the December 1990 fieldwork and identified as "Locus 1, cluster 7." This lot contains three sherds weighing 72 g and represents a different kind of vessel. These sherds have a light tan/gray color and medium-sized grit temper (#57518). These pieces are 1 cm thick, slightly globular and cross mend into a sizable section of the vessel's body. This suggests a more rounded vessel shape than vessels #1–#4. The exterior surface is heavily eroded but retains a small area with evidence of rocker dentate stamping (Figure 25d). The interior is smoothed and blackened by carbon. The overall shape, size and decoration of this vessel suggest a Ceramic Period 2/3 association with dates of 2,150–1,350 years ago (Petersen and Sanger 1991).

Vessel lot #6 was recovered during the December 1990 fieldwork and identified as from "N6/E3, TP19, cluster 3." This lot contains 29 sherds weighing 64 g and appears to represent yet another kind of ceramic vessel. All the sherds are characterized by a light tan/orange color and medium grit temper. Four small rim fragments indicate a plain, straight lip 4 mm thick. A single straight neck sherd 7 mm thick also shows the slight curvature where the vessel began to taper toward the base (#57521). Both the exterior and interior surfaces of this sherd are decorated with rows of large rocker dentate (Figure 25e). Two large body sherds 11 mm thick appear to represent the rounded base of the vessel. While both have smoothed exterior and interior surfaces, the exteriors are marked with fine rocker dentate (#57522). Moffett (1957:7, Plate 3, #33) illustrates a similar example from the Holden site in Truro. The remaining sherds in this lot are small, unmarked body fragments. The overall shape, size and decoration of this vessel suggest a Ceramic Period 2 association with dates of 2,150–1,650 years ago (Petersen and Sanger 1991).

Vessel lot #7 was recovered during the February 1991 excavations from N105/E2. It is represented by a single light tan/gray, grit-tempered sherd (#57499). This everted lip fragment is 5 mm thick and smoothed on the exterior and interior. It is undecorated. Found at about 95–100 cmbd, this piece was well within the B horizon (Figure 26a).

Vessel lot #8 was also recovered during the February 1991 excavations from N105/E3 at about 95–100 cmbd. This lot contains four body sherds of gray, coarse grit-tempered ware, all 6–7 mm thick (#57496). Although curved, these sherds suggest a large vessel with a conoidal rather than globular-shaped base. Both exterior and interior surfaces are eroded and appear to have been undecorated (Figure 26b). The pieces of this vessel are very similar in appearance and feel to those of Vessel lot #4.

Summary of Locus 1

Excavations at Locus 1 confirmed what the initial discovery suggested – that, contrary to expectations, a deeply buried, largely intact ground surface with Native features and artifacts existed in the middle of Coast Guard Beach.

Several factors combine to limit what can be learned about the dates and extent of the Native occupation at Locus 1. One was its precarious location. The excavation conditions for Locus 1 were difficult and occasionally little better than

a salvage procedure. Because of this, and because there were other areas of the site to examine, only a small amount of time was spent on Locus 1. While several diagnostic artifacts were recovered, most came from the December fieldwork, which was the least controlled. Finally, Locus 1 is difficult to interpret because it is only a fragment, a slice through a much larger site. To the east, whatever cultural components were there are now long gone. The No Name Storm destroyed not only what was left of Locus 1 but also its connection with Locus 2 and Locus 10 to the south and west. As a result, the relationship of Locus 1 to the other components of the Carns site remains mostly unknown.

Nonetheless, it is possible to reconstruct a broad outline of the historic and Native use of this area. The upper levels clearly postdate European settlement on the outer Cape. It is not possible to date precisely when dune sands covered the Carns site. Given the hints of revegetation, several episodes of deposition may have occurred. These deposits most likely reflect the extensive erosion that occurred on the outer Cape during the late 18th and early 19th centuries. Plow zone is also difficult to date with any accuracy. No Historic-period artifacts and only a few pre-contact ones were recovered. The evidence of shallow plowing is consistent with Colonial-period agricultural practices.

The buried A horizon with its rich organic soil appears to represent the last intensive use of this portion of the site by Native people. Stillson proposed that this buried ground surface dated from the Middle Woodland Period (2,000–1,000 years ago). While this attribution is probable, evidence to verify it is insufficient.

The B horizon is the most complex and interesting cultural level at Locus 1. This level, which is variable and often difficult to differentiate from the underlying subsoil, represents Native use of the area over many years. The artifacts from this stratum suggest occupations during the Early Woodland Period (3,000–2,000 years ago) and extending into the Middle Woodland as well. Unfortunately, it is not possible to separate these components horizontally or vertically. The oldest evidence of Native occupation comes from stone tools at the edge of or extending into the C horizon. The site yielded no evidence of any occupation older than terminal Late Archaic.

The archeological deposits represented at Locus 1 are not unusual on Cape Cod. Several sites have similar terminal Late Archaic/Early Woodland and Middle Woodland components. What is unusual about Locus 1 is that no shell middens or other later occupations occurred above, and mixed into, this basal layer. As a result, we can begin to see one of most complex periods in Cape Cod's aboriginal past with a bit more clarity.

LOCUS 2

Location

Locus 2 was located about 70 m south of Locus 1 at the spot where Dan Carns discovered the eroding fire pit (Feature 1A). Given its central location among Carns' collecting areas, project archeologists decided to establish the site's excavation grid at this point (Figure 27). Two episodes of fieldwork were conducted at Locus 2. The first occurred between 24 November and 24 December 1990. The second took place between 29 April and 24 May 1991. As described in Chapter 1, above, excavation goals focused on defining the site's integrity, boundaries and cultural components. Between these two episodes, a total of 87 square meters, or most of Locus 2, was excavated. As with Locus 1, whatever remained of Locus 2 was washed away by the No Name Storm of 1991.

A note should be added here on the conventions used in describing excavation units (EUs) within Locus 2. As indicated above, this is where the N0/E0 or central point of the site's excavation grid was located. This grid, comprised of 1-x-1 m squares,

was then labeled so that each EU had a unique designation depending on its location East–West and North–South from the center. Generally the convention is to designate an EU by its northeast corner. For example the EU directly north of the N0/E0 would be N1/E0; the unit directly to the west would be N0/W1. For whatever reason, the convention used in Locus 2 was different. Instead of using the northeast corner, EUs were designated by their southeast corner. Since this is how field records were kept, the references to EUs in this report follow that convention. Additionally, it should be noted that along the East–West axis of the grid, EUs were designated E or –E instead of East or West. Similarly, units were designated N or –N along the North–South axis. To minimize confusion, this report uses the traditional system of E/W and N/S in designating EUs (Figure 28).

Stratigraphy

Stillson (1994) describes the stratigraphy of Locus 2 as fundamentally similar to what was observed at Locus 1. This is borne out by a 5-m west wall profile (S3/W5 to N1/W5) drawn at the end of the 1990 field season (Figure 29). Stillson notes that the 1.5–2 m of overlying dune sands had been removed before the profile was drawn and that the ground surface rises from south to north across the site.

Stillson (1994) also describes this profile as "a good representation of the stratigraphic variability" at Locus 2. As at Locus 1, the dark brown historic plow zone, with occasional lens of sand, caps the older soil horizons. A layer of light-colored eolian sand lies beneath the plow zone and above the black, highly organic buried A horizon. To the north, however, the buried A horizon disappears leaving the eolian sand directly above the B horizon. Stillson interpreted this as evidence that plowing destroyed the buried A horizon in this area. In contrast, it is the eolian sand layer that is missing at the southern end of the profile; here the plow zone rests directly on the buried A horizon. Beneath the buried A horizon, the dark grayish brown B horizon is present across the profile. Beneath this stratum is the yellowish brown subsoil or C horizon.

A second profile drawn on 21 December 1990 provides a complementary right-angle view of the stratigraphy near the center of Locus 2. This 3-m profile depicts the south wall of quads 2 and 3 in EU S1/W3 to S1/W5 (Figure 30). Here too, the buried A horizon is of variable thickness as is the B horizon beneath it. The sloping of the original ground surface to the west is notable as is the presence of features below the B horizon.

Palynologist Gerald Kelso also recorded two stratigraphic profiles during his sampling of Locus 2 for pollen. The first depicts the south wall of S1/W4 and S1/W5, basically a truncated version of the profile described above (Kelso 2000:Figure 6).

Kelso's second profile shows the west wall of N8/W4 near the northern edge of the excavation. This is the location of his Pollen Profile 2. Here the eolian sand layer is absent, replaced by what Kelso (2000:Figure 3) describes as a "very dark grayish brown humic layer" above the clearly present buried A horizon, which Kelso interprets as the result of slope wash off higher ground to the east, now lost to the ocean. Stillson (1994, chap.3:9), too, suggests that, at least in the area around Feature 1A, the level interpreted as historic plow zone "may actually be slopewash."

Features

Stillson reports that thirty-nine features were encountered during the 1990 field season with an additional twenty-two recorded the following spring. However, many of these features appear to have been ephemeral and are described with terms such as "shallow stains" and "possible post molds" (Appendix 2). This report concentrates on the one discrete feature and the three clusters of features that appear to contain the most significant information about Locus 2.

Feature 1A

Feature 1A was the "fire pit" Dan Carns found eroding out of the marine scarp on 23 November 1990. Although not mapped precisely, this feature would have been located in EU N4/W2. Stillson describes this feature as a "heating pit/hearth." Field drawings indicate an oval, basin-shaped pit approximately 0.6 m in length, 0.4 m wide, and 0.2 m deep. He also notes that the feature had not been truncated by historic plowing. The feature was lined with fire-cracked rock and contained a large amount of charcoal, some of which was identified as oak (*Quercus* sp.) by Lucinda McWeeney. A sample of charcoal submitted for C-14 dating returned a date of 2000±80 B.P. (Appendix 1-Table 1:sample 1). Notes from lab processing of the soil indicate that nut fragments were also present. No artifacts were associated with this feature.

Although Feature 1A did not contain any diagnostic artifacts, the 2000±80 B.P. date provides evidence that Native people used this portion of the Carns site during the transition between what archeologists have termed the Early Woodland and Middle Woodland periods.

The Feature D-18 Cluster

This group of features was located near the northern edge of Locus 2 (Figure 28). Since Feature D-18 either overlay or was spatially related to six other smaller features, all seven will be discussed as a cluster (Figure 31).

Feature D-18

Feature D-18 extended across portions of four EUs. Stillson describes D-18 as a "large burnt rock platform." While specific dimensions are not available, this feature appears to have been roughly 0.7–0.8 m across and oval in shape (Figure 32). It seems to have been a single layer of fire-cracked rock approximately 10 cm deep. Stillson describes this feature as "intact beneath the plowzone." Excavation records, which note the presence of a black organic level 1–2 cm thick above the cobbles, confirm this observation.

C-14 Dates and Other Analyses

Several specimens of plant remains were recovered and analyzed from this feature. Within the feature (between the rocks), Largy (1995:18–20) identified several species including charcoal of oak (*Quercus* sp.) and hickory (*Carya* sp.) as well as evidence of bayberry (*Myrica* sp.) and possible stems of grass (*Gramineae*). She also identified additional examples of oak, hickory and beech (*Fagus grandifolia*) charcoal as well as fragments of 18 hickory nutshells, three bayberry seeds and possible grass stems from beneath the rocks to a depth of 10 cm in EUs N4/W4 and N4/W5. These botanical remains usually occurred in small quantities, often <0.1 g.

Kelso's (2000) analysis of the pollen he collected from beneath a large rock inside the northeast edge of the feature complements Largy's description of macrofossils from D-18. Beech (*Fagus grandifolia*) dominated the pollen spectrum of this sample. Oak and pine (*Pinus* sp.) were also present but in much smaller quantities. A single grain of hickory was observed as well.

A charcoal sample from just beneath the rocks in EU N4/W5 was submitted to the National Ocean Sciences Accelerator Mass Spectrometry Facility (NOSAMS), at the Woods Hole Oceanographic Institution, Woods Hole, MA for radiocarbon dating and returned a date of 1670 ± 35 B.P. (Appendix 1-Table 1:sample 101).

Material Culture

The field records indicate that little material culture was recovered in association with this feature. Only occasional flakes, mostly quartzite, and a few small pieces of pottery are reported in the notes. Examination of the artifacts confirms that this feature contained little in terms of lithic or ceramic

artifacts. Nonetheless, those recovered provide additional important information about this feature.

Flaked Stone Artifacts

Only one lithic artifact was recovered from Feature D-18. The base of a gray quartzite biface (#57999) was found below the rocks in N4/W4 (Figure 33a). Although not diagnostic, this large lanceolate preform could fit within the Fox Creek tradition.

Ceramics

Vessel lot #9. Only three fragments of pottery were found, possibly from the same vessel. All are small body sherds with medium grit temper and no evidence of carbonization on the interior. Two were recovered from N4/W4, both of which have smooth exteriors and interiors and are a light to medium brown. The first sherd (#57616), which is 1 cm thick, displays virtually no curvature and has faint (smoothed over?) fabric impressions on the exterior. The second (#57614) is 7 mm thick, shows a slight angled curvature and has fine rocker stamping on the exterior (Figure 33b, c). While it is difficult to date this vessel lot from such a small sample, both the presence of fine linear rocker stamping and hints of vessel shape suggest a Ceramic Period 3 association with dates of 1,650–1,350 years ago (Petersen and Sanger 1991). The similarity between this vessel and Vessel #6 from Locus 1 should also be noted.

One additional small sherd (#57615) was recovered from N5/W5. It is 5 mm thick, dark gray in color and undecorated.

Summary of Feature D-18

With a date of 1670±35 B.P. and associated artifacts including rocker-stamped pottery and a possible Fox Creek-related biface, Feature D-18 provides evidence that this portion of the Carns site was used during the early part of the Middle Woodland Period. The attributes of the feature itself, plus the charcoal and hickory nutshells, suggest that it was a roasting platform used for food preparation.

Feature D-17

This feature, situated in EU N3/W5, quad 2, was located just south of D-18. It has been identified as a post mold. No additional description of the feature is available and no materials were recovered.

Feature D-19

This feature, excavated in EU N4/W5, quad 1, was also identified as a post mold. It was located beneath the stones of Feature D-18. Largy (1995:20) recovered beech and oak charcoal from the soil immediately around Feature D-19 but found nothing identifiable in the feature fill. No further description of the feature is available.

Feature D-20

This feature, found in EU N4/W5, quad 1, was also identified as a post mold. It too was located beneath the stones of Feature D-18. As with D-19, Largy extracted oak and other hardwood charcoal, as well as a bayberry seed, in the soil immediately around D-20 but found nothing identifiable in the feature fill (Largy 1995:20). No additional description of the feature is available.

Feature D-21

This feature, situated in EU N5/W4, quad 3, was identified as a possible post mold. It was located at the northern edge of Feature D-18. Field notes describe this feature as circular, 7 cm in diameter and tapering to a point. The feature fill was dark brown to black. Two small stones were set along one side, perhaps to stabilize the post. The notes also indicate that this feature was almost identical to D-20. Largy (1995:20) analyzed soil samples from this feature but found no identifiable remains.

Feature D-22

This feature, found in EU N5/W4, quad 4, was identified as a possible post mold. Field notes indicate that this feature, unlike D-19 and D-20,

began in the black organic soil above Feature D-18 and intruded into the cobble feature, below. Several flakes were recovered here.

Feature D-23

This feature, excavated in EU N5/W5, quad 3, was identified as a post mold. It was located near the northwest edge of Feature D-18. Field notes describe this feature as roughly circular, 18 cm in diameter and straight-sided rather than tapered. The feature fill was described as dark brown but less dark than that of the other post molds. No artifacts or charcoal were recovered from the fill.

Material Culture (Non-Feature Related)

Very few diagnostic artifacts were recovered in the EUs adjacent to the D-18 cluster. To the west of D-18 in EU N5/W6, quad 1, a Lagoon point of white quartz (#57982) and an incomplete Fox Creek-like biface of gray felsite (#57994) were excavated just below the plow zone (Figure 33d and 33e).

Summary of the D-18 Cluster

With a date of 1670±35 B.P. along with rocker-stamped pottery and a possible Fox Creek biface, the Feature D-18 represents an early Middle Woodland Period use of the area. The presence of hickory nutshells and evidence for a mixed hardwood forest suggest that nut collection and processing were activities associated with this feature.

Evidence of earlier and later use is also present. The Lagoon point, and possibly the post molds beneath D-18, suggest an Early Woodland presence. The intrusive feature D-22 indicates that the area was used at some later point in time.

The Feature D-13 Cluster

This cluster, along with the adjacent Feature D-25 cluster, comprised the most complex portion of Locus 2. Many features occurred in close proximity and several were found early in the excavation when recording procedures had not been completely worked out. The use of – N and – E, instead of S and W, exacerbated these problems in designating EUs. Too often, the minus sign was lost when records were transcribed resulting in confusion as to which EU artifacts were from. To the extent possible, the features and artifacts recovered from each EU have been verified against the field notes, artifact catalog and excavation plan. Discrepancies are noted as each EU is discussed. This group of seven features extended across six EUs along the western edge of Locus 2 (Figure 28). Because of the density of features and artifacts, this cluster will be described by EU, quad and level where appropriate, rather than in the summary manner used above for the D-18 cluster. Figure 34 provides a more detailed (and corrected) plan of these units.

EU N0/W5

After the overlying dune sand and plow zone had been shoveled off, excavation proceeded in arbitrary 5-cm levels. The stratigraphy in this EU appears to have been as follows:
Level 1 (30–35 cmbd) contained the black greasy soil of the buried A horizon.
Level 2 (35–40 cmbd) saw the end of the buried A horizon and a transition to the mottled black and brown soils with lens of tan sand that characterized the B horizon.
Level 3 (40–45 cmbd) and *Level 4* (45–50 cmbd) were a continuation of the mottled soils of the B horizon.
Level 5 (50–55 cmbd) showed a shift to a dark brown soil.
Level 6 (55–60 cmbd) was a continuation of the dark brown soil that then changed to a lighter brown/yellow soil increasingly mixed with sand.
Level 7 (60–65 cmbd) was the yellow/tan sand of the glacial subsoil or C horizon.

In this unit, as well as in several other EUs, excavation continued further into the subsoil.

Quad 1. Several important bifaces were recovered from this portion of the unit. In level 5, a fragmentary Rossville point (#58075) of gray felsite was recovered along with many flakes (Figure 35a). In level 6, three bifaces were found, again with much associated debitage. These bifaces included a scraper of gray quartzite (#57983), a possible Fox Creek lanceolate biface (#58051) fragment of gray quartzite, and a small untyped corner-notched point (#58021) of gray felsite (Figure 35b–d). This last biface is similar to examples that William Ritchie found at the Pratt site on Martha's Vineyard. Ritchie's points were associated with Vinette 1 pottery and a C-14 date of 2470±120 B.P. (Ritchie 1969:76–77). Similar untyped Early Woodland points are also discussed by Fiedel (2001:108–109). The presence of these three points in the same level suggests that mixing may have occurred between Early and Middle Woodland deposits.

Quad 2. Feature D-13 was located in quads 2 and 3 of this EU according to the field notes and feature log, yet it was mapped only in S1/W5, quad 3 (Figure 27). Although drawn on the excavation plan as a circular feature, D-13 is described in the feature log as a "dark brown stain, possible pit feature, more flakes than soil." This corresponds with the field notes that indicate a diffuse rather than a discrete feature that may have extended into the adjacent unit N0/W4. This possibility is discussed further under the D-25 cluster, below.

In general the stratigraphy of this quad was similar to that described above. While more flakes and fire-cracked rock occurred in this unit, only a few artifacts were found. From level 4, the artifact catalog lists an ovate biface (#58056) of translucent quartz, but it is not mentioned in the field notes (Figure 35e). A biface tip was also reported from level 6. Field notes indicate that the frequency of flakes dropped off noticeably in level 6 although a few flakes were recovered from levels 7 and 8.

Quad 3. This quad was the second of the Feature D-13 EUs. Excavation records indicate considerable flaking debris in levels 3–5 along with some fire-cracked rock. Level 6 was described as very dark brown soil. A quartz biface was recovered at 59 cmbd. (This biface may be #58056 listed above under quad 2, level 4). Although the artifact assemblage is meager, Largy (1995) identified important faunal and floral remains from this quad. These include a small amount of calcined mammal bone, which is unidentifiable as to species, and a fragment of sturgeon scute (*Acipenser* sp.) from level 6. Largy also identified charcoal from hardwood species including red and white oak (*Quercus rubra*, *Q. alba*) and hickory (*Carya* sp.) as well as unidentified conifer. Two hickory nutshell fragments were also recovered. A sample of oak and hickory charcoal from level 8 was submitted to NOSAMS for radiocarbon dating and returned a date of 850±80 B.P. (Appendix 1-Table 1:sample 107).

Quad 4. Much less material was recovered from this quad. The artifact catalog lists two bifaces from level 5. The first is a preform (#58003) of dark gray felsite. The second is the base of a probable Greene point (#58052) of light gray felsite (Figure 35f, g).

Summary of Feature D-13

This feature was most evident in quads 2 and 3 where it extended to a depth of at least 60 cmbd with flakes and charcoal occurring for another 10 cm. The date of 850±80 B.P. came from the deepest level of quad 3. These data suggest that Feature D-13 dates from the Late Woodland Period and that artifacts from earlier occupations were mixed in with the feature fill. While the feature contained a considerable amount of debitage (Appendix 5-Table 11), few diagnostic lithics and no pottery were recovered. The Early and Middle Woodland bifaces from this EU were found in quads 1 and 4 and do not appear to be directly associated. It is also unclear how much of the debitage recovered from this feature relates to Late Woodland use as opposed to earlier occupations. Indeed the overall function of this feature remains uncertain.

EU N1/W5

Although located immediately north of N0/W5, this unit had an entirely different character. While the stratigraphy was basically the same, very few artifacts seem to have been recovered. The issue of what materials were found in this unit is complicated by the N/–N problem. After reviewing EU records, most of the artifacts cataloged as retrieved from this unit appear to be from S1/W5. One possible exception is a fragmentary biface (#58043) of gray quartzite from quad 3, level 2.

Three features, Features 27, 28a and 28b, were recorded for quads 3 and 4 of this unit. All are listed in the feature log as possible post molds but were dismissed in field notes as non-cultural. None had associated artifacts.

EU N2/W5

This unit continued the trend toward a low density of cultural material. Only three bifaces were recovered from the entire unit. From quad 1, a small, battered ovate biface (#57987) of gray quartzite was found in the buried A horizon. From quad 3, a gray felsite biface fragment reworked into a perforator (#58080) was recovered from 66 cmbd. From quad 4, an ovate biface (#58004) of gray quartzite, possibly a knife, was found at 47 cmbd (Figure 36a–c). No features were reported in this EU.

EU N1/W4

Once again, this unit had very few artifacts and no features. The only materials reported came from quad 1. These included a biface tip (#58081) of gray quartzite from level 3 and part of a large grooved hone and shaft straightener (#57979). The matching piece to this latter artifact was recovered in EU N0/W6 and is discussed further below.

EU N0/W6

In contrast to the sparse evidence from EUs north of Feature D-13, those to the west and south had a comparable density of features and artifacts. Field notes indicate that the stratigraphy, though similar to N0/W5, began deeper. In addition, excavation in this unit appears to have followed natural rather than arbitrary 5-cm levels. The sequence, as recorded in quad 3, is as follows. The buried A horizon ended at 49 cmbd. Beneath this level, the mottled black and brown soil of the B horizon continued to 56–57 cmbd. Between 57–60 cmbd, the brown soil was mottled with yellow sand. At 60–64 cmbd, light yellow/brown sand mottled with gray occurred. By 65 cmbd, the excavator noted "we are in light yellow/brown subsoil" with "many worm holes" and other evidence of bioturbation. Below this was the yellow/brown sand of the C horizon. Debitage and fire-cracked rock from this EU are summarized in Appendix 5 (Table 13).

Quad 1. Only one artifact was reported from this quad. This is the piece that has been cross-mended to the grooved hone and shaft straightener found in N1/W4. This larger fragment (#57980) was found at 62.5 cmbd. Made from dark gray slate, this object has evidence of sharpening facets on both sides and a deeply abraded groove on the obverse (Figure 37a).

Quad 2. Feature 37 was reported as a "deep stain between 58–64 cmbd." Charcoal and flakes were recovered. The excavator's notes indicate some doubt as to whether this was truly a cultural feature since the "soil was not different in texture or content from unit around it." While no artifacts appear to have been directly associated, three bifaces, all of brown quartzite, were recovered from this level in the quad. They included an amorphous fragment (#58503) found at 58 cmbd, a biface tip (#58078) from 58.5 cmbd, and a fragmentary or incomplete piece (#57993) from 61–62 cmbd (Figure 37c–e).

Quad 3. In addition to providing the stratigraphic description for this EU, quad 3 also produced important artifacts. From the brown soil mottled with yellow sand (57–60 cmbd) several large quartzite flakes were recovered. Some of these appear to have been utilized. Two artifacts were

recovered from the light yellow/brown sand mottled with gray: a large Lagoon point (#57997) of brown quartzite at 62 cmbd, and a small scored and striated slate whetstone (#57992) at 63 cmbd (Figure 37f–37g). Feature 46 was reported from quad 3. It was discovered at 71 cmbd and excavated to 103 cmbd. Although identified in the feature log as a post mold, the angled orientation and irregular shape suggest that it was an animal burrow or root mold rather than a cultural feature.

Quad 4. No artifacts or features were reported.

EU S1/W6

Like N0/W6, this EU was located on the western edge of Locus 2. Here the original land surface sloped down slightly to the west. As a result the stratigraphic sequence begins deeper than in the EUs to the east. Though only a few artifacts were recovered from this unit, their stratigraphic associations are significant.

Quad 1. A Greene point of brown quartzite (#58002) was recovered from the greasy black silt of the buried A horizon at 58 cmbd (Figure 38a). Feature 40 was located below this artifact, in the dark brown soil of the B horizon. Feature 40 consisted of a scatter of fire-cracked rock at 62–63 cmbd. Directly associated with this feature was a Lagoon point (#58068) of coarse gray felsite (Figure 38b). Field notes indicate that some debitage was also found in this level, which continued to 68–69 cmbd. Beneath this lens was the yellow/brown sand of the C horizon.

Quads 2 and 3. No artifacts or features were reported.

Quad 4. Two samples of hickory charcoal were collected in this quad, one from the top of the buried A horizon, 52–53 cmbd (NPS #102), the other from near its base (NPS #103). These were submitted to NOSAMS for radiocarbon dating and returned dates of 1400±35 B.P. and 1490±35 B.P., respectively (Appendix 1-Table 1:samples 102, 103). An untyped biface (#57986) was also recovered from the upper portion of the B horizon at 58 cmbd (Figure 38c).

Summary of the D-13 Cluster

Several time periods are represented in D-13 cluster EUs. Evidence for an Early Woodland component includes the presence of several Lagoon points, a related assemblage of hones and perforators, and a hearth (Feature 40) at about 60–65 cmbd in N2/W5, N0/W6 and S1/W6. The presence of a Greene point in the buried A horizon of S1/W6 suggests a Middle Woodland component, as do associated dates of 1400 B.P. and 1490 B.P. for that level. Finally, the date of 850 B.P. for Feature D-13 indicates Late Woodland use of this area.

Stone tool making certainly occurred in this area, although it is unclear as to what time periods are represented by the large quantity of debitage, especially around Feature D-13. No ceramics were recovered from this set of EUs.

The Feature D-25 Cluster

This group of eight features was located across five EUs near the center of Locus 2 (Figure 27). Here again, these features and artifacts are discussed in terms of EU, quad and level. An updated plan of these units is provided in Figure 39.

EU S2/W5

This unit was the southernmost EU of the cluster. While the stratigraphy is not as clear as in adjacent units, it appears to follow the same basic sequence. One should also remember that the original ground surfaces sloped down to the south making comparable stratigraphic levels in this unit deeper than those to the north. Debitage and fire-cracked rock from this EU are summarized in Appendix 5 (Table 15).

Quad 1. Two features were reported in this quad. Feature 38 is described as a shallow stain about

20 cm across and located near the bottom of the B horizon at 65–70 cmbd. It consisted of black silty soil and contained one large quartz biface as well as some fire-cracked rock. Feature 41 is described as a post mold located in quad 4, although Stillson maps it in quad 1. Field notes indicate that this feature was located on the line between the quads. The post mold was 7 cm in diameter and extended to 87 cmbd. It is unclear at what depth this feature was first evident. No artifacts were associated with this feature or reported from the remainder of the quad.

Quad 2. In contrast to quad 1, several artifacts were recovered from this quad. All appear to be from the B horizon. Although the level is specified for each, the accompanying soil descriptions and depths are not. In level 3, the base of a quartzite Fox Creek point (#58010) and a piece of pottery (#57620) were recovered. The biface is unusually thin and very finely flaked (Figure 40a). The pottery is also unusual. It is a small mixed temper (shell and grit) body sherd with incised lines on a smooth exterior surface. This ware is designated as Vessel lot #10 (Figure 40b). From level 4, a fragmentary biface (#58047) of coarse dark gray quartzite and another small biface base (#58074), possibly a Greene point, of gray felsite were found (Figure 40c–d).

Quad 3. Three lithics were reported from level 4, including a fragmentary biface (#58039) of gray quartzite, a large preform (#58037) of coarse dark gray felsite and a fragmentary finished biface (#58040) of gray felsite (Figure 40e–g).

Quad 4. Two lithic artifacts were reported from level 4. One was a Lagoon point (#57996) of gray quartzite. The second was an untyped stemmed point of gray quartzite reworked into a drill (#58014) (Figure 40h–i). Stillson (1994, chap.3:13–14) identified this latter piece as a Kirk stemmed point and considered it evidence for an Early to Middle Archaic component at the site. Given its stratigraphic association with a Lagoon point, the artifact is more likely an Early Woodland tool. Similar stemmed points occur elsewhere in Locus 2 also in association with Lagoon points, for example, #58021 from level 6, quad 1 in EU N0/W5 (Figure 35d). Comparable examples of Early Woodland points reworked into drills are also known from other Cape Cod sites, including Warren's Field in Truro (Moffett 1957: Plate 1, #42) and the Willowbend site in Mashpee (Shaw 1989:Figure 28j).

EU S1/W5

This EU and the two that follow form another dense concentration of features and artifacts. As with the adjacent units, both the dune sand and plow zone were first shoveled off, then excavation proceeded in arbitrary 5-cm levels. Debitage and fire-cracked rock from this EU are summarized in Appendix 5 (Table 14).

Quad 1. The stratigraphy is not well documented for this quad. Descriptions are limited and depths were not systematically recorded. Nonetheless, the available information provides some indication of what occurred outside of Feature D-25. A large triangular biface (#58069) of platy, fine-grained felsite was recovered from the "Interface"—a term that usually refers to the transition between the buried A horizon and the B horizon. Level 3 produced a biface tip (#58028) of dark gray felsite. A single piece of grit-tempered pottery decorated with scallop shell impressions was recovered from level 4. This is the first example of Vessel lot #11, a defining trait of the D-25 cluster. This ware is discussed in greater detail under EU N0/W4 below. Finally a biface tip (#58026) of gray quartzite is reported from level 7 (Figure 41a–d).

Quad 2. S1/W5 is the first of the Feature D-25 EUs. As with Feature D-13, some confusion surrounds Feature D-25. Stillson describes it as a "large pit feature" (Appendix 2) and has mapped it as a discrete, oval feature in N0/W4, quads 1 and 4, and S1/W4, quads 2 and 3 (Figure 27). However, the field notes indicate that D-25 was located in quads 2 and 3 of units S1/W5 and S1/W4 and also

suggest that the feature boundaries were not clearly evident. This quad appears to have contained a significant portion of the feature. Fortunately, a better description of the stratigraphy exists.

Level 1 (to 50 cmbd) appears to be the buried A horizon. Field notes indicate flaking debris. An untyped lanceolate biface (#57998) may have come from this level as well.
Level 2 (to 55 cmbd) included the "Interface" (with the B horizon) although the depth was not specified. Considerable debitage was present.
Level 3 (to 60 cmbd) appears to be the B horizon although it is not described. Again, many flakes were recovered along with the base of a Greene point (#58109) made from brown quartzite (Figure 41e).
Level 4 (to 64 cmbd) is described as dark brown/black soil mottled with gray ash and tan sand. A large amount of debitage was recovered along with five incomplete or broken bifaces (#58001, 58008, 58013, 58076, 57989). Of these, one (#58008) appears to be an ovate knife and the second (#58013) a reworked Fox Creek lanceolate point (Figure 41f–g). One sherd of scallop shell decorated pottery (#57587) from Vessel lot #11 was also found in this level (Figure 41h).
Level 5 (to 67 cmbd), or the "pit stain" (the dark brown/black soil mottled with gray ash and tan sand described for level 4), ended at 67 cmbd according to field notes. A few flakes were recovered from this level along with another reworked Fox Creek biface (#58012) (Figure 41i).
Level 6 (to 75 cmbd) yielded a few flakes, though field notes indicate that this level was definitely in the C horizon.

Quad 3. The stratigraphy in this quad appears to have been very similar to that of quad 2 although Feature D-25 seemed less apparent and fewer artifacts were recovered.

Level 2 (to 55 cmbd) is described in field notes as the "black layer" with many flakes present.
Level 3 (to 60 cmbd) also contained many flakes as well as fire-cracked rock and several bifaces, including an ovate biface (#58030), the base of a Greene point (#58066) and two other fragmentary or incomplete bifaces (#58064, 58065) (Figure 42a–d). No other artifacts were reported from deeper levels in this quad.

Quad 4. As in quad 1, the stratigraphy was not well documented. As in quad 3, only three levels were present. Level 1 produced a fragmentary ovate biface (#57990) (Figure 42e). A quartzite preform (#58054) is listed in the catalog from the "Interface" but is not mentioned in field notes. Four other bifaces were recovered from level 3. These included a Fox Creek point (#58135) of maroon felsite, a biface tip (#58077) of brown quartzite, a preform (#58006) of gray quartzite and a fragmentary ovate biface (#58007) of gray quartzite (Figure 42f–i).

Kelso (1994:15) reports the recovery of two pollen grains attributable to maize and a third fragmentary example from beneath an expended lithic core in this quad. Unfortunately the stratigraphic context of these specimens is not clear.

EU S1/W4

This EU is the second of the Feature D-25 EUs. Although some inconsistencies exist in how levels were assigned, the stratigraphy of this unit appears to be very similar to that in S1/W5.

Quad 1. Field notes for this quad, though meager, are important as they describe the stratigraphy outside of Feature D-25.

Level 3 (46–51 cmbd) was characterized as black greasy soil, the usual description of the buried A horizon. No artifacts were reported.
Level 4 (to 56 cmbd) is described as black silt grading into mottled dark brown sand. A Lagoon point (#57984) of gray quartzite was excavated at 54 cmbd in this level (Figure 43a).
Level 5 (to 61 cmbd) consisted of coarse brown sand mottled with lighter brown. Feature 1C, which was a basin-shaped pit about 30 cm in diameter

and 10 cm deep with rocks lining the base and southern edge, occurred at this level. No associated artifacts were reported.
Level 6 (to 66 cmbd) is described as yellow brown sand and probably represents the glacial subsoil.

Quad 2. This quad probably included the largest component of feature D-25.

Level 2 (to 48 cmbd) was the buried A horizon. One piece of scallop shell decoration pottery (#57546) from Vessel lot #11 was recovered (Figure 43b).
Level 3 (to 52 cmbd) is described as the "Interface," or B horizon. One biface tip (#58035) was recovered along with four pieces of pottery. Three of these are scallop shell decorated sherds (#57454, 57544, 57584) from Vessel lot #11 (Figure 43c–d). The fourth piece (#57562) was from a very different kind of vessel. It is a small undecorated piece of thin (3–4mm) pottery with a fine gray paste and shell temper. Both exterior and interior surfaces have a smooth finish (Figure 43e). This ware is designated as Vessel lot #12. Although the sample is small, it is most similar to vessels with Ceramic Period 5/6 associations and a date range of 950–400 B.P. (Petersen and Sanger 1991). Coincidentally, a charcoal sample recovered from this level was submitted to Beta Analytic Inc. for C-14 dating and returned a date of 920±100 B.P. (Appendix 1-Table 1:sample 2), which seems to corroborate this interpretation.
Level 4 (to 56 cmbd), according to field notes, had reddened soil filled with fire-cracked rock at 55–56 cmbd. A preform fragment (#58024) of gray felsite and a rim section (#57544) of Vessel lot #11 were recovered from this level (Figure 43f–g).
Level 5 (to 61–62 cmbd) is not described but contained flakes as well as two Lagoon points, both made of gray quartzite. One point (#57995) was recovered at 58 cmbd, the second (#58067) at 59 cmbd (Figure 43h–i). In addition to artifacts, Largy (1995:21–22) identified significant flora and fauna from this quad at 55–67 cmbd, including oak, hickory and a smaller amount of conifer charcoal, ten hickory nutshell fragments, one bayberry seed, three fragments of turtle shell, and four pieces of mammalian bone. Kelso's (1994) analysis of pollen samples taken from this feature also confirms the presence of an oak-hickory forest.

Quad 3. Field notes for this quad are sketchy but provide some additional description of the features encountered. They also indicate that fewer artifacts were recovered.

Level 3 (to 56 cmbd) yielded one large triangular biface, as reported in the notes, along with several pieces of pottery. The artifact catalog lists three sherds (#57583, 57584, 57585) of Vessel lot #11. One example is illustrated in Figure 43j.
Level 4 (57–61 cmbd) soil is characterized as orange gravelly sand. Two features are noted. Feature D-25 is described as a bowl-shaped dark stain extending west into S1/W5, quad 2. Black soil was mixed with gray ash and it contained many fire-cracked rocks and flakes. No associated artifacts were reported from this level. Feature D-24 is interpreted as a post mold about 6 cm in diameter and located on the eastern edge of the quad. No associated artifacts were recovered although charcoal was present in the fill.
Level 5 (to 75 cmbd) was the glacial subsoil although Largy reports traces of charcoal at this depth.

Quad 4. Only two artifacts were reported from this quad, both from level 3. These included a fragmentary ovate biface (#58034) of gray quartzite that is possibly a knife and one piece of scallop shell decorated pottery (#57554) from Vessel lot #11 (Figure 43k–l).

Summary of Feature D-25

This feature was most clearly evident in quads 2 and 3 of S1/W4 and quad 2 of S1/W5. It appears to have extended to a depth of 67 cmbd with charcoal occurring for another 10 cm into the subsoil. Stillson (1994, chap.1:4, 1994, chap.3:21) describes it as "a refuse pit…cut through the thick black anthrosol" and containing a mixture of

grit-tempered pottery, fire-cracked rock and debitage. A closer analysis of the artifacts recovered from these two EUs supports this conclusion and provides additional information on the cultural levels represented. While most of the bifaces recovered from these two EUs were centered around D-25, few were directly associated with the feature.

The presence of Lagoon points in the deepest levels along with features such as 1C and D-24 suggests an Early Woodland presence. Evidence is also strong for a Middle Woodland occupation. Scallop shell decorated pottery is broadly distributed across these two EUs, most often at about 50–55 cmbd, and often in association with Greene points or other Middle Woodland diagnostics. Finally, the piece of shell-tempered pottery with associated date of 920 B.P. date confirms Stillson's view that this was an intrusive feature made during the Late Woodland Period. The presence of charcoal, charred nut shells, calcined bone and fire-cracked rock suggests that this feature was a hearth used for food preparation. However, the activities that created this feature also resulted in considerable mixing with earlier components and make it difficult to assign the associated flora and fauna to a specific cultural and/or temporal horizon.

EU N0/W4

Good descriptions of stratigraphy exist for this EU although the labeling convention for levels seems different from that used in other units.

Level 4 (30–35 cmbd) was characterized by the black greasy textured silty soil of the buried A horizon.
Level 5 (36–41 cmbd) marked the transition to the B horizon where the black greasy soil was mottled with dark brown and yellow sand.
Level 6 (42–46 cmbd) contained a layer of very black soil mottled with ash.
Level 7 (47–51 cmbd) had a dark brown silty sand with charcoal flakes and abundant pottery.
Level 8 (52–56 cmbd) was characterized by the orange brown sand of the glacial subsoil.

The debitage and fire-cracked rock from this EU are summarized in Appendix 5 (Table 16).

This EU, located just to the north of S1/W4, contained the largest amount of pottery recovered from Locus 2 (112 sherds weighing 362.5 g). Most sherds appear to belong to the same vessel, or very similar examples. A generally coarse grit temper and a sandy surface texture characterize Vessel lot #11. Through cross mending it is possible to identify much of the vessel's shape and size. The vessel has an everted, slightly tapered lip and incipient collar. The top of the lip is somewhat flattened and 4 mm thick while the base of the collar, 2 cm below the lip, is 6–7 mm thick. This base was formed by a deeply impressed series of scallop shell indentations (Figure 44). Below this neck the vessel flares out and thickens. Body sherds are 7–9 mm thick and suggest a globular-shaped vessel of some size. This pot was a large vessel with an estimated diameter of 26 cm and height of 30–35 cm. Both the exterior and interior surfaces were smoothed. Carbonization was evident on the interior of body sherds from the lower half of the vessel. The most striking decoration on this vessel is a zone of scallop shell impressed lines and triangles extending about 5 cm below the collar base across the shoulder and upper portion of the body (Figure 44a). These impressions were made with a large Atlantic bay scallop (*Aequipecten irradians*) shell. The interior of the vessel is undecorated.

Several examples of this ceramic style have been reported from other Cape Cod sites. Childs (1984a:188–189) notes that scallop shells were used to make wide undulating lines on Middle Woodland pots and that more than one technique was often used on a vessel. Moffett (1957: Plate 6, #6) illustrated a small scallop shell impressed rim from the "Late Woodland 1" Swamp site. Ritchie (1969:104, Plate 31 #6,7, 9) also recovered similar examples from stratum 2 at the Cunningham site on Martha's Vineyard. The overall shape, size

and decoration of the vessel suggest a Ceramic Period 4 association with dates in the range of 1,350 to 950 years ago (Petersen and Sanger 1991).

Quad 1. This quad had the greatest concentration of Vessel lot #11 (80 sherds weighing 251 g). One sherd (#57542) was recovered from level 6. Level 7 contained a large concentration of pottery — fifteen large and many small pieces of this ware including two rim sherds (#57533, 57534) (Figure 44b–c). Level 8 produced two additional undecorated body sherds (#57540, 57543) as well as a broken Lagoon point (#58027) of tan quartzite (Figure 44d). Whether this point and the ceramics were directly associated or occurred together as a result of mixing with an earlier occupation is unclear. Feature D-10 occurred in this quad. It was described as a post mold and was profiled (54–71 cmbd). Stillson mapped D-10 as if it was within (or beneath) Feature D-25, but there no evidence from field records that these features were related. In fact, D-10 appears to be an earlier feature and likely associated with the scallop shell decorated pottery that also occurred in this quad. A charcoal sample from this feature was submitted to NOSAMS and returned a date of 1140±30 B.P. (Appendix 1-Table 1:sample 110).

Quad 2. This quad also produced a significant amount of pottery, although less than quad 1 (23 pieces weighing 89 g). All appear to belong to Vessel lot #11. From Level 6, two rims (#57608, 57609) and one body sherd (#57607) were recovered. From level 7, one rim (#57551) and four body sherds (#57530, 57531, 57532, 57552) were excavated. Level 8 produced a single body sherd (#57553). This quad contained Feature D-12, which is described in the notes as a post mold. Here again, while this feature was mapped as if it were within Feature D-25, no evidence indicates that these features were related. According to the field notes, this feature became visible in level 8 (52–56 cmbd). It was about 7 cm in diameter and extended another 35 cm into the C horizon where it ended between two rocks. The feature log notes that flakes and diagnostics were recovered but does not specify them. Presumably this reference is to the pottery found in quad 2.

Quad 3. Three pieces of Vessel lot #11 pottery were found in this quad, one (#57561) from level 7 and two (#57560) from level 8.

Quad 4. Three additional sherds of Vessel lot #11 were also recovered from this quad, including two body sherds (#57622, 57558) from level 7 and one (#57557) from level 8. However, this quad was unusual in that one more cultural level was present. Level 9, occurring only in this quad, appears to have been a continuation of slightly organic soils of level 7 that extended deeper into the subsoil. Fire-cracked rock and two ceramic fragments were recovered from this level. Although both pieces of pottery are small, they seem to represent a different vessel, designated as Vessel lot #13. One sherd (#57556) is a rim fragment. It has an everted lip, a medium grit temper and is 4 mm thick. Since the exterior surface has mostly spalled away, it is unclear whether this vessel was decorated. The interior surface is smooth and shows some evidence of carbonization. The second piece is a body sherd (#57555) with medium to coarse temper and 6 mm thick. Although also spalled, both exterior and interior surfaces are smooth with the exception of three incised lines on the exterior (Figure 44e–f).

Although exactly how this level relates to those nearby has not been established, it seems most likely that it includes an extension of Feature D-13 from N0/W5, quad 2.

EU N0/W3

This unit demonstrates how quickly the density of cultural material changed to the east and north of Feature D-25. The basic stratigraphy appears to have been the same although levels were shallower.

Quad 1. No features or artifacts were reported.

Quad 2. Feature D-11 is described as a "stain with charcoal scatter" in the feature log. Field records indicate an irregular, somewhat oval feature roughly 0.7 x 0.4 m in quads 2, 3 and 4. Located in the B horizon, this feature became visible at 38 cmbd and is characterized by medium brown sand with flecks of charcoal. Depth was not reported. Although the records on associated artifacts are somewhat confusing, both bifaces and pottery, as well as many flakes, clearly were associated with this feature. The field notes report one piece of pottery and a biface from quad 2. The pottery is a small, undecorated body sherd (#57559) from 47–51 cmbd. It is probably from Vessel lot #11. The biface is an asymmetrical Rossville point (#58000) of tan quartzite found at 59 cmbd (Figure 45a). A charcoal sample from this feature was submitted to NOSAMS and returned a date of 1180±25 B.P. (Appendix 1-Table 1:sample 113).

Quad 3. A second biface, the base of a Lagoon point (#58005), was recovered from quad 3 at 43 cmbd. This point is made of a mottled gray chert, visually identical to the Ft. Ann/Ticonderoga cherts of the Champlain valley. This is the only chert biface recovered from the site (Figure 45b). Field notes also indicate that pottery was found although the level is not specified. The catalog lists two undecorated body sherds: (#57589) from level 5 and #57588 from 52–59 cmbd. Both appear to be from Vessel lot #11.

Quad 4. No features or artifacts were reported.

Summary of the D-25 Cluster

As with the preceding D-13 cluster, several time periods are represented in the D-25 EUs. The highly variable nature of artifact and feature concentrations is also notable. Evidence for an Early Woodland component includes the presence of Lagoon and Rossville points as well as untyped stemmed bifaces. These are located at the lowest levels in several units including S2/W5, S1/W4, N0/W4 and N0/W3. Some features, such as 1c, D-24 and 38, were also present at these levels. Evidence strongly supports Middle Woodland occupation. Greene and Fox Creek-related points are well represented in the southern portion of the cluster at about 55–60 cmbd. In S2/W5, a Fox Creek point base was also recovered from the buried A horizon and may be associated with the 1400 B.P. and 1490 B.P. dates obtained from that level in the adjacent D-13 cluster. Scallop shell decorated pottery (Vessel lot #11) is widely distributed across this cluster, generally at about 50–55 cmbd and often in association with Greene or Fox Creek points. Several features appear to be related to these artifacts. Two, D-10 and D-11, have produced C-14 dates of 1140 B.P. and 1180 B.P. respectively. Finally, a scatter of artifacts and the 920 B.P. date from Feature D-25 indicate some Late Woodland use of this area.

Summary of Locus 2

If salvage efforts at Locus 1 confirmed the presence of a significant, deeply buried site, the extensive and better controlled excavations at Locus 2 provided much more information about both the site and when it was occupied. This report examines only a portion of Locus 2 focusing primarily on the features that were radiocarbon dated. Major findings include:

- Considerable evidence that Native people used this area over at least a 1,200 year period.
- Evidence that the distribution of features and artifacts was highly variable, densely concentrated in some areas and absent in others.
- These features, and associated EUs, indicate that while several cultural phases were represented, all fall within the period from 2,000 to 850 years ago based on C-14 dates. No evidence of earlier components was found.

Early Woodland. Early Woodland is the term that archeologists use to describe the period from 3,000 to 2,000 years ago. Stratigraphically, artifacts and features from the deepest levels excavated at the Carns site correspond closely to Early Woodland

Period diagnostics. These data provide the earliest evidence that Native people used the Carns site.

The Early Woodland Period is also when soil formation began on the outer Cape. As a result, soils were very thin and artifacts from this period were often found on or even in the glacial subsoil. These lowest levels at the Carns site produced more than a dozen Lagoon and Rossville points, which were distributed along the western side of Locus 2 and were most concentrated along the E/W line of the grid (Figure 46). While these points have a date range of 2500–2000 B.P. elsewhere on the Cape and Martha's Vineyard, the evidence from Locus 2 suggests that their use may have continued well into the Middle Woodland Period. The association of these points with debitage, as well as hones and a shaft straightener in the D-13 cluster, strongly suggests the making and hafting of projectile points at the site. These points, more specifically, probably were for atlatl darts rather than for arrows as Ritchie (1969:76, 86) has argued for Martha's Vineyard.

Unlike Locus 1, no pottery was recovered from these basal levels. However, the presence of features including hearths, shallow pits and post molds indicates that Native people actually may have lived in this area, and not just stopped briefly to make stone tools. The earliest date from Locus 2, which is 2000 B.P. from Feature 1A, marks the boundary between the Early Woodland and Middle Woodland periods.

Middle Woodland. Archeologists use the term Middle Woodland to describe the period from 2,000 to 1,000 years ago. By Middle Woodland times, enough soil had formed to support the dense forest cover indicated by Kelso's pollen analysis and Largy's floral evidence. While this is the most strongly represented period at Locus 2, it remains unclear whether Native people were present continuously or were using this area intensively at different points in time. The array of hearths, post molds and other features excavated at the Carns site certainly suggest a variety of activities. The C-14 dates from Locus 2 indicate at least three intervals of use that fall within the Middle Woodland Period: 1670 B.P. from Feature D-18; 1400 B.P. and 1490 B.P. from the buried A horizon in S1/W6; and 1140 B.P. and 1180 B.P. from Features D-10 and D-11.

The stratigraphy and artifacts provide complementary, but not necessarily clarifying, information. The B horizon contained most of the features and artifacts but associations and relationships are difficult to determine. For example, there is considerable evidence that Early Woodland artifacts became mixed with those of subsequent Middle Woodland occupations. The eighteen Middle Woodland points recovered have a different and somewhat broader distribution across Locus 2 although they too seem to concentrate along the western edge of the excavation (Figure 47). At least three of these points were found in the buried A horizon and may be associated with 1400 B.P. and 1490 B.P. dates. However, most were found in the B horizon and several appear to be associated with scallop shell decorated pottery. Whatever their associations, lithic point styles appear to have been conservative and changed little during the period.

Ceramic styles, on the other hand, appear to evolve throughout the period. Although Ceramic Period 4 style vessels predominate, suggestions of the earlier styles are present as well. Ceramic Period 4 ceramics, especially those represented by Vessel lot #11, have a very specific distribution (Figure 48). This pottery seems to be associated with features that date to 1,140 and 1,180 years ago. However this association makes the 1400 B.P. and 1490 B.P. dates of the overlying buried A horizon problematic.

The buried A horizon is confusing. Only a modest amount of material was recovered and it included both Early and Middle Woodland point styles. Although this level appears well dated at 1400 B.P. and 1490 B.P., it is consistently situated above the levels that produced scallop shell decorated pottery,

Middle Woodland lithics and features that date to several hundred years later. The answer may be that this buried A horizon does not represent a single event, as appeared to be the case at Locus 1. The stratigraphic profiles indicate the buried A horizon was discontinuous and it may represent a combination of living surfaces, slope wash and other activities. Careful analysis of the remainder of the Locus 2 EUs would help to clarify this issue.

Late Woodland. Archeologists use this term to indicate the period from 1,000 years ago to the arrival of Europeans. At Locus 2, this period is represented only by intrusive features like D-25 and D-13 that penetrated the buried A horizon and date to 920 B.P. and 850 B.P. respectively. Whatever the buried A horizon actually is, it remains the highest, and therefore latest, stratigraphic component at Locus 2.

LOCUS 10

Location

Locus 10, the largest portion of the Carns site to be excavated, was situated to the northwest of Locus 2. As described in Chapter 2, this area was exposed by the No Name Storm of 1991, which also destroyed Locus 1 and Locus 2. Locus 10 was defined on the east by the eroded edge of the buried A horizon and on the west by wetlands. The large indentation at the southern edge of Locus 10 marks where the dune trench had been excavated west from Locus 2 during December 1990. Although the No Name Storm had removed an undetermined portion of Locus 10, a large area remained intact but vulnerable, covered only by a thin layer of beach sand. After an initial sampling with 50-cm test pits (Figure 49), project archeologists decided to open up large portions of the site using expanded EUs that contained 4 x 4 m each. A total of 226 square meters were excavated at Locus 10.

The use of these larger EUs makes for some confusion in understanding field references. For example, Feature 103D was identified in EU N10/12, (E-20/-18), 3A. In this case, the numeral (3) indicates the square meter in which the feature was found while the letter (A) designates the 50-cm quad. Here again, this report uses the standard convention of E and W to designate EU locations rather than the E and –E system used in field recording. To date, little analysis has been done on the large amount of data collected during this fieldwork. Apparently no profiles or overall excavation plans were prepared at the time. For purposes of this report, William Cooney (Figure 50) has drafted a revised plan of Locus 10.

This report is the most preliminary in its discussion of Locus 10. Given the magnitude of the excavation and the minimal amount of information available, only a few specific findings and initial observations on this portion of the site can be made. Primary emphasis is placed on features that were dated, on any associated artifacts or analysis, and on the distribution of some key artifact classes. A more detailed analysis of Locus 10 remains to be done.

Stratigraphy

Stillson provides only a brief description of the Locus 10 stratigraphy. While the basic sequence of levels observed at Locus 1 and Locus 2 appears to have been present, Stillson (1994, chap.4:13) notes that the stratigraphy of Locus 10 "varied dramatically from the other loci." He also observed that this portion of the site "retained the least integrity," which may have been the result of storm-related erosion and re-deposition.

Several of Stillson's observations are tantalizing and suggest that a more comprehensive review of Locus 10 will yield valuable information about the site. Specifically he noted that much of the plow zone, and even portions of the buried A horizon, appears to have been washed away by the 30 October storm. Where the strata remained intact, the evidence suggested that plowing was deeper than at the other loci and had more impact on the features below.

At Locus 10, as at Locus 2, the buried A horizon was variable in its extent. Stillson observed that in the south central part of Locus 10 the plow zone was directly above the B horizon; no buried A horizon was present. In addition, the B horizon soils in this area differed from those around them being fairly well sorted sandy sediments rather than the more usual mixture of gravel and cobble.

Some hints of original topography were also observed. Stillson describes an area between N23 and N28, W30 and W26 as a depression in which slope wash had accumulated. In this area, the soils of the B horizon were deeply colored and artifacts were recovered well into the C horizon.

Features

Not surprisingly, the excavation of such a large area resulted in the discovery of many features. Stillson reports that 181 features were identified (Appendix 2). While features were designated with a combination of numbers and letters, the logic of designation is not always clearly evident. This report focuses on the six features from which radiocarbon dates were obtained. These are discussed below in chronological order, oldest to youngest.

Feature 103D

This feature was located in EU N10/12, W20/18, 3A on the eastern side of Locus 10. Described as a post mold, it was round and 8 cm in diameter with a tapering cross-section. The feature extended from 18 to 45 cmbd. Aside from flecks of charcoal, no cultural material was recovered from the feature. A charcoal sample from it was submitted to NOSAMS and returned a date of 2400±25 B.P. (Appendix 1-Table 1:sample 106). Field records indicate this post mold was aligned (northwest/southeast) with two similar features 103B and 103C in the adjacent EU N12/14, W20/18.

Feature 133G

This feature was located in EU N26/28, W30/28, 3A and 2D near the northwestern limit of Locus 10. Stillson described this feature as a concentration of fire-cracked rock located below a very disturbed upper level, possibly backfill from the adjacent cranberry bog. Field records indicate the feature was an irregular oval, approximately 25 x 15 cm, extending 39–44 cmbd. The notes indicate that nearly 1 kg of fire-cracked rock plus charcoal was recovered in addition to many flakes, especially small ones (Appendix 5-Table 23). This is borne out by the cataloging process that recorded forty pieces of debitage, primarily tertiary flakes of felsite, from this feature. A charcoal sample from the feature that was submitted to NOSAMS yielded a date of 2130±25 B.P. (Appendix 1-Table 1: sample 108). Field notes indicate that a possible Neville point was found in the plow zone of this quad. Although the base is missing, this brown quartzite point (#58196) is very similar to the other Lagoon points recovered from the Carns site (Figure 51a).

Feature 124

This feature was located in EU N16/18, W26/24, 2C and 2D close to the center of Locus 10. Also described as a concentration of fire-cracked rock, this feature was larger and more diffuse than Feature 133G. The feature appears to have been oval in plan and basin-shaped in profile, approximately 45 x 30 cm across and extending 33–38 cmbd. Feature 124 contained more than 3.1 kg of fire-cracked rock and a scatter of flakes (Appendix 5-Table 22). A charcoal sample from the feature was submitted to NOSAMS and returned a date of 2060±30 B.P. (Appendix 1-Table 1:sample 112).

Feature 93D

This feature was part of a complex series of features located on the eastern edge of Locus 10 in EU N18/20, W18/16 and adjacent units. Feature 93D itself

seems to have been an amorphous pit, 38 x 20 cm across and possibly associated with a nearby concentration of fire-cracked rock. Field notes indicate considerable disturbance around this feature including a root mold or rodent burrow as well as possible plow scars. These disturbances appeared to be present through all levels of the feature. A charcoal sample from the feature was submitted to NOSAMS and returned a date of 2020±65 B.P. (Appendix 1-Table 1:sample 105).

Field notes indicate that several artifacts were recovered in the Feature 93 area and that a Fox Creek point, another point base and two flakes were associated with Feature 93D. The complete point, actually in two cross-mending pieces (#58141, 58142), is made of a weathered gray felsite while the second base (#58128) is of gray quartzite (Figure 51b–d). Due to the high level of disturbance present, it is not possible to associate these Middle Woodland points with the C-14 date from the feature. Apparently all the fire-cracked rock and debitage from the Feature 93 area were bagged together. These are summarized in Appendix 5 (Table 19).

Feature 58A

This feature was located in EU N30/32, W24/22, 4B near the northeastern edge of Locus 10. It was described as a concentration of fire-cracked rock mixed with charcoal and ash. Field notes indicate an irregular basin-shaped feature about 40 x 60 cm in diameter and extending 5–15 cmbd. The feature itself was composed of very dark gray/brown sand and more than 3.7 kg of fire-cracked rock. Ninety-three pieces of debitage, primarily small felsite flakes, were the only other cultural material recovered from this feature (Appendix 5-Table 17). A charcoal sample from the feature was submitted to NOSAMS and returned a date of 1610±30 B.P. (Appendix 1-Table 1:sample 111).

Feature 83A

This feature was located in EU N22/20, W22/20, 3A and 3B, 2C and was often referred to as the pottery feature. This feature contained impressive ceramics and also produced a Middle Woodland C-14 date. In addition, the field notes for Feature 83A are very thorough and provide a good case study of the Locus 10 stratigraphy. For these reasons, it is described here in greater detail.

- The feature was first evident at 14 cmbd as the top of the interface with the B horizon as it was scraped off (Figures 52, 53). Several points are noteworthy in figures 52 and 53, specifically the sure evidence of plow damage, the lack of a buried A horizon, and the presence of pottery in quad 2D suggesting the nature of the feature below.
- At 19 cmbd, the feature was clearly visible in quads 3A and 3B as a large oval of very dark brown soil, 85 x 60 cm in diameter (Figure 54). A second, and possibly related, feature was also exposed in quad 2C. However this soil stain appears to have been treated as part of Feature 83A since no separate feature number was assigned. Pottery, first visible at 14 cmbd, was now fully exposed as a large rim sherd along with large pieces of fire-cracked rock. This vessel, artifact #6 in Figure 54, is described as Vessel lot #14 below.
- At 22 cmbd, the feature had become larger, nearly a meter across, and more circular. It now extended into quads 2C and 2D (Figure 55). Many ceramic sherds, described in the notes as a "collapsed pot," were visible in quad 3A. These are described as Vessel lot #15 below. Other pieces of pottery and fire-cracked rock were spread throughout the feature. The adjacent feature in quad 2C remained visible as well. Pottery was also present in this feature and is discussed as Vessel lot #16.
- At 32 cmbd, the bottom of the feature was reached. Notes indicate that the feature had a "scooped shape" with curved sides.

In addition to the ceramics, Feature 83A contained nearly 3.2 kg of fire-cracked rock and 132 pieces of debitage (Appendix 5-Table 18). Most of the latter were small felsite flakes. Largy (1995:24,

Table 16) analyzed several soil samples from throughout the feature and recovered a considerable range of plant and animal remains. Flora included a bayberry seed (*Myrica* sp.), a cherry stone (*Prunus* sp.) and an acorn fragment (*Quercus* sp.) as well as oak, hickory and conifer charcoal. Fauna included twenty-eight pieces of turtle bone (*Testudines* sp.), primarily from the plastron and carapace, two additional pieces of probable turtle bone and seven fragments of unidentifiable mammalian bone. A charcoal sample from the feature was submitted to NOSAMS and returned a date of 1540±30 B.P. (Appendix 1-Table 1:sample 109). Although frequently described as "the feature with the crushed pot," Feature 83A contained at least two vessel lots, three if the additional feature in quad 2C is included.

Vessel lot #14 represents a vessel similar in form to several of those discussed from Locus 1– straight-sided vessels with a conoidal base. At a minimum, this vessel lot contains eight sherds weighing 116 g. A more thorough analysis of the ceramics from this feature would probably identify additional pieces. All sherds have a tan paste with coarse grit temper. The vessel has a simple rounded lip with a spalled exterior that tapers and thins at the lip (Figure 56a). As a result, the lip itself is only 2 mm thick. The vessel neck below this spalled area is 7 mm thick. The neck is straight and extends at least 6.4 cm before any curvature is evident. The body is 8–9 mm thick at this point and appears to taper toward a conoidal base. Although many of the sherds are heavily eroded, both the exterior and interior surfaces apparently were smoothed. Carbonization occurs on the exterior and interior of several sherds (e.g., #60570) while others (e.g., #60571) are heavily burned and blackened suggesting deposition in a fire. Some sherds (e.g., #60570) also show clear evidence of breakage along coil lines. Based on cross-mending, the vessel represented by Vessel lot #14 had an estimated diameter of 30 cm and a height of 15 cm.

Like the Locus 1 examples, this vessel was a well-made pot, carefully designed and executed. The decoration occurs in two zones. The first is below the rim on the upper 3 cm of the neck. Here two bands of dragged scallop shell stamping run horizontally around the vessel. The first band is located just below the spalled portion of the neck at 1–2 cm below the rim, and has two rows of finer, 3-mm wide impressions. The second band is below this, 2–3 cm from the rim, and is composed of a single band of larger (5-mm wide), more angular (L-shaped) impressions (Figure 56a). These bands do not seem to be uniformly present around the entire vessel. The second zone of decoration occurs on the body of the vessel. First, another band of the larger scallop shell impressions appears to encircle the vessel at about 6.5 cm below the rim, or at the point where the body begins to taper toward a conoidal base. Two centimeters below this decorative band are vertical rows of fine scallop shell stamping that cover the lower portion of the vessel's body (Figure 56b). All these decorations probably were made with a small Atlantic bay scallop (*Aequipecten irradians*) shell. Based on overall shape, size and decoration, the attributes of this vessel suggest a Ceramic Period 3 association with a date range of 1650–1350 years ago (Petersen and Sanger 1991).

Vessel lot #15 represents a different vessel form than those previously discussed. Unlike the conoidal or globular shape of the other pots, this bowl has rounded sides. As with Vessel lot #14, a thorough re-examination of all the pottery from this feature would be required to obtain an accurate count and weight for this vessel. At a minimum, fourteen sherds weighing 332 g represent Vessel lot #15. All sherds have an orange-brown paste with medium grit temper. The vessel has a simple rounded lip and, like Vessel lot #14, the upper 12 mm has spalled off. As a result, the lip itself is only 2 mm thick while the body below the spalled area is 8 mm thick. The body curves away toward the base immediately below the rim increasing in thickness to 10–11 mm. The vessel has no neck (Figure 56c). Both the exterior and interior surfaces were smoothed although many of the sherds are

heavily eroded. The interior of the vessel shows no evidence of carbonization, but the exterior has a mottled gray quality suggesting exposure to fire. Based on cross-mending, this vessel had an estimated diameter of 23 cm and a height of 12 cm.

This vessel also was decorated with fine scallop shell impressions, specifically five bands of scallop shell rocker stamping. These bands are 1.5 cm high and appear to cover the vessel from just below its spalled lip to the rounded base. The bands are slightly oblique and seem to spiral around the vessel rather than simply encircling it. On the lower third of the vessel, the bands are increasingly close together until they overlap. Although Petersen (Petersen and Sanger 1991) has identified this style as Pseudo Scallop Shell, careful examination suggests that these impressions were made with a piece of actual scallop shell rather than with some other tool. A reconstructed view of this vessel is illustrated in Figure 57. In general, this vessel is similar to Vessel lot #14—a smaller version whose primary difference is its bowl-like shape. Overall, its size and manner of decoration suggest a Ceramic Period 2/3 association with a date range of 2150–1350 years ago (Petersen and Sanger 1991).

Vessel lot #16, at present, is represented by at least three sherds (e.g., #60580, 57597) although others may be present in the assemblage. Since these sherds were recovered from the so-called feature adjacent to Feature 83A in quad 2C, their contextual relationship to that feature, its C-14 date and vessels #14 and #15 are unclear. They certainly represent a different kind of ceramic vessel, one similar to Vessel #11 from Locus 2.

These sherds have a tan/orange paste and coarse grit temper. They are body sherds with virtually no curvature and therefore are from a large vessel. The interior surfaces are smooth and slightly carbonized. The exterior surfaces are also smooth though highly eroded. Three rows of deep scallop shell impressions, very similar to those seen on Vessel lot #11, are the most distinctive decorative feature (Figure 56d). Although reconstructing a vessel from such a small sample is risky, the strong similarities to Vessel #11 suggest that Vessel #16 has a Ceramic Period 4 association with a date range of 1350–950 years ago (Petersen and Sanger 1991).

Feature 83A is instructive for several reasons. It provides the clearest association of diagnostic artifacts, floral and faunal remains, and a C-14 date from Locus 10. As such, it provides the best basis from which insights can be drawn about Native use of this area during the Middle Woodland Period. Feature 83A also suggests how much additional information remains to be discovered in the more than 170 features of Locus 10 yet to be analyzed.

Feature 100

This feature was located in EU N22/24, W20/18, 3A and 3B on the eastern edge of Locus 10. Although described as a possible hearth, this appears to be another complex series of interconnected features similar to the Feature 93 cluster. Additionally, this feature, excavated in February and March 1992, also appears to be Feature 50, which was partially excavated in November 1991.

Field records indicate that Feature 100 was "a large area of blackened soil with some fire-cracked rock." Here, as with Feature 83A, plow scars were clearly evident in the upper portion of the underlying features. As these disturbed levels were removed, it appears that the underlying features were labeled Feature 100A–100D, expanding Feature 100 across several additional quads (2A, 2B, 3C). While pottery diagnostics were recovered from some of these features, notably from Feature 100D in quad 2B, no cultural material seems to have been recovered from the original Feature 100/50.

A similar problem exists with fire-cracked rock and debitage. Counts and weights for Feature 100 are reported in Appendix 5 (Table 20). However it is unclear as to how these were distributed among the various components of this cluster. A charcoal

sample from an unspecified location in Feature 100 was submitted to NOSAMS and returned a date of 570±25 B.P. (Appendix 1-Table 1:sample 104).

Little more can be said about this complex series of features without a thorough re-analysis of the field records, which are good, and the materials recovered. An initial consideration of the pottery suggests the presence of at least one Middle Woodland vessel with a spalled rim similar to vessels #14 and #15 from Feature 83A. The C-14 date indicates Late Woodland use of the area. Like other portions of Locus 10, the Feature 100 cluster appears to represent several different periods during which Native people were present.

Material Culture

In addition to the artifacts described from the above features, a significant number of other lithic and ceramic objects were recovered from other portions of Locus 10. An initial listing of these artifacts is provided in Appendices 3 and 4. While a detailed review is beyond the scope of this report, some initial observations are offered on the flaked stone artifacts.

Locus 10 contained a total of 167 flaked stone artifacts. Of these, 34 are cores, 10 are preforms and 123 are finished bifaces. Of the bifaces, 33 were projectile points. The diagnostic points break out as follows:

Late Archaic. Two points, or 6 percent of the total, represent Late Archaic styles. These are a small-stemmed point (#58158) and a Cape-stemmed point (#58159). Both are made of quartz (Figure 58a–b). These points may indicate a terminal Late Archaic presence in the area or the continued use of these point types into the Early Woodland Period. A more detailed analysis of the context for these points eventually may resolve this issue.

Early Woodland. Five points, or 15 percent of the total, are Early Woodland styles. All are Lagoon points made of brown or gray quartzite, and are very similar to those recovered from the other loci. Note the three slightly different basal shapes associated with this point type, illustrated in Figure 58c–e.

Middle Woodland. Twenty-three points, or 70 percent of the sample, are Middle Woodland styles. The majority (n=18) are Fox Creek-related although both Greene points (n=3) and Petalas (n=2) blades are present as well (Figure 58f–i). In contrast to Locus 2, felsite rather than quartzite appears to have been the preferred lithic material (Appendix 3-Tables 7, 8).

Late Woodland. Three felsite triangular points, or 9 percent of the total, suggest that the Late Woodland Period is only lightly represented at Locus 10 (Figure 58j).

In general, the lithic artifacts indicate that Locus 10 was occupied primarily during the Early and Middle Woodland periods, which is a pattern consistent with other parts of the site.

Summary of Locus 10

The large-scale excavations at Locus 10 provide a greatly expanded sample of features and artifacts from the Carns site. Locus 10 also helps to fill the gap between Locus 1 and Locus 2, providing a better overall sense of how Native people used this area over a period of at least 1,500 years. Unfortunately, the context for both artifacts and features was not always good. Stratigraphy was less clear at Locus 10 than at the other loci, and this locus seems to have had greater disturbance. As a result, it is more difficult to interpret the archeological evidence and what it means.

Early Woodland. As at Locus 2, the first clear evidence for a Native presence at Locus 10 occurs 3,000–2,000 years ago. This interpretation is supported by three C-14 dates, falling between 2400–2060 B.P., from features that include hearths and a post mold. The latter post mold (Feature 103D) may indicate evidence for a dwelling.

The artifactual evidence is consistent with these dates. Lagoon points are present, although not in as large a quantity as at Locus 2. Like the dated features, they were broadly distributed across the locus with some evidence of clustering along the eastern edge (Figure 59). While none of these points was directly associated with a C-14 date, one example may have been associated with the 2130 B.P. date reported for Feature 133G.. No pottery related to this time period was recovered from Locus 10.

Middle Woodland. The majority of the archeological evidence at Locus 10 dates from the period between 2,000 and 1,000 years ago. Two features, both hearths, produced radiocarbon dates from this period: 1610 B.P. from Feature 58A, and 1540 B.P. from Feature 83A. The artifacts also indicate a strong Middle Woodland presence. Fox Creek and other related point types dominate the lithic assemblage and occur across the locus (Figure 60). Although the sample of ceramics from Locus 10 is small, the examples seen fit securely into the Middle Woodland Period. The two vessels from Feature 83A correspond most closely to Ceramic Period 2/3 styles. The date ranges for these styles bracket the C-14 date of 1540 B.P. from the feature.

Late Woodland. As at Locus 1 and Locus 2, only a hint of the Late Woodland Period between 1,000 years ago and the arrival of Europeans is found at Locus 10. This evidence includes a few triangular projectile points and a C-14 date of 570 B.P. from Feature 100. Whatever Native peoples were doing during Late Woodland times, they were not focused on the Carns site.

Finally, it is important to emphasize once again that only a small percentage of the information from Locus 10 is included in this report. Systematic analysis of all the features and artifacts would provide a much stronger basis for understanding this portion of the Carns site, especially in the case of the soil samples from more than 170 features still to be analyzed. As Feature 83A demonstrates, great potential for identifying plant and animal residues, as well as obtaining additional C-14 dates, remains in the as-yet unanalyzed samples from these features.

Interpretations and Recommendations

This chapter summarizes the Carns site data and offers cultural and ecological interpretations. It makes recommendations for management and interpretation of the site and its collections.

SUMMARY OF THE CARNS SITE

Introduction

Much of the excitement and public interest that the discovery of the Carns site generated resulted from a belief that this site was of great antiquity, dating to the Middle Archaic Period of 8,000–6,000 years ago or even earlier. As it has turned out, the Carns site is not one of the oldest sites on Cape Cod. Both the strong array of C-14 dates and the temporally diagnostic artifacts clearly indicate that the most intense use of the Carns site occurred between about 2100–1100 B.P. This one-thousand-year time period spans an interval between what archeologists have termed the end of the Early Woodland Period (3000–2000 B.P.) and the subsequent Middle Woodland Period (2000–1000 B.P.).

This era was a time of significant change, both environmentally and culturally for the Cape's Native people. As discussed in Chapter 3, sea level rise stabilized during this period creating the shorelines and marsh systems that characterize the Cape today. Archeological evidence indicates accompanying changes in the types of stone tools Native people used as well as in the frequency and distribution of sites. A new technology, pottery making, also became widespread during this period. These changes reflect adaptation to shifting environmental conditions as well as the influence of new cultural traditions from the Midwest and Middle Atlantic regions.

For all the changes, this interval is a span of time that is not well understood. In summarizing the results of the Cape Cod National Seashore Archeological Survey, McManamon (1984a) observed that this period was among the most poorly represented. Indeed, no Early Woodland components were identified during the survey and only nine Middle Woodland concentrations were found. By contrast, 41 Late Archaic and 29 Late Woodland components were identified (McManamon 1984a:401–403). Three years later, the Massachusetts Historical Commission reached a similar conclusion after assessing sites across the Cape and Islands (Mahlstedt 1987:38–40). As a result, the Carns site, with its detailed archeological record and environmental context, provides an important new window into this dynamic period of Cape Cod's past.

Late Archaic Period (6000–3000 B.P.)

Although sites attributed to the Late Archaic are the most frequently reported on Cape Cod, little evidence from this period was present at the Carns site. Only a scatter of stone tools, usually consisting of types identified as Late Archaic forms, suggests that Native peoples might have used this area earlier than 2400 B.P. Alternatively, these tools likely were used longer than has been assumed and were part of an Early Woodland tool kit. Additional detailed analysis of the collection may resolve this issue.

Early Woodland Period (3000–2000 B.P.)

The first unequivocal evidence for a Native presence at the Carns site comes from the end of the Early Woodland Period. Four radiocarbon dates, ranging from 2400 B.P. to 2020 B.P., were obtained from features in Locus 10. Artifacts

considered diagnostic of the Early Woodland Period were also recovered from all three loci, including Lagoon and Rossville points as well as other untyped side-notched and stemmed forms. Unfortunately, none of these projectile points was clearly associated with the C-14 dates. Based on stylistic grounds, ceramic vessels #1 and #2 from Locus 1 may also date from the end of this period. Dated features include hearths and post molds. The oldest date from the site (Feature 103D, Locus 10) was obtained from one of the post molds in a series of such features. These data suggest that the area may have been used as a camp site as early as 2400 B.P.

What is *not* present at the Carns site is equally interesting. Neither Meadowood points nor Vinette 1 pottery, two of the diagnostic markers for the first part of the Early Woodland Period (3000–2500 B.P.), were recovered. With the exception of one Lagoon point (#58005) of Champlain valley chert, no exotic lithics were excavated. Nor was evidence found of ritual or rank-related objects such as smoking pipes and gorgets, or artifacts used for personal adornment. Typically these include copper and shell beads as well as graphite or other pigment stones. These artifacts are best known through their association with burial sites such as Boucher (Heckenburger et al. 1990). They have also been recovered from occupation sites comparable to the Carns site, such as the Willowbend site in Mashpee (Shaw 1989), the Water Street site in Charlestown, MA (Shaw et al. 1984) and the Peterson site on Martha's Vineyard (Ritchie 1969:178–179). Finally, no evidence of mortuary activity was reported at the Carns site, which is surprising given the size of the area excavated (more than 300 square meters).

So, why were the early occupants there? The best answer comes from understanding the site's environmental context. As discussed in Chapter 3, the Carns site area was attractive for many reasons. It was located at the base of a south-facing slope that provided shelter from cold northerly winter winds. The soils were sandy, well drained and supported a mixed forest of hardwoods and conifers. In addition, cobbles of quartzite and felsite suitable for tool making were present in the glacial till. Perhaps most importantly, the area just west of the Carns site became a freshwater marsh around 2200–2100 B.P. This marsh would have provided drinking water and also a wide range of plant and animal resources vital to Native people. Taken together, these factors made the Carns site an ideal location for an interior, cold season camp. Although such camps probably supported small groups (<50 people), the distribution of artifact and feature clusters across an area more than 2,000 square meters suggests repeated use over many years.

Traditionally, the Early Woodland has been considered a period of turbulence and transition, one marked by population fluctuation and technological change (Dincauze 1974; Filios 1989; Fiedel 2001). While such may be the case for the period prior to 2400 B.P., the evidence from the Carns site suggests that after 2400 B.P. Native culture was characterized by stability and continuity rather than change, and by utilization of local resources rather than long-distance exchange. Perhaps the time has come to redefine the boundary between definitions of the Early and Middle Woodland periods as well as to clarify what these terms mean.

Middle Woodland Period (2000–1000 B.P.)

The archeological evidence indicates that the most intensive use of the Carns site area occurred during this period. Eight radiocarbon dates falling between 2000 B.P. and 1140 B.P. were obtained from features: six from Locus 2 and the remaining two from Locus 10. Diagnostic artifacts were also recovered from across the site and include Fox Creek lanceolate and Greene points, again made from locally available quartzite and felsite. Lagoon/Rossville points very likely continued to be used during this period, as documented at the

Willowbend site (Shaw 1989:60, 73–74). Ceramics are a more visible part of the archeological assemblage. Straight-sided vessels with conoidal bases and decorated with rocker stamping appear to be the most commonly occurring form. Two were recovered in association with C-14 dated features: Vessel #9 (1670 B.P.) and Vessel #14 (1540 B.P.). A third, Vessel #11, has a more globular body, a constricted neck and incipient collar. Decorated with scallop shell impressions, this vessel is associated with C-14 dates of both 1180 B.P. and 1140 B.P. Middle Woodland features at the Carns site were diverse and included a stone roasting platform, hearths, post molds and refuse pits. Like the artifacts, the Middle Woodland features are widely distributed across the site. In general, the pattern that emerges is one remarkably similar to Fox Creek phase sites such as Fredenburg and Westheimer in the Hudson valley. These sites, dating to about 1600–1500 B.P., define the dominant Middle Woodland presence in eastern New York (Funk 1976:287–293). Although these similarities have been noted previously (Towle 1986; Moore 1997), the Carns site provides the best basis for comparison found to date.

As with the preceding Early Woodland Period, the diagnostic Middle Woodland artifacts *not* found at the Carns site are as interesting as those recovered. No Jack's Reef corner-notched or pentagonal points were found. Nor were any projectile points or other bifaces of yellow/brown jasper recovered. Indeed, out of many hundreds of thousands of pieces of debitage, only two possible jasper flakes were found. Barbara Luedtke (1987:43) also noted this lack of jasper and suggested that the Middle Woodland Period could be divided into earlier and later components with jasper associated only with the latter. Other researchers have extended this observation. They have noted that Jack's Reef corner-notched points, associated with the newly introduced bow and arrow technology (Blitz 1988; Strauss 1992) and frequently made from jasper, also tend to date from the later portion of the Middle Woodland Period (Barber 1982; Shaw 1989:71–72; Cross and Shaw 1991:50). Good evidence for this linkage of Jack's Reef corner-notched points, jasper and late Middle Woodland dates (1265±130 B.P.) in the Nauset area comes from nearby NPS excavations south of Salt Pond (McManamon 1984c:296). All this information correlates well with Funk's (1976:294–295) late Middle Woodland or Fourmile Phase in eastern New York and supports the conclusion that little Native use of the Carns site occurred after about 1100 B.P.

Another similarity between the Early and Middle Woodland assemblages from the Carns site is the lack of any ritual- or rank-related objects such as smoking pipes and gorgets, or artifacts used for personal adornment. Moffett (1957:11) did recover examples, though not common, from several other Middle Woodland sites on the outer Cape. Funk (1976:292) too notes the absence of these artifact classes on Fox Creek phase sites in eastern New York. Perhaps related is the continued absence of burials. Certainly nothing at the Carns site suggests anything like the elaborate mortuary practices that date from the late Middle Woodland/early Late Woodland Period elsewhere on the Cape, such as in the Wellfleet area (McManamon et al. 1986; Bradley et al. 2001).

Two other materials frequently associated with Middle Woodland sites are also missing from the Carns assemblage: shellfish and cultigens. Beyond a few fragments, virtually no shellfish remains were recovered. This absence was unexpected since shellfish are well documented elsewhere on the Cape as an important seasonal food source from the Late Archaic on (Ritchie 1969:217; McManamon 1984a:397–404) and particularly as a significant component of Middle Woodland diet (Moffett 1957:5; Shaw 1989:66–67; Dunford and O'Brien 1997:108–118). While soil conditions at the Carns site meant that little organic material was preserved, this fact does not explain the absence of shellfish.

The lack of cultigens was also unexpected. It has long been argued that maize and other domesticated plants were introduced into New England during

this period (Snow 1980:262, 285) and some archeological evidence to support this interpretation does exist (Petersen and Cowie 2002). However, aside from the putative maize pollen reported from Locus 2, no clear evidence of the presence of cultigens was found. The overwhelming impression that the Middle Woodland component at the Carns site makes is of continuity with the preceding Early Woodland component. Differences in material culture seem to occur gradually and incrementally, rather than suddenly or dramatically. Both the density of features from each period and their distribution across the site area seem similar. Indeed, it is tempting to discard the rather arbitrary Early and Middle Woodland labels and argue that the period of 2100–1100 B.P. is a more realistic unit for interpretation.

A strong reason for this continuity is found in the site's environmental record. Just as the formation of a freshwater marsh adjacent to the site may have attracted Native people to the Carns site at about 2100 B.P., the transition to salt marsh in about 1150 B.P. appears to have ended regular Native use of the area. However, for the intervening interval of nearly a thousand years, the site's protected location and diverse yet predictable resource base made it an excellent fall/winter camp. Although the evidence of flora and fauna from the Carns site is limited, the recovery of hickory nuts and acorns as well as remains of turtle, large mammal (probably deer) and possibly sturgeon indicate an economy based primarily on the resources of the adjacent marsh and forest. Only when the marsh and its ecosystem changed did Native people shift to other locations.

While both the archeological and environmental record from the Carns site are impressive, especially when compared to other sites of this time period, it is important to remember that these data are fragmentary. Many of the densest clusters of features and artifacts were exposed by erosion along the site's eastern edge. As a result, it is impossible to know how much farther east or north the site area may have extended. In a similar manner, we can reconstruct only a portion of the landscape that made this area so attractive to Native people. For example, the original land surface at the Carns site appears to have sloped down gradually to wetlands on the south and west sides on the site. While a landscape of small hills and kettle ponds or marshes most likely extended to the east and north, we will never know for certain.

The Middle Woodland Period has usually been interpreted as a time of technological change, population growth and increasing sedentism, one in which long-distance exchange brought new ideas and technologies like agriculture, the bow and arrow, and an expanded use of ceramics (Kostiw 1995) into the region. With the exception of the latter, these changes are not evident at the Carns site. Rather the stable adaptation to a local environment characterizes site occupation and utilization in the Middle Woodland Period.

Late Woodland Period (1000–500 B.P.)

In contrast to the preceding Early and Middle Woodland periods, only occasional, episodic use of the Carns site apparently occurred after 1000 B.P. Three features produced Late Woodland dates: two from Locus 2 and one from Locus 10. The Locus 2 features provided the best indication of the activities represented. Both D-13 and D-25 were fairly deep pits, excavated through the earlier occupation levels. Both contained a wide variety of lithic and organic material. Feature D-25 also produced ceramics, in particular Vessel #12, a shell-tempered ware typical of the Late Woodland Period and associated with the feature's date of 920 B.P. Traditionally such features have been viewed as trash disposal pits. While this situation may be the case, Dunford (2002) has suggested that these pit features also served as privies or pit toilets. They were located far enough away from Late Woodland living areas to afford some privacy and sanitation, yet were near enough to be convenient.

Although these features, as well as a scatter of triangular points and ceramics, suggest a limited Late Woodland presence at the Carns site, examination of the remaining features, artifacts and soil samples, especially from Locus 10, would illuminate Late Woodland use of the area more precisely.

THE CARNS SITE IN CONTEXT

Coast Guard Beach

To see the Carns site in perspective, one must view it as part of the larger Coast Guard Beach locality. Indeed, as discussed in Chapter 3, the Carns site is an extension of the same landforms and shares the same cultural history (Figure 11). Archeologically, Coast Guard Beach (19-BN-374) is one of the most intensively studied areas on the outer Cape. Several major investigations were conducted on and around Coast Guard Hill during the 1980s. These included the 1979–1981 survey of the Cape Cod National Seashore (McManamon 1984a,b,c) and two projects related to new construction on Coast Guard Hill (Strauss 1986; Borstel 1991) (Figure 61). It was because the archeology of Coast Guard Beach was assumed to be well understood that discovery of the Carns site came as such a surprise.

While the results of these excavations indicated some evidence for Late Archaic as well as Early to Middle Woodland use of the area, the majority of the archeological deposits were from the Late Woodland Period. Seven of the nine cultural concentrations identified during the survey contained Late Woodland materials such as cord-marked, shell-tempered pottery and large triangular projectile points (McManamon 1984a:340, 364; Childs 1984b:249–253). Borstel's (1991, chap.6:28, 30) subsequent review of the survey as well as additional fieldwork reached the same conclusion—that Coast Guard Beach was used most intensively during the Late Woodland Period.

An interesting exception should be noted. In all these excavations, only one C-14 date was obtained from a cultural context, a small pit feature truncated by plowing. The recovery of a tapered stem point from the overlying plow zone prompted speculation that this might signify a Middle Archaic component. However analysis of charcoal from this feature returned a C-14 date of 2640±140 B.P. indicating an Early Woodland occupation (Borstel 1991, chap.6:27, 33–34).

Although plowing and building construction had disturbed or partially destroyed many of these deposits, the extant data provide a basis for understanding how Native people used the Coast Guard Beach area during the Late Woodland Period. Interestingly, the pattern that emerges for the region is similar to that at the Carns site. No evidence exists of shell middens, maize or other cultigens, or of larger scale structures or settlement. Instead, the pattern appears to be one of small camps located in protected areas close to fresh water. The artifact assemblage emphasizes stone tool making, especially the reduction of quartzite and felsite cobbles into bifaces (Borstel 1991, chap.7:1–17).

Two other less formal discoveries help to fill in this picture further. In November 1980, archeologists working at Coast Guard Beach observed a large lithic workshop eroding from the marine scarp east of the Coast Guard station. One of the archeologists described this feature as a dense layer of cobbles, cores, preforms and debitage, consisting mostly of quartzite and felsite, that extended across several meters. Samples were collected but no diagnostics were noted (Dunford 2002). The second discovery was made in the same location several years later. In December 1991, Dan Carns collected some artifacts from an exposed midden above Coast Guard Beach, including several sherds of thick, shell-tempered pottery with a fabric-paddled exterior and large triangular projectile points of both quartzite and felsite (Figure 62). Carns continued to collect similar artifacts from this area for another two years until the last of these Late Woodland deposits apparently washed away.

Taken together, the archeological evidence from Coast Guard Beach provides an initial answer to the question "Where did Native people go when they left the Carns site?" That answer is, they moved about 50 to 100 m south to Coast Guard Hill. A second answer is that Coast Guard Beach was but one of many localities around Nauset Bay and the larger Nauset Marsh system that Native people used.

The Nauset Area

Just as the Carns site must be viewed in the context of Coast Guard Beach, both were elements of the larger environmental and cultural network that existed around Nauset Marsh. The 1979–1982 archeological survey identified and investigated nearly a dozen additional sites in four areas around Nauset: west of Nauset Bay, north of Salt Pond Bay, south of Salt Pond, and at Fort Hill (Figure 63). These sites were extremely diverse in size, internal composition and artifact assemblages. Although most had components from several time periods, the Middle and Late Woodland were well represented at all of them. Each of these sites presents another view into how Native people lived in this dynamic and diverse environment.

West of Nauset Bay. Three sites, located west of Nauset Bay on level ground set back from the marsh, were small and heavily disturbed. They produced a small number of Late Archaic, Middle and Late Woodland projectile points (Borstel 1984:280). Unlike the Carns site and Coast Guard Beach, the lithic assemblages from these sites suggested only late-stage stone tool production and maintenance (McManamon 1984b:32).

North of Salt Pond Bay. Two sites along the shore of Salt Pond Bay presented a very different picture. Both were large, multi-component sites that contained areas of intact shell midden in spite of significant plow damage. Artifact assemblages included Late Archaic as well as Early and Middle Woodland materials that were quite similar to those from the Carns site. A C-14 date of 1600±130 B.P. from charcoal also provides evidence for Middle Woodland occupation (Borstel 1984:277–279). These sites differed from the Carns site in the predominant presence of Late Woodland markers. Most notable is the presence of shell middens that produced diagnostic lithics and ceramics as well as carbonized maize, all situated in the same location as the Early and Middle Woodland components.

South of Salt Pond. Although reported as four sites, a nearly continuous deposit of archeological material occurred from the south shore of Salt Pond to Salt Pond Bay. Archeologists recovered the usual range of Late Archaic through Middle Woodland points, and the distribution of shell-tempered ceramics and large triangular points confirmed a Late Woodland presence. Of particular interest was a series of EUs that produced the survey's best example of a late Middle Woodland component. Eight Jack's Reef corner-notched points were retrieved, six of which were made of yellow/brown jasper. Three other jasper bifaces plus 70 pieces of jasper debitage were also found. In addition to these diagnostic lithics, the excavation produced Middle Woodland ceramics and a C-14 date of 1265±130 B.P. from charcoal (Borstel 1984:272–273, 275). While it is not possible to demonstrate that people moved to this location from the Carns site, Concentration 274.12 is an excellent example of what a post-Carns, late Middle Woodland site might look like.

Fort Hill. Fort Hill, a peninsula of higher land that extends into the western side of Nauset Marsh, has long been known for its archeological potential. Two sites with eighteen concentrations of features and artifacts were investigated during the 1979–1982 survey. All had Middle to Late Woodland components with the Late Woodland predominant. For half of these concentrations, these two components were the only time periods represented. The presence of shell middens and faunal remains including mammal, fish and bird reflect a strong focus on the resources of the surrounding marsh.

Unlike the Carns site, where Native use of the site ended after about 1100 B.P., the pattern at Fort Hill was one of increasingly intense activity from the late Middle Woodland Period on (Dunford 2001).

As is evident from the diversity of these Nauset Area sites, each locale is different and has its own unique, often complex story. Each individual site can reveal information about the kinds of activities that took place at it, the times of the year it was occupied, and the environment that brought Native people to that location. Taken together, the sites around Nauset Marsh indicate a pattern of flexible, year-round use over a period of at least 2,500 years. This pattern was based on a deep understanding of the emerging salt marsh and the resources it provided, which ranged from fresh water to shell fish, workable stone and clay to tillable land. The Carns site helps to document the earlier portion of this pattern, 2,100–1,100 years ago, while the sites at Coast Guard Beach, Salt Pond and Fort Hill represent the later part of the story, from 1000 B.P. to the arrival of Europeans early in the seventeenth century.

Cape Cod and the Islands

The increasing importance of salt marshes in the lives of Native people over the past 2,500 years is a pattern that has been well documented on Cape Cod and elsewhere along the New England coast. Archeological evidence similar to that at Nauset has been recorded from many sites around the Cape's other marsh and estuarine systems. Still, sites such as Carns, with its mostly intact Early and Middle Woodland components, remain rare.

Truro. Ross Moffett, known as the father of Cape Cod archeology, documented several sites in two areas of Truro, one around High Head, the other near Corn Hill where the Little Pamet River enters Cape Cod Bay. At High Head, the Small's Swamp site had both Early and Middle Woodland components similar to those at the Carns site (Moffett 1959). Two other nearby sites, Holden and Rich, produced significant Middle Woodland assemblages (Moffett 1946, 1951a, 1957). Further west near Corn Hill, the Rose site had a strong Fox Creek-related component (Moffett 1951b). Although these sites produced significant Early and Middle Woodland materials, all were multi-component with dense Late Woodland deposits also present. As a result, separation of the different cultural and temporal units was often difficult. Unfortunately, none of Moffett's sites have been radiocarbon dated, which might have helped to distinguish temporal units more precisely.

Wellfleet. In 1984, survey work at the Massachusetts Audubon Society's Wellfleet Bay Sanctuary indicated the presence of a large Fox Creek-related site. When she combined these data with analysis of older collections from the area, Towle (1986) concluded that this was one of the largest concentrations of Fox Creek material on the Cape. No additional work has been done on this site.

Orleans. Salvage excavations were conducted under the auspices of the Cape Cod Museum of Natural History at the Krusen-Rainey site in East Orleans. The site location is near the head of Pleasant Bay. Project archeologist Fred Dunford concluded that this site was occupied intermittently from about 2,800 to 800 years ago (Dunford and O'Brien 1997:97–118). While analysis of the collection continues, most of the occupation appears to date after about 1200 B.P.

Barnstable. In 1990, the University of Massachusetts Archaeological Services (UMASS) conducted archeological work prior to development on Baxter's Neck near the head of Cotuit Bay. The results indicated a long-term record of short-term use. Although archeological deposits from the Late Archaic Period to the eighteenth century were found, an especially significant Early Woodland assemblage was recovered. It contained quartzite Lagoon/Rossville points and a range of dentate and rocker-stamped, grit-tempered ceramics. Unfortunately no C-14 dated features were found in association with this assemblage and

interpretations could not be any more precise (Cross and Shaw 1991).

Mashpee. Just a few miles to the west, another UMASS project investigated significant archeological deposits at the Willowbend site on Shoestring Bay. This important site had features and artifacts from the later portion of the Early Woodland Period (2400–2000 B.P.) that were comparable to those from the Carns site. The assemblage included quartzite Lagoon/Rossville points as well as untyped side-notched and stemmed varieties, thick grit-tempered ceramics and a feature dated to 2400 B.P. On the other hand, the materials dating from the end of the Middle Woodland Period (1200–1000 B.P.) differed from those at the Carns site and the other Nauset area sites. This assemblage was well documented with seven C-14 dates and it included cord-marked, shell-tempered pottery and medium-sized triangular points. Only a few Fox Creek points were found and no Jack's Reef corner-notched points or artifacts of yellow/brown jasper were present. The excellent report on this important site is yet to be published (Shaw 1989).

Martha's Vineyard. During the mid-1960s, the New York State Museum investigated six sites on Martha's Vineyard under the direction of State Archeologist William Ritchie. This effort was the first, large scale professional excavation conducted in the region. As such it provides an essential baseline of information, one to which all subsequent archeological work is compared. Ritchie's goal was to understand the relationships between changing coastal environments and development of Native cultures. He focused on stratified sites and features, especially shell middens that could reveal the sequence of cultural phases.

While many of Ritchie's findings pertain to the Late Archaic Period, he also documented important Early Woodland components at the Peterson and Pratt sites. The Peterson site was located above Squibnocket Pond near the western end of the island. The deepest level, stratum 3, contained Late Archaic small-stemmed points of quartz that Ritchie termed Wading River. This level was undated. Stratum 2B produced Vinette 1 pottery along with small-stemmed Wading River and untyped side-notched points in association with a 2540 B.P. date (Ritchie 1969:181, 192–193, 224). Above this level, stratum 2A contained Vinette I pottery with Rossville/Lagoon points and a few residual small-stemmed points. Charcoal from this level returned a C-14 date of 2310 B.P. (Ritchie 1969: 178–181, 192–193).

Similar results came from the Pratt site located in Vineyard Haven on the opposite side of the island. At the Pratt site, the deepest level, stratum 3, also produced Vinette 1 pottery and side-notched points similar to those from the Peterson site as well as Rossville/Lagoon varieties. These were associated with a radiocarbon date of 2470 B.P. Stratum 2, which dated to 2380 B.P., contained Vinette 1 pottery and a predominance of Rossville/Lagoon points (Ritchie 1969:76–78, 85). Taken together, these components provided a good basis for reconstructing Native culture on the Vineyard between about 2,500 and 2,300 years ago. Ritchie termed this reconstruction the Lagoon complex and he concluded that Native people had relied heavily on deer and shellfish during this 200-year period (Ritchie 1969:224–245). The Lagoon complex also offers a detailed view of Native life in the region just prior to utilization of the Carns site.

Middle Woodland components were less clearly defined in Ritchie's excavations. The best representation came from the Cunningham site located in Vineyard Haven not far from the Pratt site (Ritchie 1969:226). Stratum 3, the deepest level at Cunningham, produced a mixture of grit- and shell-tempered ceramics with a range of dentate-stamped, scallop shell impressed and incised motifs. The lithics were also diverse and included Rossville/Lagoon, Fox Creek and Jack's Reef corner-notched points (Ritchie 1969:107–111). Although stratum 3 yielded a C-14 date of 1550 B.P. (Ritchie 1969:122), a wider span of time, possibly consisting of several hundred years,

probably is represented in this level. In fact, the mixture of artifact styles from stratum 3 recalls the comparable assemblage recovered from the B horizon at the Carns site.

The Gulf of Maine and North

The information for these Cape Cod and Vineyard sites hints at a regional pattern for Native settlement on the coast between about 2,500 and 1,000 years ago. But how far north along the Gulf of Maine the pattern extends is unclear.

Many Early and Middle Woodland artifacts have been identified from sites in the Boston Basin but few are associated with C-14 dates. In her survey of sites and collections, Dincauze discussed eleven sites with Early Woodland materials such as Vinette 1 pottery, Meadowood points, Rossville points and unnamed side-notched points. She also matched seventeen sites with Middle Woodland artifacts including dentate-stamped pottery, Fox Creek points and Jack's Reef corner-notched points. She has described the latter as late Middle Woodland points dating between 1300–1000 B.P. (Dincauze 1974:50–53).

Two excavated sites provide a dated context for some of these artifacts. The first is the Water Street site that Leslie Shaw excavated. This site contained a small but significant Early Woodland assemblage, including Meadowood and Rossville points, copper beads and grit-tempered ceramics associated with a 2370 B.P. date (Shaw et al. 1984; Simon 2002:5–7). The second site was located on Spectacle Island where Timelines, Inc. (Edens and Kingsley 1994:152) excavated two shell middens. While these middens produced several bone tools and considerable information on the fish, shellfish, mammals and birds that were a part of Native diet, few diagnostic lithics or ceramics were recovered. However, the southern midden yielded a date of 1414 B.P. for a sample associated with shell-tempered pottery.

Thirty miles (48 km) north of Boston, Russell Barber (1982) investigated a portion of the Wheeler site, a large Middle Woodland shell midden located near the mouth of the Merrimack River. This site produced dentate- and rocker-stamped pottery frequently decorated with punctates, Jack's Reef corner-notched points and other tools of yellow jasper. All were associated with a date range of 1010–750 B.P. Barber (1982:100–102) concluded that Wheeler was "a specialized processing station" occupied during the fall where shellfish and other food resources were prepared for winter use. Subsequent to Barber's excavation, the late James Whittall carried out additional fieldwork at Morrill Point. His findings demonstrate that Barber had excavated only a small portion of a much more extensive site. While Whittall uncovered features from the Early Archaic (ca. 8500 B.P.) to eighteenth-century colonial foundations, he also documented several important Early and Middle Woodland components. Among these were a pit feature with Vinette I pottery (ca. 2500 B.P.), a Fox Creek component (1665–1230 B.P.), and a substantially larger sample of late Middle Woodland artifacts and features similar to those reported by Barber (Brian Robinson 2001, personal communication). Unfortunately, this large and important collection remains unanalyzed and unpublished.

The Middle Woodland traits seen at the Wheeler and Morrill Point sites are more clearly defined at the Rocks Road site in Seabrook, NH. Although only a single Fox Creek point was found, Jack's Reef-related materials comprised the greatest density of artifacts recovered from the site. These included corner-notched points and scrapers of yellow (or burned red) jasper as well as dentate-stamped and punctated pottery found in association with a feature dating 1365±115 B.P. (Robinson and Bolian 1987:29, 39–40).

The lithic and ceramic traditions evident at the Carns site extend northward along the Gulf of Maine coast but the northernmost extent of the complex remains unclear. In terms of Fox Creek related lithics, the Merrimack River may mark the

northern extent. Ceramic traditions, however, appear to have continued further to the north, even if the lithics did not. At the Great Diamond Island site in Casco Bay, Hamilton and Yesner (1985) documented an important sequence of dated ceramic styles. These included Vinette I pottery associated with a 2315 B.P. date, grit-tempered pottery with rocker and dentate stamping in the range of 1865–1520 B.P. dates, and shell-tempered pottery with cord-wrapped stick decoration identified with an 820 B.P. date (Hamilton and Yesner 1985; Petersen and Sanger 1991). Lobate-stemmed Lagoon-like points were recovered from the same strata as the Vinette 1 and dentate-stamped ceramics (Hamilton 1985:202–203, 204–206). An undated context at Great Diamond Island yielded one Fox Creek point (Hamilton 1985:208–209).

Similar associations have been found even further north in the Gulf of Maine. At the Turner Farm site, located on North Haven Island in the mouth of Penobscot Bay, Bourque (1995) documented another important ceramic sequence. Many lobate-stemmed points of local volcanic and metavolcanic material were recovered from the Second Gravel Floor (2GF) level of the site along with Vinette 1 and Pseudo Scallop Shell decorated pottery. Two C-14 dates, 2105 B.P. and 1955 B.P., were associated with the 2GF level. These Lagoon-like points were also found in the underlying level (B2GF), with a 3280–2275 B.P. date range, as well as in the overlying Coarse Crushed Shell (CCS) level. They were associated in the CCS level with dentate rocker-stamped pottery, which was also common in the upper portion of 2GF. The CCS level produced a single C-14 date of 1200 B.P. Interestingly, no Fox Creek-related bifaces were found at Turner Farm (Bourque 1995:170–179, 192–204, 263). The association of Lagoon/Rossville points with Pseudo Scallop Shell and dentate rocker-stamped pottery has also been documented on the Kidder Point site at the head of Penobscot Bay (Spiess and Hedden 1983:66–67).

One final site indicates how broadly the Early Woodland tradition evident at the Carns site was distributed across the far Northeast. The Oxbow site was located on a branch of the Miramichi River in northeastern New Brunswick. Excavations at this deeply stratified habitation site provided a sequence of lithic points and ceramics. Twelve radiocarbon dates ranging between 2980–1080 B.P. anchored this sequence (Allen 1980). Of particular interest is the association of Lagoon/Rossville points and grit-tempered pottery with rocker- and dentate-stamped motifs dating to 2145–1745 B.P. Although the Oxbow site is nearly 1,000 km away from the Cape, it remains one of the closest matches for the Early Woodland component at the Carns site.

To summarize, other coastal New England sites tell portions of the same story. Yet, the Carns site provides one of the most comprehensive views into Native life along the New England coast that is currently available for the period between 2,100 and 1,100 years ago. Further study of the materials from the Carns site will undoubtedly provide additional information on this period of dynamic change.

RECOMMENDATIONS

Through the process of site discovery, excavation and initial study, the Carns site has taught many lessons. It still has much to teach us.

Collections Management

In many ways, this report is preliminary. It is a review of the fieldwork and analysis done to date. The work required to complete the processing and analysis of the Carns site collection is far from over. The Carns site was a large excavation and, as a result, collections are large. At present the Carns site collection consists of 65 boxes of artifacts, 25 boxes of field notes and related documentation and nearly 300 boxes of soil samples. The latter include fire-cracked rock plus pollen, box and split-spoon cores.

This project has focused on putting together the record so that the basic story of the site is understood and appropriate plans for follow-up work can be developed. In terms of the artifacts, this process has emphasized cataloging and organizing the collection plus limited study of the diagnostic materials. Detailed analysis of the artifacts is yet to be done. Fortunately, the documentation from the Carns site is well organized.

A tremendous amount of soil was saved from the site. This project has assessed the pollen cores, box cores and other soil samples (primarily from features) recovered from the Carns site only in a preliminary way. One objective has been to identify those samples that could be discarded due to damage, degradation or loss of provenience, and those that still retain research value. Soil samples are valuable because they often contain unique evidence, such as plant and animal remains.

To date, this level of specialized analysis has been extremely limited and less than 5 percent of the soil samples collected from the Carns site have been analyzed. Due to practical constraints of the current project, most of the soil samples collected have not been processed yet. Before any definitive interpretations and conclusions can be made, the remainder of the collection must be properly processed and evaluated.

One way to accomplish this aim would be to develop a cooperative agreement with a university interested in the archeology of Cape Cod. Such an institutional partner might provide appropriate assistance in completing this work.

Recommendation #1.

> Finish the processing and evaluation of the Carns site collection.

The collection from the Carns site has the potential to provide a new and detailed view into one of the most interesting yet least understood periods of the Cape's cultural past. This period is the interval between 2,100 and 1,100 years ago when the environment of Cape Cod began to take on its present-day appearance. Even at this preliminary stage, it is evident that the story of the Carns site is a very good one. Once the collection is properly processed and evaluated, well-focused research can bring this story and its interpretative potential into sharper focus.

Recommendation #2.

> Develop a comprehensive plan for analysis of the Carns site collection. This plan should include specific recommendations for the kinds of analysis needed, long-term research, curation of the collection and public interpretation.

Site Management

One clear lesson from the Carns site is that this situation will happen again. At some point, erosion will expose another important site, if not at Coast Guard Beach then on Great Island, at High Head or elsewhere within the Cape Cod National Seashore. The time to prepare for that eventuality is now, before the crisis occurs.

Recommendation #3.

> Prepare a contingency plan for future cases of site exposure. Make sure that the appropriate state and Native American organizations, such as the Massachusetts State Archeologist, SHPO and Commission on Indian Affairs, as well as the Wampanoag Tribal Council, are integrated into this plan.

NPS employees probably will not be able to monitor all the archeologically sensitive areas within the Cape Cod National Seashore, given the realities of funding and staff workloads. It is worth remembering that responsible reporting from a private individual is what brought the Carns site to the attention of Cape Cod National Seashore staff. With appropriate encouragement and

training, the burden of monitoring sensitive areas could be shared with local residents who would be glad to assist.

Recommendation #4.

> Utilize the public's general interest in archeology, and the Carns site story in particular, to build a group of volunteers who can assist Cape Cod National Seashore staff in monitoring sensitive areas. Experience in other NPS units has demonstrated that, with appropriate training and oversight, volunteer groups can play a substantial role in the protection and interpretation of cultural resources.

Public Interpretation and Education

The Carns site story is one of people living in and changing with their environment over a long time span. As such it is an excellent example of how natural history and cultural history are different aspects of the same story. Given the intense publicity that has surrounded this project, the Carns site has great potential to enliven the interpretative outreach program of Cape Cod National Seashore. A series of workshops or even a conference could be used to define and refine interpretative themes and potential in greater detail.

Recommendation #5.

> Use the story of the Carns site as a case study to strengthen and enhance interpretation of the Cape Cod National Seashore's main theme—how interactions of land and water over time have created the rich and diverse environments that characterize Cape Cod.

The Carns site is not the only significant Native archeological site within the Cape Cod National Seashore. Many other important sites are located around Nauset Marsh, along Wellfleet Harbor and at High Head. In fact, the Cape Cod National Seashore boundaries were determined in part on the basis of archeological considerations. Whether it is the work of outstanding amateur archeologists such as Ross Moffett or professional excavations or the intensive survey work done by the NPS, the Cape Cod National Seashore has an exceptionally strong informational base that can and should be used in its interpretative program.

Recommendation #6.

> Build archeology into the interpretative outreach program of the Cape Cod National Seashore in a more fundamental and integrated manner. Native American history and archeology are an essential part of the story of Cape Cod, one that the visiting public expects but does not currently receive.

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Radiocarbon Dates from the Carns Site Area

Dates are presented in two tables. Table 1 summarizes cultural dates from the Carns site. Table 2 summarizes environmental dates from the Carns site area. The data in Table 1 are taken from the NPS submission requests and lab reports. The data in Table 2 are from the References cited. Note: The dates in this report have *not* been calibrated so that comparisons can be made with other sites and environmental studies in the region.

Table 1. Cultural dates from the Carns site.

NPS Sample #	Provenience	Material dated	C-14 date yr BP ±1s	C-13 corr.	C-14 date yr BP C-13 adjusted	Lab #
1	Locus 2, fea. 1A	charcoal	2020±80 BP	-26.4	2000±80 BP	Beta-48237
2	Locus 2, fea. D-25	charcoal	950±100 BP	-26.9	920±100 BP	Beta-48238
101	Locus 2, fea. D-18	Dicot wood charcoal		-26.8	1670±35 BP	OS-4126
102	Locus 2, S1/W6, Buried A	hickory charcoal		-26.91	1400±35 BP	OS-4128
103	Locus 2, S1/W6, Buried A	hickory charcoal		-25.99	1490±35 BP	OS-4127
104	Locus 10, fea. 100	hickory charcoal		-25.06	570±25 BP	OS- 4846
105	Locus 10, fea. 93D	wood charcoal		-26.27	2020±65 BP	OS-4847
106	Locus 10, fea. 103D	hardwood charcoal		-26.27	2400±25 BP	OS-4848
107	Locus 2, fea. D-13	hickory charcoal		-26.06	850±25 BP	OS-4849
108	Locus 10, fea. 133G	hardwood charcoal		-25.79	2130±25 BP	OS-4850
109	Locus 10, fea. 83A	hardwood charcoal		-25.52	1540±30 BP	OS-4851
110	Locus 2, fea. D-10	hardwood charcoal		-27.52	1140±30 BP	OS-4852
111	Locus 10, fea. 58A	wood charcoal		-26.83	1610±30 BP	OS-4853
112	Locus 10, fea. 124	charcoal		-26.29	2060±30 BP	OS-4854
113	Locus 2, fea. D-11	charcoal		-26.77	1180±25 BP	OS-4855

Table 2. Environmental dates from the Carns site area.

NPS Sample #	Provenience	Material dated	C-14 date yr BP ±1s	C-13 corr.	C-14 date yr BP C-13 adjusted	Lab #	References
none	N/A	wood	9320±130 BP	N/A		OS-N/A	Jones 1992
CGP1.1	75-81cm	peat	4890±130 BP	N/A		I-13, 694	Borstel 1991
CGP1.2	395-400cm	peat	8880±250 BP	N/A		I-13, 695	Borstel 1991
CGP2.1	116-124cm	peat	4090±100 BP	N/A		I-13, 696	Borstel 1991
CGP2.2	435-444cm	peat	8710±140 BP	N/A		I-13, 705	Borstel 1991
1 - core 6	162-166cm	peat	1180±70 BP	-27.1	1150±70 BP	Beta-53706	Boothroyd 1992
2 - core 6	228-231cm	peat	2170±70 BP	-29.4	2100±70 BP	Beta-53707	Boothroyd 1992
3 - core 6	186-190cm	peat	1630±80 BP	-26.2	1610±80 BP	Beta-53708	Boothroyd 1992
4 - core 5	58-62cm	peat	380±90 BP	-15.5	540±90 BP	Beta-53709	Boothroyd 1992
5 - core 5	162-166cm	peat	1180±60 BP	-23.5	1200±60 BP	Beta-53710	Boothroyd 1992
6 - core 5	210-214cm	peat	2250±70 BP	-26.7	2220±70 BP	Beta-53711	Boothroyd 1992

Carns Site Feature Inventory

This inventory of features recorded during excavation of the Carns site is reproduced from Stillson's 1994 draft report where it was Appendix 1.

Locus 2. December 1990 Features

Feature #	Provenience	Description
1A	Initial feature	firepit
1C	N-1 E-4 Q1	FCR concentration
1E	N-2 E0 Q3&4	historic postmold
2A	N5 E0 Q3	historic postmold
2C	N8 E-4 Q2	historic postmold
3	N8 E-4 Q2	charcoal (associated with 1F/2C)
4A	N-1 E-3 Q2	shallow stain
4B	N-2 E-3 Q2	shallow stain
6	N3 E0 Q4	FCR and stain (associated with D15)
7	N0 E0 Q4	FCR concentration
8	N1 E-1 Q1	brown stain
9	N1 E-1 Q3	possible postmold
D10	N0 E-4 Q1	postmold
D11	N0 E-3 Q2,3&4	stain with charcoal
D12	N0 E-4 Q2	postmold
D13	N0 E-5 Q2&3	pit feature with flakes
D14	N1 E-5 Q4	postmold
D15	N2 E-4 Q3	red stain (associated with 6)
D16	N2 E-4 Q3	postmold
D17	N3 E-5 Q2	postmold
D18	N4 E-4 Q3&4	platform hearth
	N4 E-5 Q1,2&3	
	N5 E-4 Q3&4	
	N5 E-5 Q1&4	
D19	N4 E-5 Q1	postmold
D20	N4 E-5 Q2	postmold
D21	N5 E-4 Q3	postmold
D22	N5 E-4 Q4	postmold
D23	N5 E-5 Q3	postmold
D24	N-1 E-4 Q3	postmold
D25	N-1 E-4 Q2&3	large pit feature
	N-1 E-5 Q2&3	
D26	N-2 E-3 Q3	possible postmold
D27	N-3 E-2 Q2&3	small pit feature
D28	N-3 E-3 Q2	possible postmold
D29	N-3 E-3 Q3	postmold
D30	N-2 E-2 Q4	historic postmold (same as 1E)
D31	N-3 E-5 Q4	dark soil stain
D32	N-2 E2 Q1	black organic stain

Locus 2. December 1990 Features (continued)

Feature #	Provenience	Description
D33	N-2 E2 Q3	postmold
D34	N-2 E-3 Q2	historic postmold
D35	N-3 E0 Q3	postmold
D36	N-3 E0 Q1&4	shallow black stain

Locus 2. May 1991 Features

Feature #	Provenience	Description
26	N2 E-4 Q1	shallow stain
27	N1 E-5 Q3&4	shallow stain
28	N1 E-5 Q3&4	2 postmolds
29	N-4 E-5 Q2	postmold
30	N-4 E-4 Q2	postmold
32	N-4 E-5 Q1	2 shallow stains
33	N-6 E-4 Q2	postmold
34	N-6 E-4 Q1	possible postmold
35	N-5 E-2 Q1	organic stain
36	N-4 E-2 Q2	possible postmold
37	N0 E-6 Q2	deep stain
38	N-2 E-5 Q1	shallow stain
39	N-5 E-2 Q4	large, shallow organic stain
	N-5 E-3 Q3	
40	N-1 E-6 Q1	FCR concentration
41	N-2 E-5 Q4	postmold
42	N-5 E-2 Q4	small, circular organic stain
43	N-1 E-6 Q1	postmold
44	N-5 E-4 Q3	organic stain
45	N-2 E-6 Q2	organic stain
46	N0 E-6 Q3	postmold
47	N-5 E-4 Q4	dark stain
48	N-4 E-3 Q4	large pit feature
49	N4/6 E-18/-16 3A	possible postmold
51	N29.5/30	shallow stain in wall of scarp
52	N24/24.5	historic postmold in wall of scarp
54A	N22/24 E-26/-24 1A&B	filled feature
54B	N22/24 E-26/-24 2A	small black irregular stain
54C	N22/24 E-26/-24 2A	indistinct black lens NE of 54B
54D	N22/24 E-26/-24 1D	postmold
54E	N22/24 E-26/-24 2A	postmold
54F	N22/24 E-26/-24 1	pit with FCR
54G	N24/26 E-26/-24 1D	postmold
54H	N22/24 E-26/-24 2A	postmold

Locus 10. Features

Feature #	Provenience	Description
54I	N24/26 E-26/-24 1A	historic postmold
	N24/26 E-26/-24 4C	
54J	N24/26 E-24/-22	postmold
57A	N26/28 E-26/-24 1	ash lens
57C	N26/28 E-24/-22 1B	possible postmold
58A	N30/32 E-24/-22 4B	FCR concentration with charcoal
59B	N28/30 E-24/-22 ?	ash concentration
60A	N18/20 E-18/-16 3A&B	FCR and stain
60C	N18/20 E-19/-16 4B&C	FCR concentration
62A	E32.5/23	postmold in wall of scarp
63	N40 E-24	postmold in wall of scarp
64	N38.5/39	postmold in wall of scarp
65	N37.5/38	postmold in wall of scarp
66	N35.5/36	historic postmold in wall of scarp
67	N35.5/36	postmold in wall of scarp
68	N42/42.5	rodent disturbance in wall of scarp
69	N43.5/44	possible postmold in wall of scarp
70	N43.5/43	ash deposit in wall of scarp
71	N41.5/42	pit feature in wall of scarp
72	N24/26 E-24/-22 2A&B	historic postmold
73A	N22/24 E-24/-22	hearth/hearth cleaning with FCR
73H	N22/24 E-24/-22 1A	possible postmold
73I	N24/26 E-24/-22 1B	postmold
73J	N22/24 E-24/-22 2A	FCR concentration and stain
73K	N22/24 E-24/-22 2A	greasy stain
74A	N32/34 E-26/-24 1C&D	stain
74B	N32/34 E-26/-24 2A&D	postmold
74C	N30/32 E-26/-24 2D	possible postmold
74D	N26/28 E-26/-24 2D	post depression
75	N26/28 E-24/-22 4D	postmold
75A	N26/28 E-24/-22 4D	postmold
75B	N26/28 E-24/-22 4D	postmold
75C	N26/28 E-24/-22 4D	postmold
76A	N28/30 E-24/-22 1C, 3A	hearth cleaning
76B	N28/30 E-24/-22 4A	postmold
76C	N28/30 E-24/-22 4D	rodent burrow
77A	N18/20 E-22/-20 1C, 2D	FCR scatter
77B	N18/20 E-22/-20 2B	postmold
78A	N22/24 E-22/-20 1A&D	stain
78B	N22/24 E-22/-20 1A	stain
79A	N24/26 E-26/-24 2C	FCR cluster with ceramics
79B	N26/28 E-26/-24 1B	possible postmold
79C	N26/28 E-24/-22 3D	postmold
80A	N22/24 E-24/-22 4B	pit feature with black stain

Locus 10. Features (continued)

Feature #	Provenience		Description
80B	N22/24 E-24/-22	4D	pottery
81A	N24/26 E-24/-22	3D	possible postmold
82A	N26/28 E-24/-22	3A	postmold
83A	N20/22 E-22/-20	3A, 2C&D	pottery feature
84A	N24/26 E-22/-20	2A	postmold
84B	N24/26 E-22/-20	3D	postmold
85A	N16/18 E-20/-18	2A	postmold
85B	N16/18 E-20/-18	2B	hearth
85C	N16/18 E-20/-18	2C	hearth
85D	N16/18 E-20/-18	3D	postmold
85E	N16/18 E-20/-18	A,B	postmold
85F	N16/18 E-20/-18	4B	hearth
85G	N16/18 E-20/-18	4A	postmold
85H	N16/18 E-20/-18	4A	postmold
85I	N16/18 E-20/-18	3A,B	postmold
86	N20/22 E-18/-16	4A	stain
87	N32/34 E-24/-22	4B	historic postmold
87A	N18/20 E-20/-18	3A (2D)	stain
87B	N18/20 E-20/-18	2C	stain
88	N32/34 E-24/-22	4A	historic postmold
89A	N20/22 E-22/-20	1B	burned postmold
89B	N20/22 E-22/-20	1C	burned postmold
89C	N20/22 E-22/-20	1C	possible postmold
90	N24/26 E-22/-20	1B	possible postmold
91	N22/24 E-22/-20	2A	stain
92	N16/18 E-18/-16	3A	stain
93A	N18/20 E-18/-16	1AB, 4CD	pit feature with FCR
93B	N18/20 E-18/-16	2CD	pottery concentration
93C	N18/20 E-18/-16	1C	FCR scatter
93D	N18/20 E-18/-16	4A,3B	pit feature with FCR
93E	N16/18 E-18/-16	2BC	pit feature with charcoal
93F	N16/18 E-18/-14	2B,1A, 3C, 4D	stain
94	N18/20 E-20/-18	1D	postmold
95	N22/24 E-20/-18	4D	postmold
96	N20/22 E-20/-18	4D	postmold
97	N20/22 E-20/-18	4B	stain
98	N6/8 E-20/-18	4A,B&C	black circular stain
99	N18/20 E-20/-18	4B	possible postmold
100	N22/24 E-20/-18	3A,B&C	possible hearth
	N24/26 E-20/-18	4A,B	
100A	N24/26 E-20/-18	4A,B	black stain with charcoal

Locus 10. Features (continued)

Feature #	Provenience	Description
100B	N24/26 E-20/-18 4C,3D	circular stain
100C	N24/26 E-20/-18 3C	circular stain
100D	N22/24 E-20/-18 2B	pottery concentration
101	N18/20 E-20/-18 4D	possible postmold
102	N22/24 E-20/-18 1C	postmold
103A	N12/14 E-20/-18 4D	small pit with charcoal and bone
103B	N12/14 E-20/-18 4D	postmold
103C	N12/14 E-20/-18 4C	postmold
103D	N10/12 E-20/-18 3A	postmold
103E	N14/16 E-22/-20 1A	postmold
103F	N12/14 E-22/-20 2A	possible postmold
103G	N10/12 E-20/-18 4B	possible postmold
103H	N12/14 E-22/-20 1C	possible postmold
103I	N10/12 E-20/-18 4B	postmold
103J	N8/10 E-20/-18 3B	postmold
103K	N8/10 E-20/-18 2C	possible postmold
104	N8/10 E-20/-18 3D	possible postmold
105	N22/24 E-20/-18 4A	rodent disturbance
106	N8/10 E-20/-18 3A	possible postmold
107	N10/12 E-20/-18 4D	possible postmold
108	N20/22 E-20/-18 3D	stain
109	N20/22 E-20/-18 3A	stain
110	N20/22 E-20/-18 3A	small pit
111	N20/22 E-20/-18 2B	irregular pit
111A	N20/22 E-20/-18 3B	stain
112	N14/14.5 E-20/-18	flake concentration
113	N10/12 E-20/-18 2B	possible postmold
114A	N12/14 E-20/-18 2A	possible postmold
114B	N12/14 E-20/-18 2C	possible postmold
114C	N12/14 E-20/-18 1C	shallow stain
115	N10/12 E-20/-18 2D	possible postmold
116	N10/12 E-20/-18 3D	small bowl shaped stain
117	N8/10 E-20/-18 2D	possible postmold
118	N20/22 E-22/-20 4C	possible postmold
119	N10/12 E-22/-20 2B	stain
120	N8/10 E-22/-20 2D	large stain with pottery, charcoal
121	N10/12 E-22/-20 1D	stain
122	N16/18 E-24/-22 1B,C	postmold
123	N16/18 E-24/-22 2B	possible postmold (rodent?)
124	N16/18 E-26/-24 2C,D	FCR concentration
125	N24/26 E-30/-32 4A	stain
126A	N6/8 E-20/-18 1B	postmold
126B	N6/8 E-20/-18 1C	unknown
126C	N6/8 E-20/-18 2B	possible postmold
126D	N6/8 E-20/-18 1D	stain

Locus 10. Features (continued)

Feature #	Provenience	Description
127	N20/22 E-24/-22 2B	stain
128	N20/22 E-24/-22 4D	possible postmold
129	N20/22 E-24/-22 4A	possible postmold
130	N20/22 E-26/-24 2A	unknown
131A	N20/22 E-30/-28 1	possible hearth
131B	N20/22 E-30/-28 3A	fire reddened area
131C	N20/22 E-30/-28 2D	dark stain
131D	N20/22 E-30/-28 1B	FCR/stain
132A	N24/26 E-30/-28 2C	shallow stain
132B	N24/26 E-30/-28 2C	stain
132C	N24/26 E-30/-28 2D	shallow stain
132D	N24/26 E-30/-28 2A	shallow stain
132E	N24/26 E-30/-28 1B	unknown
132F	N24/26 E-30/-28 1D	FCR with stain
133	N26/28 E-28/-26 4B	FCR with charcoal and flakes
133A	N26/28 E-28/-26 2A	possible postmold
133B	N26/28 E-28/-26 2C	possible postmold
133C	N26/28 E-26/-24 3D	unknown
133D	N26/28 E-26/-24 4D	possible postmold
133E	N26/28 E-28/-26 1A	possible postmold
133F	N26/28 E-28/-26 4C	unknown
133G	N26/28 E-30/-28 3A, 2C,D	FCR concentration
133H	N26/28 E-30/-28 4D	FCR concentration
134	N16/18 E-28/-26 1-4	hearth area, FCR
135	N18/20 E-26/-24 1A	postmold
136	N18/20 E-26/-24 1C	postmold
137	N18/20 E-28/-26 1&2	stain with oxidized soil
138	N18/20 E-24/-22 2B	oxidized soil with FCR
139	N14/16 E-20/-18 2C	black stain with charcoal
140	N4/6 E-18/-16	stain with charcoal
140A	N4/6 E-18/-16	charcoal concentration
140B	N4/6 E-18/-16 3D	postmold
140C	N4/6 E-18/-16 3B	stain with flakes
140D	N4/6 E-18/-16 1D	postmold
140E	N4/6 E-18/-16 3C	postmold
141A	N18/20 E-24/-22 3C	postmold
141B	N18/20 E-24/-22 3C	postmold
142	N24/26 E-26/-24 3C	possible postmold
143	N20/22 E-24/-22 3C	possiblepostmold
144A	N6/8 E-16/-14 3C	stain
144B	N8/10 E-18/-16 1D	flake and pottery concentration

Lithics from the Carns Site

The terminology used in this report to describe the lithic artifacts from the Carns site was drawn from several sources. First was the *Guide to Prehistoric Site Files and Artifact Classification System* by Eric Johnson and Tom Mahlstedt (1984) and published by the Massachusetts Historical Commission (MHC). This guide contains detailed descriptions for many of the most frequently occurring projectile point (biface) types found in Massachusetts. The MHC Guide itself was drawn primarily from two earlier works. One was William Ritchie's *New York Projectile Points: Typology and Nomenclature*, which the New York State Museum first published in 1961. Based on his excavations on Martha's Vineyard, Ritchie (1969) subsequently expanded this typological system, as did his colleague and successor, Robert A. Funk, based on his work on sites in the Hudson Valley (Funk 1976). The second important source for the MHC Guide was the classification work of William Fowler, especially his 1963 article in the *Bulletin of the Massachusetts Archaeological Society*. A revised and expanded version of Fowler's work, *A Handbook of Indian Artifacts from Southern New England* (Hoffman 1991), is still available from the Society. Finally, this project has also used much of the analytical logic and descriptive terminology developed by Frank McManamon (1984) for the archaeological survey of the Cape Cod National Seashore.

Based on the above, the following terms are used in this report:
Core. This term is used to describe the initial stage of working a piece of raw material, usually a cobble, into a finished form. This category includes blocks of raw material up to 2 kg in weight that show evidence of flake removal as well as decortified cobbles.

Preform. This term is used to describe the secondary stages of bifacial thinning and shaping.

Biface. This term refers to a completed stone tool. Although many bifaces functioned as projectile points, many were used as knives, scrapers, drills or a combination of the above.

Projectile Point. Although frequently called "arrowheads," most of the projectile points discussed in this report tipped wooden darts thrown with an atlatl or throwing stick, not arrows. Points are also referred to by a typological name (e.g., a Lagoon point) when appropriate. Otherwise they are described as untyped. Additional comments clarify the projectile point type name used most frequently in this report.

Rossville. Ritchie (1961:46) uses this name to describe the thick, rhomboidal points frequently associated with the Early Woodland Period. This report uses Rossville to describe a distinctive group of well-made projectile points with distinct, if weak, shoulders and a tapered base. These points also appear to have a slightly different distribution at Carns than the lobate-based "Lagoon" points described below. This subject is worthy of further inquiry.

Lagoon. Based on his Martha's Vineyard excavations, Ritchie (1971:123) defined several new point types. He used Lagoon to describe the "narrow, thick, rather crudely made, lobate stemmed points" that were considered "fairly common" across southern New England. The sample from Carns indicates clearly that these points were not crude. Rejected and incomplete examples aside, these points are finely made and proportioned. Most have clearly defined, though not robust, shoulders and a well finished base. In overall appearance, these points are much closer to his "Adena" points (Ritchie 1961:12-13) than they are to the unfortunate example chosen to illustrate the type.

Fox Creek. Funk chose the names "Fox Creek Lanceolate" and "Fox Creek Stemmed" to describe two closely related but problematical point types that Ritchie (1961:50-51) termed "Steubenville Lanceolate" and "Steubenville Stemmed." Based on excavations in the Hudson Valley, Funk (1976:287-288) demonstrated that these medium to large bifaces were common on Middle Woodland sites and diagnostic of his newly defined Fox Creek phase. Although the MHC Guide elected to call these types "Woodland Lanceolate" and "Woodland Stemmed," this report has followed Funk's convention and uses the term "Fox Creek."

Greene. These lanceolate bifaces with a straight or slightly rounded base were termed "Greene" points by Funk (Ritchie 1971:122). This Middle Woodland form often occurs with Fox Creek points and may actually be a subset of them. The Carns site examples are, as Funk describes, "frequently well-flaked and invariably symmetrical," often with weakly defined shoulders or notching.

Petalas. One additional Middle Woodland form, defined by Funk in the Hudson Valley, appears to be present at Carns. At the Petalas site, the most common artifact was a very large and broad biface that probably functioned as a specialized knife or butchering tool (Funk 1976:64-69, 86). The fragmentary examples from Carns are consistent with Funk's description.

Table 3. Cores, Preforms and Bifaces by Locus

Locus	Cores	Preforms	Bifaces	Total	
1	2	3	13	18	
2	9	12	79	100	
10	34	10	123	167	
Total	45	25	215	285	

Table 4. Cores, Preforms and Bifaces by Lithic Material

Locus	Material	% Cores	% Preforms	%Bifaces
1	Quartzite	50	25	0
	Felsite	50	50	1
	Quartz	0	25	0
2	Quartzite	55	42	1
	Felsite	33	50	0
	Quartz	11	8	0
10	Quartzite	29	50	0
	Felsite	62	50	1
	Quartz	9	0	0
	Chert	0	0	0

Table 5. Projectile Points for the Carns Site.										
Locus	Small Stem	Cape Stem	Rossville	Lagoon	Fox Creek	Greene	Petalas	Triangle	Untyped	Total
1	1	1	2	0	0	0	0	1	3	8
2	0	0	2	10	6	4	0	1	3	26
10	1	1	0	5	18	3	2	3	0	33
Total	2	2	4	15	24	7	2	5	6	67

Table 6. Projectile Points from Locus 1 by Lithic Material.										
Material	Small Stem	Cape Stem	Rossville	Lagoon	Fox Creek	Greene	Petales	Triangle	Untyped	Total
Quartzite	0	0	1	0	0	0	0	0	3	4
Felsite	0	0	1	0	0	0	0	0	0	1
Quartz	1	1	0	0	0	0	0	1	0	3
Chert	0	0	0	0	0	0	0	0	0	0
Total	1	1	2	0	0	0	0	1	3	8

Table 7. Projectile Points from Locus 2 by Lithic Material.										
Material	Small Stem	Cape Stem	Rossville	Lagoon	Fox Creek	Greene	Petalas	Triangle	Untyped	Total
Quartzite	0	0	1	8	5	3	0	1	0	18
Felsite	0	0	1	0	1	1	0	0	2	5
Quartz	0	0	0	1	0	0	0	0	1	2
Chert	0	0	0	1	0	0	0	0	0	1
Total	0	0	2	10	6	4	0	1	3	26

Table 8. Projectile Points from Locus 10 by Lithic Material.										
Material	Small Stem	Cape Stem	Rossville	Lagoon	Fox Creek	Greene	Petalas	Triangle	Untyped	Total
Quartzite	0	0	0	5	6	1	0	0	0	12
Felsite	0	0	0	0	12	2	2	2	0	18
Quartz	1	1	0	0	0	0	0	1	0	3
Chert	0	0	0	0	0	0	0	0	0	0
Total	1	1	0	5	18	3	2	3	0	33

Table 9. All Projectile Points by Lithic Material.									
Material	Count	Percentage							
Quartzite	34	50%							
Felsite	23	34%							
Quartz	9	14%							
Chert	1	2%							
Total	67	100.00							
Material	Small Stem	Cape Stem	Rossville	Lagoon	Fox Creek	Greene	Petalas	Triangle	Untyped
Quartzite	0	0	50%	86.66%	45.83%	57.14%	0	20%	50%
Felsite	0	0	50%	6.66%	54.16%	42.85%	100%	40%	33.33%
Quartz	100%	100%	0	0	0	0	0	40%	16.66%
Chert	0	0	0	6.66%	0	0	0	0	0

Ceramics from the Carns Site

The methodology and terminology used to describe the ceramics from the Carns site is drawn from two sources. First is an excellent system that Terry Childs (1984a, b) developed for analyzing the ceramics recovered during the survey of the Cape Cod National Seashore. Although this preliminary effort has not been as detailed as Childs' study, we feel the analyses were similar enough that the results can be used comparatively.

The second source used in this report is the Ceramic Period sequence developed by Jim Petersen and Dave Sanger (1991) from sites in the northern portion of the Gulf of Maine. While the overall similarities and/or differences in ceramics throughout the region remain to be determined, the Petersen and Sanger approach provides a good model for how to organize the ceramic data at the southern end of the Gulf of Maine.

Table 10.

Table 10a. Ceramic Vessels from the Carns Site

Vessel Lot	Locus	Excavation Unit	Feature	Sherd Count	Sherd Weight	Temper	Color	Est. Diameter	Est. Height	Primary Decora-tion	C-14 Date	Ceramic Period	CACO Number
1	1			33	257g	Coarse Grit	Gray	16cm	~25cm	3 rows of Shallow Punctates		CP2/3	57590
2	1			20	113g	Coarse Grit	Gray	16cm	~25cm ?	Shallow Punctates		CP2/3	57488
3	1		Cluster 1	2	34g	Coarse Grit	Gray			Shallow Punctates		CP2/3	57509, 57510
4	1		Cluster 7	3	25g	Very Coarse Grit	Gray			Incised?		CP3	57519, 57520
5	1		Cluster 7	3	72g	Medium Grit, sandy	light tan/ gray			Rocker Dentate		CP2/3	57518
6	1	N6/E3 TP 19	Cluster 3	29	64g	Medium Grit	light tan/ orange			Rocker Dentate		CP 2	57525 57521 57522
7	1	N105/E3		1	3g	Medium Grit	light tan/ gray			Smooth		CP2 ?	57498
8	1	N105/E3		4	23g	Very Coarse Grit	Gray			Smooth		CP2/3	57496
9	2	N4/W4	D-18	2	2g	Medium-Coarse Grit	Light Brown			Rocker Linear	1670 BP	CP3	57616, 57614
10	2	S2/W5		1	1g	Medium Shell and Grit	Tan			Incised		CP4-6 ?	57620
11	2	N0/W4 S1/W4 S1/W5	D-10 D-11	122	439g	Coarse Grit	Tan	26cm	~30-35cm	Scallop Shell Impressed	1140 BP 1180 BP	CP4	57587
12	2	S1/W4	D-25	1	4g	Shell	Gray			Smooth	920 BP	CP5/6	57562
13	2	N0/W4		2	9g	Medium Grit	Tan			Incised Lines		CP4?	57555, 57556
14	10	N22/20 W22/20	83A	min 8	116g	Coarse Grit	Tan	30cm	35-40cm ?	Drag Scallop Shell Stamp	1540 BP	CP3	60567
15	10	N22/20 W22/20	83A	min 14	332g	Medium Grit	Orange/ Brown	23cm	12cm ?	Scallop Shell Rocker	1540 BP	CP2/3	57591
16	10	N22/20 W22/20	83A ?	min 3	20g	Coarse Grit	Tan/ Orange			Scallop Shell Impressed		CP4	60580

Table 10b.

Provenience	Sherd Type	Temper	Decoration	Form	Shape	Cnt	Weight g	CAT #
Locus 10 Unit/Quad 2B N16/18 W26/24 Plowzone	Body	Grit, Coarse	Undecorated	Indeterminate	Straight	1	6	57582
Locus 10 Unit/Quad 3C N18/20 W18/16 Transitional	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	1	4	57571
Locus 10 Unit/Quad 3C Cluster 5 N18/20 W18/16 Trans.	Rim	Grit, Coarse	Dentate, Fingernail	Straight	Rounded	1	3	57572
Locus 10 Unit/Quad 3C Cluster 5 N18/20 W18/16 Trans.	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	10	5	57573
Locus 10 Unit/Quad 3C Cluster 5 N18/20 W18/16 Trans.	Indeterminate	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	1 Vial	9	57574
Locus 10 Unit/Quad 3C Cluster 5 N18/20 W18/16 Trans.	Body	Grit, Coarse	Punctate	Indeterminate	Indeterminate	2	2	57575
Locus 10 Unit/Quad 3C Cluster 5 N18/20 W18/16 Trans.	Rim	Grit, Coarse	Corded, Impressed	Straight	Rounded	1	12	57576
Locus 10 Unit/Quad 3C Cluster 5 N18/20 W18/16 Trans.	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	1	4	57577
Locus 10 Unit/Quad 3C Cluster 5 N18/20 W18/16 Trans.	Body	Shell	Undecorated	Indeterminate	Indeterminate	8	2	57578
Locus 10 Unit/Quad 3C Cluster 5 N18/20 W18/16 Trans.	Body	Indeterminate	Indeterminate	Indeterminate	Indeterminate	1	1	57579
Locus 10 Unit/Quad 3C Cluster 5 N18/20 W18/16 Trans.	Body	Shell and Fine Grit	Undecorated	Indeterminate	Straight	1	5	57580
Locus 10 Unit/Quad 3C Cluster 5 N18/20 W18/16 Trans.	Body	Shell	Undecorated	Indeterminate	Indeterminate	1	0.6	57581
Locus 10 Unit/Quad 4C N20/22 W26/24 Plowzone Cluster 3	Body	Grit, Medium	Possible Dentate	Indeterminate	Indeterminate	1	5	57603
Locus 10 Unit/Quad 2D N20/22 W22/20 7cmbd Cluster 3 P811	Body	Grit, Medium	Dentate, Fingernail	Indeterminate	Straight	1	13	57604
Locus 10 Unit/Quad 2C N20/22 W22/20 19-24cmbd Cluster 4	Body	Grit, Medium	Dentate, Shell	Indeterminate	Indeterminate	8	10	57605
Locus 10 Unit/Quad 3A N20/22 W22/20 17-25cmbd Plan 814	Rim w/Body	Grit, Medium	Dentate	Curved	Angled	9	301	57591
Locus 10 Unit/Quad 2A N20/22 W22/20 Interface Cluster 3	Body	Grit, Coarse	Dentate	Indeterminate	Straight	3	24	57592
Locus 10 Unit/Quad 3B N20/22 W22/20 16-21cmbd Cluster 3	Body	Grit, Coarse	Undecorated	Indeterminate	Straight	8	21	57594

Provenience	Sherd Type	Temper	Decoration	Form	Shape	Cnt	Weight g	CAT #
Locus 10 Unit/Quad 3B N20/22 W22/20 11-16cmbd Cluster 3	Body	Grit, Coarse	Undecorated	Indeterminate	Straight	5	12	57595
Locus 10 Unit/Quad 3B N20/22 W22/20 17-23cmbd Cluster 3	Body	Grit, Medium, Shell	Undecorated	Indeterminate	Curved	10	14	57596
Locus 10 Unit/Quad 3B N 20/22 W22/20 4-11cmbd Cluster 4	Body	Grit, Coarse	Dentate, Shell	Indeterminate	Straight	2	12	57597
Locus 10 Unit/Quad 2B N20/22 W22/20 4-11cmbd Cluster 4	Body	Grit, Coarse	Dentate, Fingernail	Indeterminate	Straight	3	9	57598
Locus 10 Unit/Quad 2B N20/22 W22/20 4-11cmbd Cluster 4	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	8	6	57599
Locus 10 Unit/Quad 2B N20/22 W22/20 4-11cmbd Cluster 4	Body	Grit, Coarse	Dentate, Shell	Indeterminate	Indeterminate	1	4	57600
Locus 10 Unit/Quad 2D N20 E 22 9-14cmbd Cluster 3 P811	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	1	3	57606
Locus 10 Unit 2 N20/22 W22/20 Plowzone/Interface	Body	Grit, Coarse	Undecorated	Indeterminate	Straight	4	13	57593
Locus 10 Unit/Quad 2B N20/22 W28/26 Plowzone	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	3	0.5	57827
Locus 10 Unit/Quad 4D N20/22 W 30/28 24cmbd	Rim	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	1	0.3	57828
Locus 10 Unit/Quad 3A N20/22 W26/24 Plowzone	Rim	Grit, Coarse	Undecorated	Straight	Rounded	4	6	57823
Locus 10 Unit/Quad 3A N20/22 W26/24 Plowzone	Body	Indeterminate	Indeterminate	Indeterminate	Indeterminate	1	0.1	57824
Locus 10 N20/22 W22/20 Cluster 3 Plan 520 Interface	Rim	Grit, Coarse	Undecorated	Straight	Angled	1	11	57601
Locus 10 N20/22 W22/20 Plowzone Cluster 3	Body	Grit, Coarse	Dentate	Indeterminate	Straight	2	16	57602
Locus 10 Unit/Quad 4 N 20/22 W26/24 Plowzone	Body	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	1	0.6	57825
Locus 10 Unit/Quad 3C N20/22 W 28/26 Plowzone	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	1	0.8	57826
Locus 10 Unit/Quad 1C N20/22 W22/26 12-14cmbd	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	1	2	57829
Locus 10 Unit/Quad 1 N20/22 W22/20 Plowzone/Transitional	Body	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	1	1	57830

Provenience	Sherd Type	Temper	Decoration	Form	Shape	Cnt	Weight g	CAT #
Locus 10 Unit/Quad 2A N20/22 W22/20 8cmbd Plan 811	Rim	Grit, Medium	Dentate, Fingernail	Straight	Rounded	1	33	57831
Locus 10 Unit/Quad 2 N20/22 W 22/20 0-9cmbd	Body	Grit, Medium	Indeterminate	Indeterminate	Indeterminate	1	1	57832
Locus 10 Unit/Quad 2B N20/22 W22/20 11-15cmbd	Body	Grit, Medium	Undecorated	Indeterminate	Indeterminate	8	10	57833
Locus 10 Unit/Quad 2B N20/22 W22/20 19-24cmbd	Rim	Grit, Coarse	Undecorated	Straight	Rounded	1	4	57834
Locus 10 Unit/Quad 2C N20/22 W22/20 13cmbd Feat 83A	Rim	Grit, Medium	Undecorated	Straight	Rounded	4	25	57835
Locus 10 Unit/Quad 2CD 3AB N20/22 W22/20 Feat 83A	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	13	9	57838
Locus 10 Unit/Quad 2C N 20/22 W22/20 14-19cmbd	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	11	23	57836
Locus 10 Unit/Quad 2C 20/22 W22/20 14-19cmbd	Rim	Grit, Coarse	Undecorated	Straight	Rounded	2	9	57837
Locus 10 Unit/Quad 2C N20/22 W22/20 Interface	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	14	11	57839
Locus 10 Unit/Quad 2C N20/22 W22/20 8-13cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	20	7	57840
Locus 10 Unit/Quad 2C N20/22 W22/20 14-19cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	4	2	57841
Locus 10 Unit/Quad 2C N20/22 W22/20 19-24cmbd	Body	Grit, Medium	Undecorated	Indeterminate	Indeterminate	2	1	57842
Locus 10 Unit/Quad 2C N20/22 W22/20 24-29cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	4	5	57843
Locus 10 Unit/Quad 2C N20/22 W22/20 31-34cmbd	Body	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	2	0.8	57844
Locus 10 Unit/Quad 2C N20/22 W22/20 31-34cmbd	Body	Grit, Coarse	Dentate, Shell	Indeterminate	Indeterminate	2	2	57845
Locus 10 Unit/Quad 2D N20/22 W22/20 10-15cmbd	Body	Grit, Medium	Undecorated	Indeterminate	Indeterminate	6	4	57846
Locus 10 Unit/Quad 2D N20/22 W22/20 14-17cmbd	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	1	1	57847
Locus 10 Unit/Quad 2D N20/22 W22/20 9cmbd Plan 811	Rim	Grit, Coarse	Undecorated	Straight	Rounded	1	5	57848

Provenience	Sherd Type	Temper	Decoration	Form	Shape	Cnt	Weight g	CAT #
Locus 10 Unit/Quad 3A N20/22 W22/20 11-16cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	3	3	57849
Locus 10 Unit/Quad 3A N20/22 W22/20 11-16cmbd	Body	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	8	0.7	57850
Locus 10 Unit/Quad 3A N20/22 W22/20 17-22cmbd	Body	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	9	0.5	57851
Locus 10 Unit/Quad 3B N20/22 W22/20 23-28cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	33	7	57852
Locus 10 Unit/Quad 3B N20/22 W22/20 11-16cmbd	Body	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	17	1	57853
Locus 10 Unit/Quad 3B N20/22 W22/20 11-16cmbd	Rim	Grit, Medium	Undecorated	Indeterminate	Rounded	1	0.6	57854
Locus 10 Unit/Quad 3B N20/22 W22/20 28-33cmbd	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	13	7	57855
Locus 10 Unit/Quad 3B N20/22 W22/20 16-21cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	326	56	57856
Locus 10 Unit/Quad 3B N20/22 W22/20 16-21cmbd	Rim	Grit, Medium	Indeterminate	Indeterminate	Rounded	1	0.3	57857
Locus 10 Unit/Quad 3D N20/22 W22/20 17-22cmbd	Rim	Grit, Coarse	Undecorated	Everted	Rounded	1	6	57858
Locus 10 Unit/Quad 3D N20/22 W22/20 17-22cmbd	Body	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	2	0.5	57859
Locus 10 Unit/Quad 3D N20/22 W22/20 12-17cmbd	Rim	Grit, Coarse	Undecorated	Straight	Rounded	2	11	57860
Locus 10 Unit/Quad 3AD N20/22 W22/20 Plowzone/Transitional	Rim	Grit, Coarse	Undecorated	Straight	Rounded	2	8	57861
Locus 10 Unit/Quad 3D N20/22 W22/20 12-17cmbd	Body	Grit, Medium	Undecorated	Indeterminate	Indeterminate	7	2	57862
Locus 10 Unit/Quad 3D N20/22 W22/20 12-17cmbd	Body	Grit, Medium	Undecorated	Straight	Indeterminate	4	3	57863
Locus 10 Unit/Quad 3C N20/22 W22/20 5cmbd	Body	Grit, Medium	Indeterminate	Indeterminate	Indeterminate	13	0.2	57864
Locus 10 Unit/Quad 3C N20/22 W22/20 5cmbd	Body	Grit, Medium	Undecorated	Indeterminate	Indeterminate	9	0.6	57865
Locus 10 Unit/Quad 3C N20/22 W22/20 5cmbd	Body	Grit, Medium/Fine	Undecorated	Indeterminate	Indeterminate	22	1.7	57866

Provenience	Sherd Type	Temper	Decoration	Form	Shape	Cnt	Weight g	CAT #
Locus 10 Unit/Quad 3C N20/22 W22/20 5cmbd	Body	Indeterminate	Indeterminate	Indeterminate	Indeterminate	3	0.1	57867
Locus 10 Unit/Quad 3 N20/22 W20/18 Plowzone/Transitional	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	20	9	57868
Locus 10 Unit/Quad 3C N20/22 W20/18 5cmbd	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	23	9.4	57869
Locus 10 Unit/Quad 3A N20/22 W20/18 28cmbd Feat 109 P839	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	1	5	57870
Locus 10 Unit/Quad 3B N20/22 W20/18 24-29cmbd	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	4	1	57871
Locus 10 Unit/Quad 2 N20/22 W20/18 Plowzone/Transitional	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	6	0.6	57872
Locus 10 Unit/Quad 2C N20/22 W20/18 35-40cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	1	1	57874
Locus 10 Unit/Quad 2C N20/22 W20/18 15-20cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	8	3	57875
Locus 10 Unit/Quad 2C N20/22 W20/18 30-35cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	2	1	57876
Locus 10 Unit/Quad 2C N20/22 W20/18 20-25cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	4	0.4	57877
Locus 10 Unit/Quad 2D N20/22 W20/18 20-25cmbd	Body	Grit, Coarse	Dentate, Fingernail	Indeterminate	Indeterminate	1	2	57878
Locus 10 Unit/Quad 4D N20/22 W22/20 11-16cmbd	Body	Grit, Fine w/shell	Undecorated	Indeterminate	Indeterminate	1	0.4	57879
Locus 10 Unit/Quad 4A N20/22 W20/18 24-26 cmbd	Body	Grit, Medium/ Coarse	Undecorated	Straight	Indeterminate	5	3	57880
Locus 10 Unit/Quad 4A N20/22 W20/18 24-26cmbd	Body	Grit, Medium	Dentate, Fingernail	Indeterminate	Indeterminate	2	2.3	57881
Locus 10 Unit/Quad 4A N20/22 W20/18 26-30cmbd	Body	Grit, Medium	Undecorated	Indeterminate	Indeterminate	2	0.6	57882
Locus 10 Unit/Quad 4 N20/22 W20/18 Plowzone/Transitional	Body	Grit, Medium	Undecorated	Indeterminate	Indeterminate	1	0.9	57883
Locus 10 Unit/Quad 4D N20/22 W20/18 25-27cmbd	Body	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	2	0.3	57884
Locus 10 Unit/Quad 4C N20/22 W20/18 25-27cmbd	Rim	Grit, Coarse	Dentate, Fingernail	Indeterminate	Rounded	1	1	57885

Provenience	Sherd Type	Temper	Decoration	Form	Shape	Cnt	Weight g	CAT #
Locus 10 Unit/Quad 1D N20/22 W20/18 20-23cmbd	Rim	Grit, Coarse	Undecorated	Straight	Rounded	1	1	57886
Locus 10 Unit/Quad 1D N20/22 W20/18 20-23cmbd	Body	Grit, Medium	Undecorated	Indeterminate	Indeterminate	5	0.6	57887
Locus 10 Unit/Quad 1 N20/22 W20/18 Plowzone/Transitional	Body	Grit, Medium	Undecorated	Indeterminate	Indeterminate	4	0.5	57888
Locus 10 Unit/Quad 1C N20/22 W20/18 18-23cmbd	Body	Grit, Medium	Dentate, Fingernail	Indeterminate	Indeterminate	4	0.5	57889
Locus 10 Unit/Quad 1A N20/22 W20/18 16-19cmbd	Body	Grit, Medium	Undecorated	Curved	Indeterminate	1	1	57890
Locus 10 Unit/Quad 1A N20/22 W20/18 19-21cmbd	Body	Grit, Medium	Undecorated	Straight	Indeterminate	1	1	57891
Locus 10 Unit/Quad 1C N20/22 W20/18 28-33cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	2	0.9	57892
Locus 10 Unit/Quad 1D N20/22 W20/18 23-28cmbd	Body	Grit, Medium	Undecorated	Indeterminate	Indeterminate	2	0.9	57893
Locus 10 Unit/Quad 1B N20/22 W20/18 14-20cmbd	Body	Grit, Medium	Undecorated	Indeterminate	Indeterminate	1	0.2	57894
Locus 10 Unit/Quad 1 20/18 W18/16 Plowzone	Rim	Grit, Coarse	Undecorated	Indeterminate	Rounded	1	0.3	57895
Locus 10 Unit/Quad 4B N20/22 W 18/16 10-15cmbd	Body	Grit, Medium	Undecorated	Indeterminate	Indeterminate	5	1	57897
Locus 10 Unit/Quad 4D N20/22 W18/16 Plowzone/Transitional	Body	Grit, Medium	Undecorated	Straight	Indeterminate	2	3	57898
Locus 10 Unit/Quad 4 N20/22 W18/16 Interface	Body	Indeterminate	Indeterminate	Indeterminate	Indeterminate	1	0.1	57899
Locus 10 Unit/Quad 2 N20/22 E16/14 Plowzone/Transitional	Body	Grit, Medium	Undecorated	Straight	Indeterminate	2	2	57900
Locus 10 Unit/Quad 2D N20/22 E16/14 Plowzone/Transitional	Body	Grit, Medium	Undecorated	Straight	Indeterminate	1	1.8	57901
Locus 10 Unit/Quad 3 N20/22 E16/14 Plowzone/Transitional	Body	Grit, Medium	Undecorated	Indeterminate	Indeterminate	8	1	57902
Locus 10 N22.5 E23 15-25cmbd	Body	Grit, Coarse	Undecorated	Curved	Indeterminate	2	6	57903
Locus 10 Unit/Quad 2D N22/24 W28/26 Plowzone	Body	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	4	0.3	57904
Locus 10 Unit/Quad 1C N22/24 E24/22 14-19cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	1	3	57905

Provenience	Sherd Type	Temper	Decoration	Form	Shape	Cnt	Weight g	CAT #
Locus 10 Unit/Quad 2C N22/24 E24/22 0-11cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	1	0.7	57906
Locus 10 Unit/Quad 3B N22/24 W22/20 13-17cmbd	Body	Indeterminate	Indeterminate	Indeterminate	Indeterminate	2	0.9	57907
Locus 10 Unit/Quad 3B N22/24 W22/20 5-10cmbd	Body	Indeterminate	Indeterminate	Indeterminate	Indeterminate	3	0.3	57908
Locus 10 Unit/Quad? N22/24 E18/20 5cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	4	0.3	57909
Locus 10 Unit/Quad 1D N20/24 W20/18 15-20cmbd	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	10	5	57910
Locus 10 Unit/Quad 1A N20/24 W20/18 18-23cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	2	1	57911
Locus 10 Unit/Quad 1C N22/24 W20/18 25-27cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	1	0.3	57912
Locus 10 Unit/Quad 1D N22/24 W20/18 15-20cmbd	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	5	3	57913
Locus 10 Unit/Quad 1C N22/24 W20/18 20-25cmbd	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	2	1	57914
Locus 10 Unit/Quad 4A N22/24 E18/20 20cmbd Plan 147	Rim	Grit, Coarse	Undecorated	Straight	Rounded	5	9	57915
Locus 10 Unit/Quad 4 N22/24 W20/18 Plowzone	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	5	1	57916
Locus 10 Unit/Quad 4A N22/24 E18/20 18-22cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	7	2	57917
Locus 10 Unit/Quad 4 N22/24 W20/18 Plowzone	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	11	1	57918
Locus 10 Unit/Quad 4A N22/24 W20/18 23-24cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	2	0.4	57919
Locus 10 Unit/Quad 4D N22/24 W20/18 18-23cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	1	1	57920
Locus 10 Unit/Quad 4D N22/24 W20/18 23cmbd Plan 147	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	1	4	57921
Locus 10 Unit/Quad 4A N22/24 W22/20 17-22cmbd	Body	Grit, Medium	Undecorated	Straight	Indeterminate	1	1	57922
Locus 10 Unit/Quad 4 N22/24 W22/20 Plowzone	Body	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	1	0.1	57923

Provenience	Sherd Type	Temper	Decoration	Form	Shape	Cnt	Weight g	CAT #
Locus 10 Unit/Quad 4 N22/23 E24/22 Plowzone/Transitional	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	1	1	57924
Locus 10 Unit/Quad 4A N22/24 W22/20 12-17cmbd	Body	Grit, Coarse	Undecorated	Curved	Indeterminate	1	12	57925
Locus 10 Unit/Quad 1D N22/24 W22/20 15-20 cmbd	Body	Grit, Medium	Undecorated	Straight	Indeterminate	6	9	57926
Locus 10 Unit/Quad 1A N22/24 E20/22 16-21cmbd	Body	Grit, Medium	Dentate, Fingernail	Indeterminate	Indeterminate	1	1	57927
Locus 10 Unit/Quad 1 N22/24 W22/20 Plowzone	Rim	Grit, Medium	Undecorated	Indeterminate	Squared	1	4	57928
Locus 10 Unit/Quad 1A N22/24 W22/20 12cmbd	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	1	2.6	57929
Locus 10 Unit/Quad 1 N22/24 W22/20 Plowzone/Transitional	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	1	1	57930
Locus 10 Unit/Quad 3B N22/24 W20/18 3cmbd Plan 928	Rim	Grit, Coarse	Undecorated	Straight	Rounded	1	6	57931
Locus 10 Unit/Quad 3B N22/24 W20/18 3cmbd Plan 928	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	15	9	57932
Locus 10 Unit/Quad 2B N22/24 W20/18 4.5-7cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	9	10	57933
Locus 10 Unit/Quad 2D N22/24 E-18/-20 8cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	1	0.6	57934
Locus 10 Unit/Quad 2A N22/24 W20/18 4cmbd	Body	Grit, Coarse	Undecorated	Curved	Indeterminate	1	4	57935
Locus 10 Unit/Quad 2B N22/24 W20/18 7-12cmbd	Body	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	3	0.1	57936
Locus 10 Unit/Quad 2 N22/24 W18/20 Surface	Body	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	4	0.6	57937
Locus 10 23.5 E24 Level 3	Body	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	1	0.4	57938
Locus 10 Unit/Quad 1B N24/26 W32/30 Plowzone	Body	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	4	0.2	57939
Locus 10 Unit/Quad 1A N24/26 W32/30 Plowzone	Body	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	1	0.2	57940
Locus 10 N32.5 E 33 Plowzone Wall Plan	Body	Grit, Medium	Incised	Indeterminate	Indeterminate	1	2.7	57941

Provenience	Sherd Type	Temper	Decoration	Form	Shape	Cnt	Weight g	CAT #
Locus 10 Unit/Quad 3B N42/44 W26/24 20-22cmbd	Body	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	1	0.1	57943
Locus 10 N45.5 E46 Area 2 Plowzone	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	4	0.6	57944
Locus 10 N43.5 E44.0 Area 2, 9cmbd	Rim	Grit, Fine	Undecorated	Indeterminate	Rounded	2	2	57946
Locus 10 N44.5 E45 Scarp Plowzone/Transitional	Body	Indeterminate	Indeterminate	Indeterminate	Indeterminate	2	0.1	57945
Locus 10 Unit/Quad E30/32 W24/22 5-10cmbd	Rim	Grit, Coarse	Undecorated	Indeterminate	Rounded	1	1	57947
Locus 10 Unit/Quad 4B N26/28 W26/24 Plowzone	Body	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	4	0.2	57948
Locus 10 Unit/Quad 4B N26/28 W26/24 26-31cmbd	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	1	3	57949
Locus 10 Unit/Quad 4C N26/28 W26/24 22-27cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	5	1	57950
Locus 10 Unit/Quad 4D N26/28 W26/24 32-37cmbd	Body	Grit, Medium	Undecorated	Straight	Indeterminate	3	1	57951
Locus 10 Unit/Quad 1D N26/28 W24/26 25-30cmbd	Body	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	1	0.4	57952
Locus 10 Unit/Quad 4 N26/23 E24/22 Plowzone	Rim	Grit, Coarse	Undecorated	Indeterminate	Rounded	1	1	57953
Locus 10 Unit/Quad 3D N26/28 W28/26 20.5-22.5	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	1	0.4	57954
Locus 10 Unit/Quad 1 N30/32 W26/24 Plowzone	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	1	0.3	57955
Locus 10 Unit/Quad 3B N24/26 W26/24 13-20cmbd	Body	Indeterminate	Indeterminate	Indeterminate	Indeterminate	4	0.3	57956
Locus 10 Unit/Quad 2A N26/28 W28/26 22-54cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	2	1	57957
Locus 10 Unit/Quad 2D N26/28 W28/26 22-27cmbd	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	1	1	57958
Locus 10 Unit/Quad 2C N26/28 W28/26 Plowzone	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	1	0.6	57959

Provenience	Sherd Type	Temper	Decoration	Form	Shape	Cnt	Weight g	CAT #
Locus 10 Unit/Quad 2A N26/28 W28/26 17-22cmbd	Rim	Grit, Coarse	Undecorated	Inverted	Rounded	1	1	57960
Locus 10 Unit/Quad 1C N26/28 W28/26 19-24cmbd	Body	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	11	0.2	57961
Locus 10 Unit/Quad 1D N26/28 W30/28 36-41cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	1	0.5	57962
Locus 10 Unit/Quad 2C N24/26 W26/24 18-23cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	10	9	57963
Locus 10 Unit/Quad 2C N26/24 W26/24 26-31cmbd	Body	Grit, Coarse	Cord Impressed	Straight	Indeterminate	2	8	57964
Locus 10 Unit/Quad 4A N24/26 W20/18 8.5cmbd	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	1	0.7	57965
Locus 10 Unit/Quad 4A N24/26 W20/18 22-27cmbd	Body	Grit, Medium	Undecorated	Indeterminate	Indeterminate	1	0.4	57966
Locus 10 Unit/Quad 1 N24/26 W20/18 Plowzone/Transitional	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	1	0.8	57967
Locus 10 Unit/Quad 2C N24/26 W20/22 0-5cmbd Plan 138	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	14	7	57968
Locus 10 Unit/Quad 4 N24/26 W24/22 Plowzone/Transitional	Body	Indeterminate	Indeterminate	Indeterminate	Indeterminate	1	0.8	57969
Locus 10 Unit/Quad 1A N24/26 W24/22 14cmbd	Body	Grit, Coarse	Grit, Coarse	Indeterminate	Indeterminate	2	0.6	57971
Locus 10 Unit/Quad 2C N24/26 W28/26 33-38cmbd	Body	Grit, Medium	Indeterminate	Indeterminate	Indeterminate	2	0.3	57972
Locus 10 Unit/Quad 2C N24/26 W26/24 27cmbd Plan 126	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	1	3	57973
Locus 10 Unit/Quad 2A N24/26 W30/28 48-53cmbd	Body	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	1	0.1	57974
Locus 10 Unit/Quad 1C N24/26 W30/28 37-41cmbd	Body	Grit and Shell	Indeterminate	Indeterminate	Indeterminate	1	0.2	57975
Locus 10 Unit/Quad 2C+D N/16/18 W16/18 4-5cmbd Feat 93B	Body	Shell	Undecorated	Slightly Curved	Indeterminate	38	41	60653
Locus 10 Unit/Quad 2C+D N/16/18 W16/18 4-5cmbd Feat 93B	Rim	Shell	Undecorated	Everted	Squared	1	1	60654
Locus 10 Unit/Quad 2C+D N/16/18 W16/18 4-5cmbd Feat 93B	Body/Spall	Shell	Undecorated	Indeterminate	Indeterminate	36	1	60655

Provenience	Sherd Type	Temper	Decoration	Form	Shape	Cnt	Weight g	CAT #
Locus 10 Unit/Quad 2B N22/24 W20/18 6 cmbd Feature 100	Body	Grit, Coarse	Undecorated	Curved	Indeterminate	3	49	60848
Locus 10 Unit/Quad 2B N22/24 W20/18 6 cmbd Feature 100	Rim	Grit, Coarse	Undecorated	Straight	Thinned	1	5	60849
Locus 10 Unit/Quad 2B N22/24 W20/18 6 cmbd Feature 100	Rim	Grit, Coarse	Undecorated	Straight	Thinned	3	19	60850
Locus 10 Unit/Quad 2B N22/24 W20/18 6 cmbd Feature 100	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	12	12	60851
Locus 10 Unit/Quad 2B N22/24 W20/18 6 cmbd Feature 100	Rim	Grit, Medium	Undecorated	Straight	Thinned	2	13	60852
Locus 10 Unit/Quad 2B N22/24 W20/18 6 cmbd Feature 100	Body	Grit, Medium	Undecorated	Straight	Indeterminate	1	3	60853
Locus 10 Unit/Quad 2B N22/24 W20/18 6 cmbd Feature 100	Body	Grit, Medium	Undecorated	Straight	Indeterminate	8	15	60854
Locus 10 Unit/Quad 2B N22/24 W20/18 6 cmbd Feature 100	Rim	Grit, Medium	Undecorated	Straight	Rounded	1	3	60855
Locus 10 Unit/Quad 2B N22/24 W20/18 6 cmbd Feature 100	Body	Grit, Medium	Undecorated	Straight	Indeterminate	12	19	60856
Locus 10 Unit/Quad 2B N22/24 W20/18 6 cmbd Feature 100	Body	Grit, Medium	Undecorated	Straight	Indeterminate	9	12	60857
Locus 10 Unit/Quad 3A N20/22 W22/20 16cmbd Feat 83A	Rim w/body	Grit, Coarse	Fingernail/ Dentate	Straight	Thinned	4	57	60567
Locus 10 Unit/Quad 3A N20/22 W22/20 23cmbd Feat 83A	Body	Grit, Coarse	Shell Dentate w/ Rocker	Curved	Indeterminate	4	25	60568
Locus 10 Unit/Quad 3A N20/22 W22/20 23cmbd Feat 83A	Rim	Grit, Coarse	Shell Dentate w/ Rocker	Straight	Thinned	1	6	60564
Locus 10 Unit/Quad 2C/3B N20/22 W22/20 23cmbd Feat 83A	Body	Grit, Coarse	Undecorated	Curved	Indeterminate	2	40	60570
Locus 10 Unit/Quad 2C/3B N20/22 W22/20 23cmbd Feat 83A	Rim	Grit, Coarse	Undecorated	Straight	Thinned	1	9	60571
Locus 10 Unit/Quad 2C/3B N20/22 W22/20 23cmbd Feat 83A	Body	Grit, Coarse	Shell Dentate	Straight	Indeterminate	4	22	60572
Locus 10 Unit/Quad 2C/3B N20/22 W22/20 23cmbd Feat 83A	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	2	12	60573
Locus 10 Unit/Quad 2C/3B N20/22 W22/20 23cmbd Feat 83A	Body	Grit, Coarse	Undecorated	Indeterminate	Indeterminate	21	15	60574

Provenience	Sherd Type	Temper	Decoration	Form	Shape	Cnt	Weight g	CAT #
Locus 10 Unit/Quad 3B N22/20 W22/20 16cmbd Feat 83A	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	2	3	60575
Locus10 Unit/Quad 3B N22/20 W22/20 23cmbd Feat 83A	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	7	27	60576
Locus10 Unit/Quad 3B N22/20 W22/20 23cmbd Feat 83A	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	11	15	60577
Locus 10 Unit/Quad 3B N20/22 W22/20 28cmbd Feat 83A	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	1	13	60578
Locus 10 Unit/Quad 3B N20/22 W22/20 16cmbd Feat 83A	Body	Grit, Coarse	Poss. Dentate	Straight	Indeterminate	1	17	60579
Locus 10 Unit/Quad 2C N20/22 W22/20 19cmbd Feat 83A	Body	Grit, Coarse	Shell Dentate	Straight	Indeterminate	1	8	60580
Locus 10 Unit/Quad 3C N20/22 W22/20 Plowzone Feat 83A	Rim	Grit, Coarse	Undecorated	Straight	Thinned	1	4	60581
Locus 10 Unit/Quad 3C N20/22 W22/20 Plowzone Feat 83A	Bag of Fragments	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	1	9	60582
Locus 10 Unit/Quad 3C N20/22 W22/20 19cmbd Feat 83A	Body	Grit, Coarse	Fingernail/ Dentate	Straight	Indeterminate	1	10	60583
Locus 10 Unit/Quad 3C N20/22 W22/20 Plowzone Feat 83A	Body	Grit, Coarse	Indeterminate	Indeterminate	Indeterminate	1	3	60584
Locus 10 Unit/Quad 3C N20/22 W22/20 Plowzone Feat 83A	Rim	Grit, Coarse	Fabric Impressed	Everted	Curved	6	40	60585
Locus10 Unit/Quad 3C N22/20 W22/20 23 Plowzone Feat 83A	Body	Grit, Coarse	Undecorated	Straight	Indeterminate	12	28	60586
					Totals	**1227**	**1567.9**	

Debitage and Fire-Cracked Rock from Selected Features and Excavation Units

The dated features discussed in the report were analyzed further during the cataloging process. This analysis was limited to lithic debitage and fire-cracked rock by feature and within feature provenience. All lithic debitage was first sorted by material type, followed by further sorting into one of four categories for debitage type. Debitage was classified as one of three flake categories or as shatter/block. The flake types are broad categories based upon the MHC *Guide to Prehistoric Site Files and Artifact Classification System* (Johnson and Mahlstedt 1984) and the lab manual and work completed by the Carns site's field/lab crew.

Primary flakes are large thick flakes retaining the cortex of the cobble from which they were struck.

Secondary flakes (bifacial thinning flakes) are smaller than the primary flakes, are relatively flat and contain no visible signs of cortex.

Tertiary flakes are small flat flakes with no visible signs of cortex. The tertiary flake category also contained what the MHC Guide classified as "chipping waste-retouch" (MHC 1984:148).

Shatter/Block was defined as lithic material lacking any characteristics of a flake such as a bulb of percussion or platform and is synonymous with the MHC classification of "chunks" (MHC 1984:148).

Fire-Cracked Rock (FCR) was sorted by material, counted, and weighed according to provenience. No further analysis of the FCR was done for this report.

Table 11. Locus 2, Feature D-13				
Flake Counts and Weights				
Flake type	Material	Count (n)	Weight in grams (g)	Percentage of Flake Types
Primary Flakes				2.87
	Quartzite	36	285	
	Felsite	13	138	
	Quartz	1	8	
Secondary Flakes				56.61
	Quartzite	674	593	
	Felsite	309	309	
	Quartz	5	10	
Tertiary Flakes				40.52
	Quartzite	531	42.3	
	Felsite	165	11.8	
	Quartz	11	1.6	
Totals		1745	1398.7	100.00
Percentage of Flakes by Material				
Material	Percentage			
Quartzite	71.12			
Felsite	27.91			
Quartz	0.97			
Total	100.00			
Fire-Cracked Rock				
Material	Count (n)	Weight in grams (g)		
Felsite	16	146		
Percentage of Flake Types				
Primary Flakes	2.87%			
Secondary Flakes	56.61%			
Tertiary Flakes	40.52%			
Total	100.00%			

Table 12. Locus 2, Feature D-25.				
Flake Counts and Weights				
Flake type	Material	Count (n)	Weight in grams (g)	Percentage of Flake Types
Primary Flakes				4.52
	Quartzite	125	1264	
	Felsite	93	963	
	Quartz	1	41	
Secondary Flakes				49.37
	Quartzite	1559	1635	
	Felsite	821	1026	
	Quartz	12	9	
Tertiary Flakes				46.11
	Quartzite	1541	107.28	
	Felsite	671	57.3	
	Quartz	22	2.4	
Totals		4845	5104.98	100.00
Percentage of Flakes by Material				
Material	Percentage			
Quartzite	66.56			
Felsite	32.72			
Quartz	0.72			
Total	100.00			
Shatter/Blocky Debitage				
Material	Count	Weight in grams		
Quartzite	1	5		
Felsite	8	92		
Quartz	3	8		
Fire-Cracked Rock				
Material	Count	Weight in grams		
Felsite	3	75		

Table 13. Locus 2, EU N0/W6.				
Flake Counts and Weights				
Flake type	Material	Count (n)	Weight in grams (g)	Percentage of Flake Types
Primary Flakes				0.87
	Quartzite	19	368	
	Felsite	5	118	
	Quartz	3	26	
Secondary Flakes				45.83
	Quartzite	1046	879	
	Felsite	363	345	
	Quartz	10	6	
Tertiary Flakes				53.3
	Quartzite	1245	52	
	Felsite	386	20.5	
	Quartz	19	2.2	
Totals		3096	1816.7	100.00
Percentage of Flakes by Material				
Material	Percentage			
Quartzite	74.61			
Felsite	24.35			
Quartz	1.04			
Total	100.00			
Shatter/Blocky Debitage				
Material	Count (n)	Weight in grams (g)		
Quartzite	0	5		
Felsite	5	92		
Quartz	3	8		
Fire-Cracked Rock				
Material	Count (n)	Weight in grams (g)		
Felsite	23	96		
Indeterminate	4	4		
Quartz	1.04%			
Total	100.00%			
Percentage of Flakes by Type				
Primary	0.87%			
Secondary	45.83%			
Tertiary	53.30%			
Total	100.00%			
Fire Cracked Rock				
Material	Count	Weight		
Felsite	23	496 grams		
Indeterminate	4	4 grams		

Table 14. Locus 2, EU S1/W5				
Flake Counts and Weights				
Flake type	Material	Count (n)	Weight in grams (g)	Percentage of Flake Types
Primary Flakes				0.45
	Quartzite	1	70	
	Felsite	1	31	
	Quartz	0	0	
Secondary Flakes				69.48
	Quartzite	230	481	
	Felsite	69	123	
	Quartz	6	8	
Tertiary Flakes				30.06
	Quartzite	98	5.5	
	Felsite	33	2.08	
	Quartz	0	0	
	Red Jasper	1	0.2 grams	
Totals		439	720.78	100.00
Percentage of Flakes by Material				
Material	Percentage			
Quartzite	75.00			
Felsite	23.46			
Quartz	1.36			
Jasper	0.23			
Total	100.00			
Shatter/Blocky Debitage				
Material	Count (n)	Weight in grams (g)		
Quartzite	7	19		
Felsite	12	403		
Quartz	0	0		
Fire-Cracked Rock				
Material	Count (n)	Weight in grams (g)		
Felsite	1	70		

Table 15. Locus 2, EU S2/W5				
Flake Counts and Weights				
Flake type	Material	Count (n)	Weight in grams (g)	Percentage of Flake Types
Primary Flakes				1.22
	Quartzite	10	130	
	Felsite	7	78	
	Quartz	1	58	
Secondary Flakes				58.57
	Quartzite	580	749	
	Felsite	246	340	
	Quartz	35	46	
Tertiary Flakes				40.2
	Quartzite	361	21.7	
	Felsite	230	31.77	
	Quartz	0	0	
Totals		1470	1454.47	100.00
Percentage of Flakes by Material				
Material	Percentage			
Quartzite	64.69			
Felsite	32.85			
Quartz	2.45			
Total	100.00			
Shatter/Blocky Debitage				
Material	Count (n)	Weight in grams (g)		
Quartzite	12	103		
Felsite	20	223		
Quartz	0	0		
Fire-Cracked Rock				
Material	Count (n)	Weight in grams (g)		
Felsite	3	126		

Table 16. Locus 2, EU N0/W4				
Flake Counts and Weights				
Flake type	Material	Count (n)	Weight in grams (g)	Percentage of Flake Types
Primary Flakes				1
	Quartzite	4	40	
	Felsite	7	45	
	Quartz	0	0	
Secondary Flakes				49.86
	Quartzite	334	456	
	Felsite	209	236	
	Quartz	3	2	
Tertiary Flakes				49.13
	Quartzite	267	36.82	
	Felsite	262	34.82	
	Quartz	8	1.1	
	Red Jasper	1	0.5	
Totals		1095	852.35	100.00
Percentage of Flakes by Material				
Material	Percentage			
Quartzite	55.25			
Felsite	43.65			
Quartz	1			
Red Jasper	0.10%			
Total	100.00			
Shatter/Blocky Debitage				
Material	Count (n)	Weight in grams (g)		
Quartzite	9	97		
Felsite	13	67		
Quartz	3	4		
Fire-Cracked Rock				
Material	Count (n)	Weight in grams (g)		
Felsite	1	7		

Table 17. Locus 10, Feature 58A				
Flake Counts and Weights				
Flake type	Material	Count (n)	Weight in grams (g)	Percentage of Flake Types
Primary Flakes				1.07
	Quartzite	0	0	
	Felsite	0	0	
	Quartz	1	92.1	
Secondary Flakes				51.61
	Quartzite	1	9.16	
	Felsite	47	44.1	
	Quartz	0	0	
Tertiary Flakes				47.31
	Quartzite	10	1.64	
	Felsite	32	1.9	
	Quartz	2	0.33	
Totals		93	49.23	100.00
Percentage of Flakes by Material				
Material	Percentage			
Quartzite	11.83			
Felsite	84.94			
Quartz	3.22			
Total	100.00			
Shatter/Blocky Debitage				
Material	Count (n)	Weight in grams (g)		
Quartzite	6	104.94		
Felsite	112	541.66		
Quartz	1	80.84		
Fire-Cracked Rock				
Material	Count (n)	Weight in grams (g)		
Felsite	1	7		

Table 18. Locus 10, Feature 83A				
Flake Counts and Weights				
Flake type	Material	Count (n)	Weight in grams (g)	Percentage of Flake Types
Primary Flakes				1.51
	Quartzite	0	0	
	Felsite	1	24	
	Quartz	1	28	
Secondary Flakes				27.27
	Quartzite	0	0	
	Felsite	31	33	
	Quartz	5	9	
Tertiary Flakes				71.21
	Quartzite	22	2.13	
	Felsite	51	3.4	
	Quartz	21	1.476	
Totals		132	101.006	100.00
Percentage of Flakes by Material				
Material	Percentage			
Quartzite	16.66			
Felsite	62.87			
Quartz	20.45			
Total	100.00			
Fire-Cracked Rock				
Material	Count (n)	Weight in grams (g)		
Quartzite	7	844		
Felsite	9	2337		

Table 19. Locus 10, Feature 93				
Flake Counts and Weights				
Flake type	Material	Count (n)	Weight in grams (g)	Percentage of Flake Types
Primary Flakes				3.15
	Quartzite	5	145	
	Felsite	8	178	
	Quartz	0	0	
Secondary Flakes				21.12
	Quartzite	55	91	
	Felsite	32	85	
	Quartz	0	0	
Tertiary Flakes				75.73
	Quartzite	119	7.39	
	Felsite	172	10.667	
	Quartz	21	1.17	
Totals		412	518.23	100.00
Percentage of Flakes by Material				
Material	Percentage			
Quartzite	43.35			
Felsite	51.46			
Quartz	5.10			
Total	100.00			
Fire-Cracked Rock				
Material	Count (n)	Weight in grams (g)		
Felsite	21	2062		

Table 20. Locus 10, Feature 100				
Flake Counts and Weights				
Flake type	Material	Count (n)	Weight in grams (g)	Percentage of Flake Types
Primary Flakes				0.42
	Quartzite	0	0	
	Felsite	2	46	
	Quartz	0	0	
Secondary Flakes				27.44
	Quartzite	40	34	
	Felsite	85	99	
	Quartz	7	10	
Tertiary Flakes				72.14
	Quartzite	88	11.212	
	Felsite	228	18.45	
	Quartz	31	3.471	
Totals		481	222.133	100.00
Percentage of Flakes by Material				
Material	Percentage			
Quartzite	26.61			
Felsite	65.48			
Quartz	7.90			
Total	100.00			
Fire-Cracked Rock				
Material	Count (n)	Weight in grams (g)		
Quartzite	2	2062		
Felsite	36	2062		

Table 21. Locus 10, Feature 103D			
No Cultural Material			

Table 22. Locus 10, Feature 124				
Flake Counts and Weights				
Flake type	Material	Count (n)	Weight in grams (g)	Percentage of Flake Types
Primary Flakes				0.00
	Quartzite	0	0	
	Felsite	0	0	
	Quartz	0	0	
Secondary Flakes				25.00
	Quartzite	1	0.72	
	Felsite	5	8.5	
	Quartz	0	0	
Tertiary Flakes				75.00
	Quartzite	0	0	
	Felsite	2	0.12	
	Quartz	0	0	
Totals		8.00	9.34	100.00
Percentage of Flakes by Material				
Material	Percentage			
Quartzite	12.5			
Felsite	87.5			
Quartz	0			
Total	100.00			
Fire-Cracked Rock				
Material	Count (n)	Weight in grams (g)		
Quartzite	28	1146		
Felsite	34	2000		

Table 23. Locus 10, Feature 133G				
Flake Counts and Weights				
Flake type	Material	Count (n)	Weight in grams (g)	Percentage of Flake Types
Primary Flakes				0.00
	Quartzite	0	0	
	Felsite	0	0	
	Quartz	0	0	
Secondary Flakes				25.00
	Quartzite	2	2.04	
	Felsite	8	14.67	
	Quartz	0	0	
Tertiary Flakes				75.00
	Quartzite	1	0.03	
	Felsite	26	1.76	
	Quartz	3	0.21	
Totals		40.00	18.71	100.00
Percentage of Flakes by Material				
Material	Percentage			
Quartzite	12.5			
Felsite	87.5			
Quartz	0			
Total	100.00			
Shatter/Blocky Debitage				
Material	Count (n)	Weight in grams (g)		
Quartzite	0	0		
Felsite	3	75.88		
Fire-Cracked Rock				
Material	Count (n)	Weight in grams (g)		
Quartzite	1	28.33		
Felsite	22	947.8		