DR. BERTRAM B. SALWEN
1920 - 1988

North American archaeology suffered a major loss when Dr. Bert Salwen died suddenly of a heart attack on December 25, 1988 at his home in New York City.

Dr. Salwen was instrumental in the formulation of an anthropological archaeology for southern New England and southern New York. He was a respected teacher, writer, lecturer and field researcher in both prehistoric and historic archaeology. His interest in the discipline began as a hobby when he helped his son collect artifacts for a grammar school project on American Indians. As his interest in archaeology grew, he gave up his successful career as a mechanical engineer and construction contractor and entered the Department of Anthropology at Columbia University where he received a Ph.D. in 1965.

Dr. Salwen's early research concerned American Indian prehistory. He was the director of many important local archaeological excavations, most of whose names are commonplace in the published literature -- Shantok Cove, Fastener, Muskeeta Cove, Croton Point, Goodrich, Smoking Point, Fort Ninigret, Fort Shantok, to name a few.

Later, he became a dominant force in the establishment of historical archaeology and cultural resource management as independent subdisciplines of archaeology. He received the Annual Conservation Award of the American Society for Conservation Archaeology in 1982 - 1983 and will be awarded posthumously the

Harrington Distinguished Service Award by the Society of Historical Archaeology at their 1990 meeting in January. A leader in the development of professional ethics, he was one of the founders of the national Society of Professional Archaeologists, as well as the regional New York Archaeological Association and Professional Archaeologists of New York City.

I had known Bert for 20 years, first as a student and later as a colleague and friend. He was a wonderful, warm and extremely dynamic personality. From 1966 until his death, he was professor of anthropology at New York University. A devoted teacher, he always found time to help a student with his or her academic and personal problems. Bert provided his students with a firm grasp of anthropological theory and archaeological techniques. Above all, he was the consummate field archaeologist, and he enjoyed every minute of it. For Bert, each excavation was an adventure -- a place where new and exciting pieces to the puzzle of northeastern archaeology might be found. Visitors to his sites could usually find him in the midst of the work crew, gingerly removing a feature with trowel (he hated brushes) and dental pick, or with a shovel moving more backdirt than his students. His tutelage provided the archaeological community with a long list of expert field technicians and theorists. Many of his graduate students are university professors, museum curators, and directors of contract agencies. Hopefully, they will carry on the traditions of quality teaching, high excavation standards, professional ethics, and myriad archaeology projects with which they have been entrusted.

In the Tribute to Bert Salwen presented by the New York University Department of Anthropology on Feb. 17, 1989, Chairwoman Annette Weiner noted that all beginnings have an end, and all ends are beginnings. Professor Salwen's untimely death most certainly marks the end of an era in northeastern archaeology. But it also signals a beginning in which his students, colleagues, and friends might use the experiences and knowledge shared by Bert to continue and expand his work in the prehistoric and historic archaeology of New York and New England.

Bert Salwen was a great scholar, teacher, and friend. His death leaves a void in the lives of those he touched. We who knew Bert miss him very much.

In his honor, New York University has established the Bert Salwen Fellowship in Archaeological Studies. Contributions to Bert's memory may be sent to New York University, Department of Anthropology, Faculty of Arts and Sciences, 25 Waverly Place, New York, NY, 10003.

Lucianne Lavin

EDITOR'S CORNER

A major theme of this issue of the *Bulletin* is burials. And aptly so, since Governor O'Neill has just signed into law Public Act No. 89-368, the state's first antiquities legislation that deals extensively with Indian graves and "sacred" sites.

The five articles by Cooke, Thompson, Ziac and Pfeiffer, Pfeiffer and Stuckenrath, and Pfeiffer and Malcarne all deal with American Indian burial sites in Connecticut. Because Pfeiffer and Malcarne discuss the ethical and legal repercussions concerning documented Native American burial grounds in light of the new antiquities law. Public Act 89-368 is published *verbatim* for the convenience of Society members. Please read it carefully, as the new law will have a great impact on all future archaeological investigations on state lands -- including the shores of navigable waterways.

Most professional and amateur archaeologists will not willingly excavate a known graveyard, but many burials turn up unexpectedly -- e.g., during subsurface excavations for a house foundation or road construction, or within the midst of a habitation site, areas where no documentary evidence of a cemetery exists. These burials are very important to archaeology because they provide a wealth of information about prehistoric and early historic societies that cannot be recovered from other archaeological contexts.

Artifacts and features from habitation sites mainly provide data about the economy and technology of extinct social groups. In contrast, burials give us a chance to learn something about the social and ideological aspects of a culture, and the nutrition and health of its populace. The size, shape, and contents of graves often can tell us something about the social structure of the society to which the corpses belonged. Was is egalitarian or stratified? If the society were stratified, were statuses ascribed or achieved? For example, ornate burial practices and grave goods for infant burials may indicate high status was an inherited trait. Differential placement of artifact classes within the graves of females and males (e.g., predominantly projectile points in male graves and awls in female graves) suggests a sexual division of labor.

The way in which a body was interred can provide information on a group's religious ideas and world view. Comparative analyses of similarities and dissimilarities in burial procedures over time may contribute to our knowledge of continuity and change in Connecticut cultures in general. Pathological studies of skeletal material from burials can provide information about the general health of the population in question. A number of diseases such as arthritis, rickets, gum and other severe infections leave their mark on a person's bones and teeth. Such anomalies can be easily identified by a specialist. Some researchers have attempted to use the number of graves in a particular cemetery to estimate the population size of the group or "tribe" at that period in time. Analysis of the trace elements in skeletal material can provide important information on the economy and diet of the corpse and his social group. For example, analysis of the strontium content can help determine what percentage of the group's diet was meat and what percentage was plantstuffs. Study of the radioisotopes of carbon and nitrogen provides information on how much of the vegetation consumed prior to death was the result of farming (i.e., maize horticulture) and how much the result of wild plant collection.

Without rigorous and careful analysis of graves and their skeletal material all of this important information would be lost -- creating even larger gaps in the emerging archaeological record for Connecticut and southern New England. One

of the major goals in archaeology is to reconstruct the everyday lifeways of prehistoric and early historic peoples. Without burials, important information on nutrition and the less tangible socio-ideological aspects of their societal life might be lost to use.

Letters to the Editor, *Bulletin of the Archaeological Society of Connecticut*

To the Editor:

Included in this volume is Public Act No. 89-368 which was passed by the Connectict state legislature in October of 1989. As you will see, it regulates all archaeological activity conducted on state lands, as well as the study of Native American burials state-wide.

The archaeological community as a whole has many well-founded concerns over this legislation. Paramount is that so little input on the part of amateurs and professionals around the state is reflected in this document.

It is important to realize that this legislation is incomplete. I refer to sections 5b, 7a, 8b, 11a and 13 which all state that specific policies, regulations and/or procedures have yet to be established:

-- Section 5b requires that the Connecticut State Museum of Natural History, the newly designated repository for archaeological materials recovered on state-owned land, to establish a collections policy by July 1, 1990.

-- Section 7a requires the Connecticut Historical Commission to adopt regulations regarding the establishment and management of state archaeological preserves.

-- Section 8b requires the Connecticut Historical Commission to establish procedures for the issuance of permits to conduct archaeological investigations on state land.

-- Section 11 states that "the state archaeologist, in consultation with the Connecticut Historical Commission, the Native American Heritage Advisory Council...the commissioner of environmental protection and the **archaeological community** shall adopt regulations...establishing procedures for the storage, analysis and reburial of human skeletal remains discovered during an archaeological investigation."

-- Section 13 requires the Connecticut Historical Commission in consultation with the state archaeologist, Native American Heritage Advisory Council and commissioner of environmental protection to adopt inventory procedures for Native American burial sites and cemeteries.

It appears that the archaeological community has no voice concerning who can work on state lands, what they can do while they're there and what happens to the artifacts after they've been removed from the ground, but we can say something about how Native American skeletal remains are treated after they've been excavated. I urge you not to take this opportunity to speak your mind lightly! Unfortunately, it seems this is the **only** opportunity to do so.

Each member of Connecticut's archaeological community has the right and the responsibility to express their opinions regarding the curation of skeletal materials. After all, these proposed policies will affect our future investigations in countless ways. Please share your ideas, comments, concerns, etc. with either myself; Lucianne Lavin, the editor this bulletin; or better

yet, with Nick Bellantoni, the state archaeologist. Public Act No. 89-368 was the creation of a minority of individuals, I hope the establishment of the policies it enforces will be a more cooperative and less patronizing effort.

Marina E. Mozzi
Archaeological Research Specialists
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To the Editor:

At the Society for Historical Archaeology annual meeting held at Tucson, Arizona in January, 1990, representatives from the National Park Service, the Society for Historical Archaeology, Society for American Archaeology, Archaeological Institute of America, and American Anthropological Association, discussed archaeological education. Two issues of common concern were how to reach the public, and who should teach that diverse audience. All agreed that there must be cooperation between archaeologists and educators. Further, many felt that there must be some standardization of the information presented, as well as guidelines concerning who teaches the subject. Several archaeologists and educators who attended those meetings, believe that individuals who plan to teach archaeology to school children and to the general public should have the following qualifications: at least a B.A. in anthropology/archaeology, have successfully completed requirements for one or more field schools, and undergo a review by a committee and or review by the state archaeologist and state historic preservation office. Another option that was suggested is for archaeologists to train and supervise classroom and museum instructors to teach the subject. This can be accomplished through curriculums, and by offering teacher workshops and certification programs in each state and at annual archaeological, anthropological, and museum conferences.

Those proposals may sound rigid and extreme, however some guidelines are necessary to prevent the diffusion of wrong information and site destruction. School systems, museums, and other organizations which lack staff with archaeological training, are not in a position to determine who is qualified to teach the subject to school children and other audiences. It is up to the archaeological community to question all individuals who present themselves through the media or other means as qualified archaeological educators. Asking for references or credentials should not be viewed as an insult, but as a professional courtesy that must be followed and respected. We owe it to the public, and to Connecticut's archaeological resources.

Loretta J. Rivers
Willington, CT

Readers are encouraged to respond to these letters. Comments on any aspect of archaeology in Connecticut are welcome, provided the letter is signed.

Editor

ADENA RELATED BURIALS: GLASTONBURY CONNECTICUT

DAVID G. COOKE
ALBERT MORGAN ARCHAEOLOGICAL SOCIETY

ABSTRACT

Directly north of Red Hill in Glastonbury lies the Ben Hollister farm. Between the farm and Red Hill is a quaint little valley formed by Holland Brook. The highest point on the farm is sandy knoll with an elevation of 70 feet above sea level. From here the land slopes gently towards the west, a distance of 500 yards, where it borders the Connecticut River. It was here that a rare and unique archaeological discovery was made, not only for Connecticut, but for the entire Northeast.

INTRODUCTION

In the fall of 1970, the Albert Morgan Chapter of the Archaeological Society of Connecticut, concluded a dig at the Ben Hollister site in Glastonbury that spanned a period of five years. At this time Donald Bosworth, a prominent Wethersfield builder, sold the farm to Walter Spencer of Rocky Hill, who planned to develop a condominium complex on the property. Mr. Spencer, who possessed a keen interest in archaeology, had been thoroughly briefed on our activities at Hollister by Mr. Bosworth.

In the spring of 1971 a meeting was arranged with Mr. Spencer, Roger Russo, his construction foreman, and some members of the Albert Morgan Chapter. The meeting was held before any actual construction work was started at the site. Also present was Reggie Paradis, the bulldozer operator for the project. Reggie was informed of what to look for as he stripped off the topsoil; namely, dark circular stains containing charcoal, stones or ash-like material and any type of bone material which might surface during his operation. From here on it was Reggie's dig and his trowel was ten tons of steel with a 12 foot blade. Little did anyone realize that the archaeological find of soon to be uncovered at the Hollister farm would be unique and extremely rare, not only for Connecticut, but also for the entire Northeast.

The morning of May 3, 1971, loomed raw and wet when Andy Kowalsky received a phone call from Roger Russo at the Hollister farm. A discovery had been made. The previous Friday, Reggie had been bulldozing a large ditch for a sewer line across a sandy terrace in the southeast corner of the property when he uncovered what he thought was Indian clay pottery. Over the weekend he took the specimen home. After his children had cleaned and studied the fragment, they came to the conclusion that it was not pottery, but a section of human skull.

When Andy arrived on the scene he was shown the skull fragment. Immediately he noted that it was stained a bright green indicating it had been in long contact with some kind of copper material. He was then shown the area near the bottom of the bulldozed trench where it had been found. Here he noted a dark circular stain containing very small fragments of greenish bone. Evidently the bulk of this feature, which we will call Burial #1, had been bulldozed up and reburied under the huge adjacent dirt pile.

Approximately three yards towards the east of this first feature, he noted another circular stain. It was also near the bottom of the trench. Carefully

troweling around this new feature Andy soon uncovered a portion of human skull, and you guessed it, this too was stained green. Here was Burial #2. At this point he left things as they were and immediately placed a call to Doug Jordan, the State Archaeologist, at the University of Connecticut. Somewhat later he was able to contact me at my home in Tolland.

When I arrived at the farm early in the afternoon, great gray clouds were scurrying across the sky and the steady northerly wind was driving cold drops of rain into the newly turned sand. Doug Jordan laying prone on the damp ground, was working on a burial. The wide brim hat he wore funneled a steady stream of water into a tiny pool inches below his chin. Methodically dipping a small syringe into a basin of water, he carefully directed the flow of the liquid to areas of the skull, washing away the minute particles of soil that adhered to the bone. Gently, so very gently, he uncovered the individual who was laid to rest on this knoll over a thousand years ago.

A reddish stone object laying near the skeleton's wrists attracted my attention. Although most of it was still buried in the sand, a closer examination left no doubt...here was a complete boatstone. Later, when it was removed and examined, a unique discovery was made.

Doug, still working steadily, began to remove the soil in the vicinity of the neck. He now started to uncover the reason for the preservation of the bones. Slowly, one by one, he exposed the copper beads that formed a necklace of a single strand around the throat. Badly corroded, it was now a dull green color. But by using a little imagination, you could visualize the brilliant golden hue that sparkled from it so many, many years ago.

After Doug Jordan finished exposing the burial, we decided to remove it in its entirety as we had done with earlier burials at the Hollister site. Measurements were taken for the construction of a plywood box needed for the process, after which we covered the skeleton with plastic sheeting for the night. Later that evening several more members of the Albert Morgan Chapter were contacted. At this point, I will quote Doug Jordan's field notes for the day. Please pay special attention to his comments about the boatstone and what was found in the cavity.

> Excavation of the skeleton in place during the course of Monday afternoon demonstrated that it was an articulated burial with the vertex pointing east and the face turned towards the south. It also demonstrated that the skull and a small part of the adjacent upper skeleton was preserved by virtue of copper salts which emanated from a rolled copper bead necklace which was still in place in situ around the neck. In the vicinity of one of the forearms was an excellent specimen of a boatstone made from a very fine grained sandstone or related substance. A small fragment of wood adhered to the flat side and bore the impression of the acute angle of the concavity; this literally fragmentary piece of evidence cast a tiny bit of corroborative light on the hypothesis that boatstones were fastened to some sort of flat wooden implement for purposes as yet imperfectly known.
> A striking feature of this burial was the fact that the copper salts diffused outward, halo-like, from the copper necklace and permeated and stained and thus preserved the skull and an area corresponding to about the fourth cervical vertebra. Below this, in the region presumably unaffected by the copper salts, no evidence remained of the post cranial skeleton.

The next morning found Andy, Doug and myself along with Grace Francis, June Stulpin, and Eileen Huttinger, back at the site eager to go to work. We were just finishing up a morning coffee when Andy made the casual remark..."it would

be great to find a blocked-end tube to go along with these burials." At this moment he had to leave for his house for more equipment. Little did he realize what would be waiting for him upon his return.

Meanwhile June, who had been examining the bulldozed area just west of the burials, found a cylindrical object which was, you guessed it, a blocked-end tube! Well, part of a blocked-end tube, for upon closer examination one end revealed a very fresh break. Returning to where she had initially found the artifact, we traced the path that the bulldozer had taken and noticed a large amount of loose dirt where the operator had lifted the blade.

By this time, Andy was back and when shown the section of blocked-end tube, he was at a complete loss for words. Anyone who knows Andy realizes that this takes some doing. Luckily he had brought back two iron garden rakes which June and Eileen snagged. Within seconds, they were working over the loose soil that the dozer had left. In less than fifteen minutes June shrieked with delight... the missing segment had been found! When placed together, the two pieces matched perfectly.

Now we had a complete blocked-end tube to go with the burials, but what else? Was it possible that the bulldozer had left something undisturbed?

Between the skeletal remains and the area where the blocked-end tube was discovered, there was what might be called a "land bridge". This was an area approximately six feet wide which had the topsoil skimmed off, but it had not yet been removed to the depth of the rest of the ditch. It was on the west wall of this "land bridge" that June noticed a slight discoloration resembling a pit. Armed with brush and trowel, she and Eileen began to check things out. A few strokes of the trowel produced a distinct profile. Now we had the pit, but what was in it...another burial?

Working carefully towards the center of the feature, June soon uncovered a part of a stone that appeared to be an artifact. Using only the brush now, she removed enough soil from around the object to disclose...another boatstone. Now not only did we have a second boatstone, but as she continued working it became evident that the entire pit was saturated with red ocher.

Leaving the boatstone partially exposed, June and Eileen started troweling downward from the top of the feature. Two pieces of quartzite were soon encountered, one having the appearance of a crude knife, while the other was large flake. Below these some clay pottery was discovered. When all the soil was removed from around the pottery, it revealed a complete vessel laying somewhat crushed on its side. A few minute particles of calcined bone were found near the bottom of the pit, but it was impossible to identify them. Although were found no true skeletal remains in this feature, we labeled this pit Burial #3.

After the work on this last burial was completed, the whole crew scoured the surrounding area in search of other possible artifacts. Nearby, in a shallow trench, two roundish stone pebbles were discovered. One, egg-shaped, had a high degree of polish covering half of its total surface. The other, best described as double cone shaped, was pecked over its entire surface to produce a form much like a dual-ended toy top.

Although these two pieces had no direct association, as far as we knew, with the three burials uncovered, I have a strong gut feeling that they indeed tie in with the other artifacts that we found. The main reason for this belief is the fact that no artifacts or debitage of any other cultural period was found in the vicinity of these burials. With the finding of these last two artifacts we wrapped up the work in the field, but there was still one other task to do back in the lab...check out the contents in the blocked-end tube.

As you recall, this artifact was found in two sections. The original openings of the tube were packed with the yellowish brown sandy soil which encompassed the burials, while the fresh break through the center of the tube disclosed a black, burnt residue. Before we removed this material, Andy made the

comment..."there should be some kind of check valve at the small end." Sure enough, old Andrew was right on the button. When the dark residue was removed it revealed a white quartz pebble, the size of a large pea, that effectively blocked any particles of burning material from passing through the small opening, yet it permitted an adequate passage for smoke. Interestingly, the pebble distinctly showed which half was towards the burning material for it was a sooty black, while the portion adjacent to the outside opening was clean white. Here was concrete proof that the blocked-end tube was a smoking pipe.

Now let's take a closer look at the artifacts from this exciting, hectic adventure. I'll also recap the burials as they were found:

Burial #1 produced a fragment of human skull and a scattering of smaller bones all stained green. We also had the circular outline of the bottom of the grave, but any artifacts that may have been associated with this feature were buried under tons of dirt and never retrieved. The only thing we can safely say is that copper of some form was present due to the coloration of the bone material.

Burial #2 contained the human skeletal remains, necklace of a single strand of copper beads and the reddish boatstone in the vicinity of the forearm or wrists. This boatstone I'll label boatstone #1 (Fig. 1).

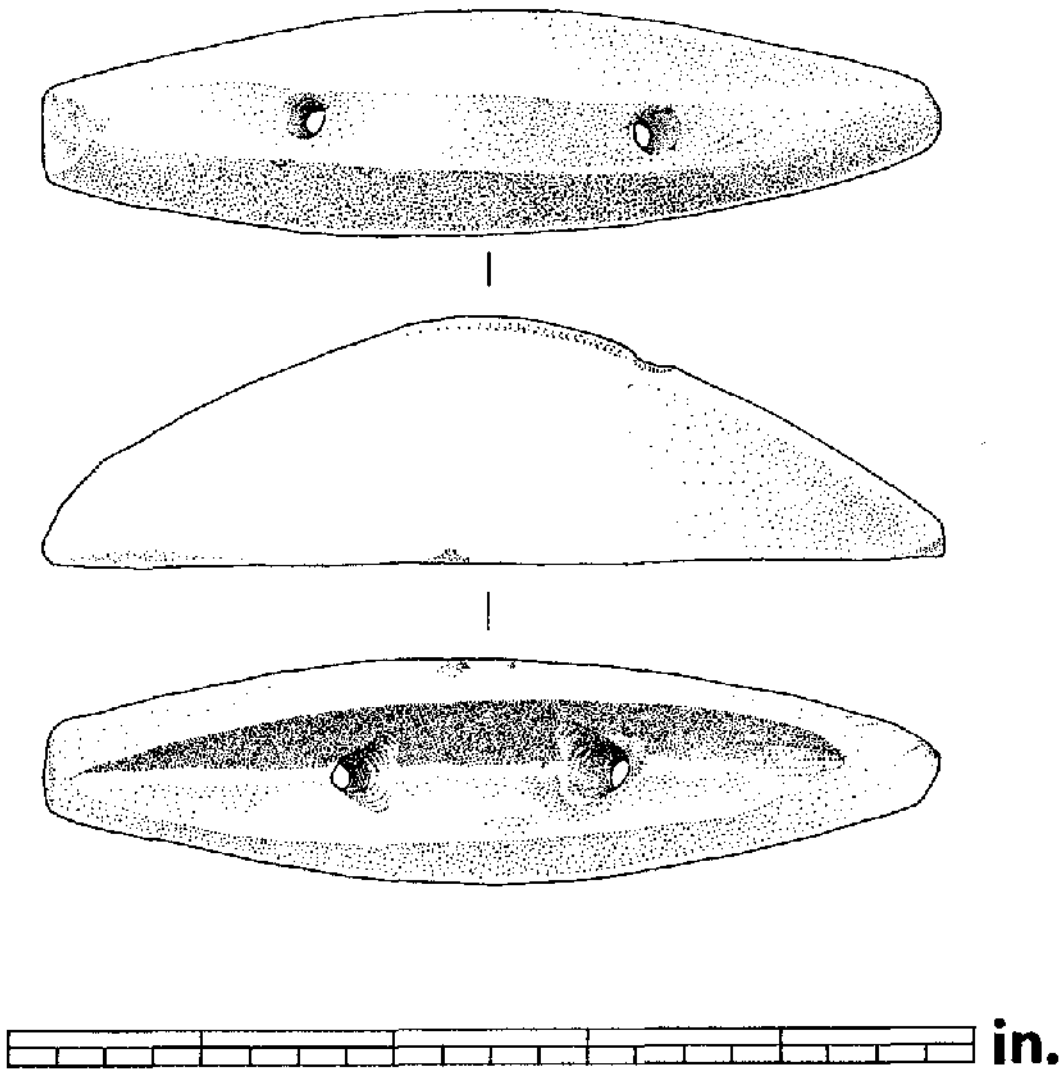

Fig. 1. *Boatstone #1.*

The copper beads that were found encircling the neck of the skeleton were approximately 1/4 inch or slightly less in diameter. They were barrel shaped and in all probability were made by hammering out a thin strip of raw, pure copper and bending it around some type of mandrel. The ends were then joined together by further hammering, thus creating a finished bead. It is estimated that the necklace contained 100 to 130 copper beads.

Boatstone #1, found near the skeleton's wrists, had the small fragment of wood stuck within its cavity. Doug Jordan, in his field notes, refers to the material as a "a very fine grained sandstone or related substance". I believe the material may very well be what is called Ohio pipestone, also known as fire clay. There is a stratum of this material found in Scioto County, Ohio, that ranges in color from almost white, through various shades of color, to dark red. Geologically speaking, it is called argillaceous ironstone. Many of the pipes found in the Ohio mounds are made of this material. The substance is very similar to the Minnesota pipestone called catlinite. (See Table 1 for measurements.)

TABLE 1. *BOATSTONE DATA (ALL MEASUREMENTS ARE IN INCHES)*

OUTER MEASUREMENTS	BOATSTONE #1	BOATSTONE #2
LENGTH	4.630	4.900
WIDTH	1.145	1.020
HEIGHT	1.270	1.430
CAVITY MEASUREMENTS		
LENGTH	3.925	4.245
WIDTH	.705	.535
DEPTH	.650	.450
DISTANCE BETWEEN HOLES	1.675	1.875
HOLE DIAMETER	.150	.130

Burial #3 contained Boatstone #2, two pieces of quartzite, one crude knife, a complete clay pottery vessel, a large amount of red ocher and a scattering of calcined bone. Boatstone #2 is made of gray, banded slate. An interesting feature of this boatstone is the deep groove that is cut between the holes on its convex outer surface. Obviously this done to facilitate the tying of the boatstone to another object (See Table 1 for measurements).

Of the two quartzite pieces, the larger one is a crudely shaped knife approximately two inches by three inches. A small area of one of its edges contains a small amount of wear. The small quartzite piece is a flake which does not show any wear on it surfaces. These two pieces are made of identical material.

The complete clay pottery vessel is shaped much like a modern day deep mixing bowl. The bottom is well rounded with sides curving up and straightening out approximately one inch below the rim. The entire vessel is plain and the rim was devoid of any type of lip. It appears to be made of local silt/clay and is grit-tempered. It has a height of five and one half inches and is estimated to have a diameter of six inches across the rim.

Now we come to the artifacts that were not directly associated with any of the three known burials:

The Blocked-end Tube Pipe (Fig. 2): This is made of grayish Ohio fire clay. The overall length is six and three-sixteens inches and its outside diameter varies from slightly less than one inch to almost one and one-quarter inches. The largest diameter is at the end with the small aperature. The cavity through the tube is approximately eleven-sixteenths at the front and then it

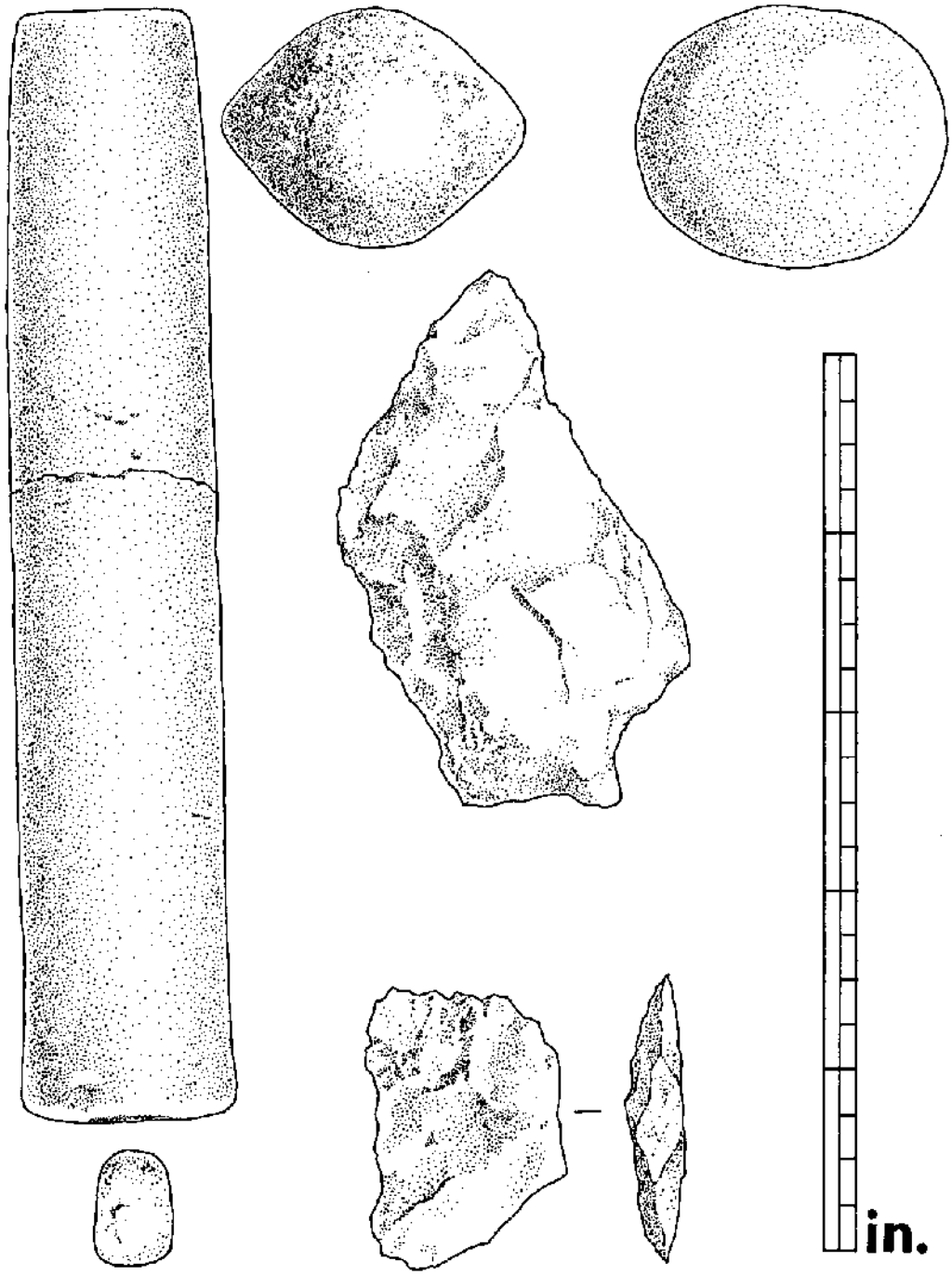

Fig. 2. *Blocked end tube pipe (left), pecked pebble (upper center), polished pebble (upper right), quartzite knife (center), quartzite flake - two views (lower center).*

gradually tapers back to a shoulder at the rear. The rear opening measures 0.450 inches. The small quartz pebble used as a check valve in this pipe is oblong with its measurements being 0.46 inches by 0.64 inches. A real neat fit for the small opening in the blocked-end tube pipe.

Lastly we arrive at the two roundish pebbles found at the completion of the dig. The egg-shaped pebble has not had its form modified by man, but instead it is its surface finish which makes it suspicious. Although its entire surface is worn smooth, there is definitely a higher degree of wear and polish on one particular side. This is noticeable through both sight and touch. The measurements of this artifact are 1.535 inches by 1.785 inches. The material appears to be granitic.

The double cone shaped pebble is definitely the work of man. The small pecking marks are readily distinguishable, while leaves a sort of roughness totally unlike the smooth surface of the other pebble. The measurement across the the pointed ends is 1.740 inches and its diameter is 1.420 inches. This too appears to be a granitic material.

I have, as yet, been able to find any other artifacts of this particular form in any of the reference books at my disposal. If this pebble were bisected through the diameter and then hollowed out, it would fit very nicely with cone shaped objects from some of the Ohio mounds.

ADDITIONAL ASPECTS OF THE BOATSTONE

Ever since boatstones were first examined by archaeologists, they have been an enigma. Many theories have been advanced, but no real concrete evidence has come forth to establish the true purpose and use of the boatstone.

An early account of boat-shaped objects is given by William C. Mills (1917) when he excavated the Tremper mound, located on the Scioto River in Ohio. In his report he lists five boat-shaped objects recovered from the mound; two were made of stone and the other three of copper. Of the stone artifacts, one is in the form of a beaver while the other resembles the shell of a beetle. Both of these specimens have the underside hollowed out and pierced with two holes near the center. The copper artifacts are also hollow on the underside. The unique thing about them is one contained broken quartzite pebbles in the concavity while another was filled with round quartzite pebbles. Also found with these boat-shaped objects were two copper cones one and three-quarter inches in diameter. One of these specimens contained round, whole quartzite pebbles similar to those found with the boat-shaped objects.

Mills states "that the use of these artifacts are more or less problematical, but they are usually conceded to have served as fetishes for promoting personal welfare of the owner; as sacred objects such as charms, talismans or amulets; or as mere ornaments."

Warren K. Moorehead (1910) in his book *The Stone Age in North America* quotes a passage written by Gerard Fowke and W.H. Holmes from their *Handbook of North American Indians*. This description of boatstones is as follows:

> Prehistoric objects of polished stone having somewhat the shape of a canoe, the use of which is unknown. Some have straight parallel sides and square ends; in others the sides converge to a blunt point. A vertical section cut lengthwise of either is approximately triangular, the long face is more or less hollow, and there is usually a perforation near each end; some have a groove on the outer or convex side apparently to receive a cord passed through the holes. Sometimes there is a keel-like projection in which this groove is cut. It is

> surmised that they were employed as charms or talismans and carried about the person. They are found sparingly inmost states east of the Mississippi River, as well as in Canada. Those in the Northern States are made principally of slate, in the South and West steatite is most common, but other varieties of stone were used. In form some of these objects approach the plummets and are perforated at one end for suspension; others approximate the cones and hemispheres. Analogous objects are found on the Pacific Coast, some of which are manifestly modeled after the native canoe, while others resemble the boatstones of the East, although often perforated at one end for suspension.

Moorehead goes on to state that

> Dr. Thomas Wilson had a theory that these boatstones were made to ward off evil and that in the hollow of the boatstone was tied a wooden effigy of a human being; that boatstone and effigy were put away for a certain length of time, and thus the evil was avoided or the influence of the effigy rendered it of no effect.

Lastly, Moorehead states "that few of the forms are found accompanying the burials, and that these few are confined to the pendant shape, the tablet, and the boat-shaped...not hollowed out. That is, that the "canoe-form" is so seldom found in interments as to be considered an exception and that even when found it is not hollowed-out."

Charles C. Willoughby (1935) in his book *Antiquities of the New England Indians* has this to say about boatstones:

> It seems reasonable to assume that these hollow objects, whether found in New England or in other portions of the old Algonquian area, including the great mound groups of the Ohio region, were amulets of some sort, and that the hollow portion was the purpose of holding "medicine". They may have been fastened to the clothing or to some object of personal adornment, or perhaps use by shamans. As indicated by those in forms of birds and animals, their normal position must have been with the hollow side downward, so they were doubtless fastened in that position to a base or object of some kind which would serve to hold in place the pebbles or other magic material with which they were doubtless filled.
>
> They are rarely found with skeletons. In Ohio the finer effigy forms have usually been taken from altars or sacrificial deposits where the property of notables was placed at the time of the cremation of the owners' bodies.

Before leaving Willoughby we should take a glance at two other types of artifacts which he discusses. These are tablets with double perforations (commonly called gorgets today) and slate bars with two perforations. The common factor is the two perforations that all three types of these artifacts possess. This would lead one to surmise that the method of attaching these three different artifacts to another item or unit would be quite similar. Willoughby writes:

> The smaller slate tablets also occur with mound burials. Dr. Moorehead found one similar to (f) (Figure 52) lying between the femora of a skeleton which may have fallen from the wrist. In another instance he obtained one much like (e) (Figure 52) which was lying on a skull. Dr. Mills obtained a similar one from the right wrist of a burial in the

> Adena Mound near Chillicothe, Ohio, and on the wrist of another skeleton in this mound was a tablet or bar like (d) (Figure 53), excepting that it had the usual double perforation. This bar was held in place by two native copper bracelets, each end of the bar was pushed between a bracelet and the wrist, where it seems to have been secured with a cord passing through the holes in the bar. Portions of this binding cord were preserved in contact with the copper.

William A. Ritchie (1965) in his book *The Archaeology of New York State* merely notes that boatstones are one of the artifacts associated with the Middlesex Phase of Early Woodland culture. Some of the other diagnostic artifacts are blocked-end tubular pipes, large leaf-shaped and lanceolate blades, bar amulet, birdstone, several types of gorget, cylindrical copper beads, cylindrical shell beads and Marginella-shell beads. He also notes that powdered red ocher was used extensively to cover the burials.

While on a trip to Ohio in 1973 I had the good fortune to meet Dr. Raymond Baby, the State Archaeologist of Ohio, who at the time was excavating the post mold pattern of a Hopewellian dwelling near Seip Mound. I asked Dr. Baby if he had knowledge of boatstones being found in direct contact with any human skeletal remains. He replied that as far as he knew most boatstones were random surface finds in his area.

My search for information about any recent finds of burials with boatstones has so far proved fruitless. Boatstones by themselves are extremely rare. Boatstones associated with human burials are practically nonexistent. As far as I can assert, Burial #2 from the old Hollister farm in Glastonbury is the only example like this in the entire Northeast. If anyone has heard about a situation similar to our site in Glastonbury, give me a call. If you do not find me at home check the hills and fields because I'll be out there trying to solve the boatstone enigma.

ACKNOWLEDGMENTS

First off my sincere thanks to the late Walter Spencer for his foresight and generosity in granting us permission to conduct our archaeological salvage operation on his property during his construction project. Also a hearty thanks to Roger Russo, the construction foreman, whose kind assistance was appreciated by all. A special thanks to Reggie Paradis, the bulldozer operator, whose keen eyes made all the later events possible.

My warmest gratitude goes to Dr. Douglas Jordan for permitting me free use of his field notes and for his unselfish assistance and knowledge during this turbulent adventure.

I am most grateful to Bob Karalus for his excellent illustrations that accompany this article.

And last, but by no means least, I am indebted to the loyal and persevering members of the Albert Morgan Chapter.

Amen.

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THE SUSQUEHANNA HORIZON AS SEEN FROM THE SUMMIT OF RYE HILL (6LF100), WOODBURY CONNECTICUT

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GREATER NEW HAVEN ARCHAEOLOGICAL SOCIETY

ABSTRACT

The Rye Hill site is in the town of Woodbury on the eastern side of the Pomperaug River. Salvage excavation revealed a partly intact feature containing an *in situ* deposit of artifacts, and others which are presumed to have come from it. It is interpreted as a Terminal Archaic cremation burial with affiliations to the Snook Kill, Atlantic, Lehigh, and Koens-Crispin phases of the Susquehanna horizon. Typology and lithic wear patterns are described and interpreted in terms of archaeological and systemic context as defined by Schiffer (1972, 1976).

THE SITE

Today, thanks to the rumbling of the bulldozer, it is impossible to see anything from the summit of Rye Hill in the literal sense. This small, glacially deposited hill upon which the site was located has been entirely leveled in the quest for top soil and gravel. Ruth and Edmund Sinnott salvaged what they could in 1965 over several weekends, while the area was being obliterated during the week by the bulldozer. If it were not for their efforts, nothing would be known of the site.

Rye Hill was in south central Woodbury, Connecticut. On the west, the hill was bounded by the Pomperaug River and its flood plain (Fig. 1) which is a south flowing tributary of the Housatonic River. On the south, a steep-sided ravine was cut through the flood plain by South Brook. The hill was bordered by a swamp on the northeast. Much of this land was drained in historic times for agricultural purposes. It later became a factory site. The high level of the swamp water left a residual black line around the hill that was easily discernible when excavation commenced.

The first attempts at excavation, in February and March 1965, consisted in removing some of the thin topsoil from the surface of the hill. During this stage, some surface hunting was done, but only chert flakes were found. In April 1965, a work road had been cut by a bulldozer along the north side and across the top surface of the hill. Outlined in the middle of the road, cut down to the top of the gravel, was a dark stain which was the cross-section of a feature (Pit 1). About half of the pit had been truncated by the bulldozer. The machine made one clean cut across it, and left an easily identifiable back dirt pile. Many artifacts were recovered from here which were presumably originally deposited within the feature. Further data will be provided below which supports this assertion (see page 30).

CHRONOLOGICAL AND CULTURAL AFFILIATIONS

In 1968 Dena Dincauze defined the Watertown phase on the basis of several cremation cemeteries in Eastern Massachusetts as a late manifestation of the Susquehanna tradition with poorly understood relationships to antecedent

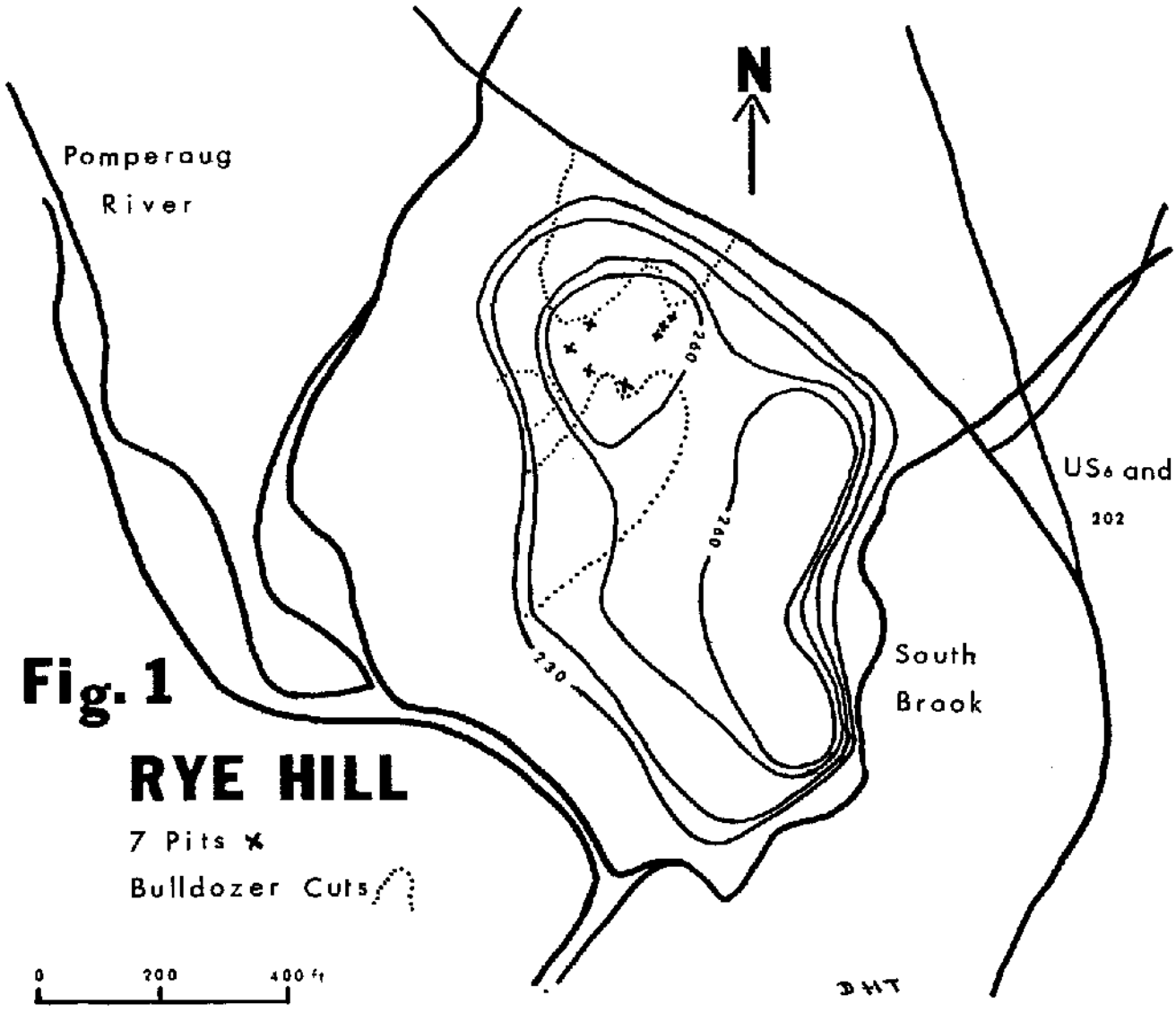

Fig. 1. *Map of Rye Hill.*

cultural complexes such as Susquehanna Soapstone culture of Eastern Pennsylvania (Witthoft 1953) and the Frost Island phase of central New York (Ritchie 1965: 155-163), as well as the Snook Kill phase of eastern New York (Ritchie 1965:134-141). Available radiocarbon dates suggested several centuries of cultural development. She included in the Call group a series of poorly understood burial sites which represent the Lehigh Broad and Snook Kill cultures in southern New England (Dincauze 1968:82). They consist of the Call site in Billerica, (Brennon 1960), the Hofmann site in Ballardvale (Bullen and Hofmann 1944), and the Swan Hold site (Sautter 1967) in South Carver, Massachusetts, as well as the Rye Hill site (Sinnott 1965) described herein. On the basis of indirect evidence she considered the Call group to be culturally and historically antecedent to the Susquehanna Broad complex, including the Watertown phase. The stemmed blades of the Call group were a minority type at both Mansion Inn and at the Watertown Arsenal site.

With the exception of the Atlantic Ledges site in Hull, Massachusetts and the definition of the Atlantic phase dated at 1700 B.C. (Dincauze 1972: 40-61) the Call group designation was dropped and the data reassigned to the Atlantic phase. Dincauze still considered the data to be insufficient to place the Rye Hill site in the Atlantic phase since there were obvious, but yet poorly understood gradations between the Atlantic and Snook Kill phases. In addition to considering these interrelationships of which Rye Hill is a manifestation, potential gradations must be considered between Rye Hill and the Lehigh/Koens-Crispin phase (Kinsey 1972:343-355) of eastern Pennsylvania and New Jersey. Kinsey considers this to be the oldest phase of the Broadspear tradition, a term which he prefers in place of the Susquehanna tradition. The Atlantic phase date cited above corresponds nicely with dates in the Upper Delaware Valley. At the Miller Field site Koens-Crispin points date ca. 1720 B.C. $\pm$120 and at the Peters-Albrecht site Lehigh Broad points date at 1720 B.C. $\pm$100 (Kraft 1970:125). Also at the Kuhr 1 site in the Upper Susquehanna Valley Snook Kill dates at 1670 B.C. $\pm$130 (Funk and Rippeteau 1977). Dincauze has again referred to the site of Rye Hill, but not by name, in a discussion of Late Archaic burial ceremonialism (Dincauze 1975:29) in which she hypothesizes that these burial deposits had far broader functions of social integration than simply the burial of the dead.

Rye Hill has been included by Pfeiffer (1984:78-85) within his definition of the River Plain adaptation system of the Terminal Archaic. This author, agreeing with Funk (1984:136) finds this term to be useful provided it is not considered to be equivalent to "Susquehanna". Although this is a hill top site, it is adjacent to extensive flood plains along the Pomperaug River. The complete system is perhaps more complex (see Pagoulatos 1988:71-93). At the Hopkins site (6LF1) at least two Snook Kill points were recovered *in situ* below the plow zone and above Sylvan Lake materials as well as others from the plow zone (Thompson 1973:5-24). The Hopkins site is similar to Pfeiffer's River Plain system in that it is a wide level field with rich top soil, but it is different in other respects. It is adjacent to Lake Waramaug, which has an outlet through the East Aspetuck River. Excavations at the adjacent Woodruff Rock Shelter (Swigart 1987:43-75) indicate that at least during Woodland times Lake Waramaug was a shallow, warm water lake with species of fish adapted to that environment. There is no available evidence that cold water anadromous fish ever entered this lake. It has been assumed (Turnbaugh 1975:51-68) that the migrations of anadromous fish in the rivers of the eastern seaboard of North America were a major economic factor in the dispersal of the Susquehanna horizon along the flood plains of these rivers. It would appear that the River Plain adaptive system is not entirely applicable in this lacustrine environment.

One line of inquiry which needs to be explored is a definition of both uses and functions of the broadspears within the context of the River Plain adaptive

system. Sharp (1952:342-348), writing about the Yir Yoront of Australia, draws a distinction between the technological use of artifacts as opposed to their sociocultural functions. In an archaeological context it is perhaps far easier to deal with the nature of intended technological use as opposed to functions which may be multiple, unintended, and covert within the sociocultural system. Nevertheless some speculation may be deemed appropriate. This part of the discussion will be postponed until the conclusions of this paper.

In the Upper Delaware Valley Kinsey (1972:346-347) has hypothesized that broadspears were for spearing fish and that the wide shoulders served as barbs. This author strongly doubts that this interpretation would survive examination through the experimental method. Although he has never seen it tried, he suspects that a broadspear would simply glance off the side of a quick and agile anadromous fish. Although evidence is slight, the pursuit of anadromous fish, such as shad and alewives, along the Atlantic coast of North America has been hypothesized to have been a significant economic activity during the Susquehanna horizon (Turnbaugh 1975:51-68). Most ethnographic accounts of spearing fish describe either harpoons or leisters. Both are made of perishable materials and are of low visibility in archaeological contexts. The leister, a three pronged spear, is specifically designed not only impale a fish of the general size in question with the central prong, but also to grasp its round smooth body with the two flexible outside prongs. Due to the width between the two outside prongs it will only accept fish within a specific size range. Writing of the Eskimo of Point Barrow, Alaska, Murdoch (1892:286-287) says that this type of spear is best suited for obtaining large fish in shallow rocky streams where a net cannot be used, or where fish are trapped by dams on tidal streams. In order to use a leister, the fisherman must be able to see his quarry. It may also be used effectively at night with the light of a birch bark torch (Bock 1978:112; Erickson 1978:127).

Consequently the physical characteristics of the river itself may be indirect evidence to help define the nature of prehistoric fishing technology. In deeper water, presumably nets would be more efficient. In early historic times the leister had a distribution around the Great Lakes, and more northern areas (Tuck 1978:30), eastern Canada, and northern New England (Bock 1978:112; Erickson 1978:127; Snow 1978:138). There is insufficient evidence for its use in coastal North Carolina and Virginia (Feest 1978:226). The distribution of the leister certainly does not coincide with either that of the Susquehanna horizon, or the River Plain adaptive system. However, it has sufficiently great a geographic distribution to suggest that it may have had a considerable depth in time. Ritchie (1965:50, Pl. 12, Fig. 17; Pl. 13, Figs. 12, 13; 95, Pl. 29, Fig 26) has identified double pointed bone implements three to five or more inches long as leister points for the Lamoka phase, as well as for the Brewerton phase. Since both of these phases predate the Susquehanna horizon, there is no reason to believe that leisters could not have been available at that time. In a discussion of maritime adaptations in the Gulf of Maine Sanger (1988:81-99) points out that the best evidence for fishing is the presence of the bones themselves. He also points out that Susquehanna sites have a wide inland distribution in Maine, but sufficient research has not been done on coastal assemblages of this tradition to define the settlement pattern. A short distance upstream from Rye Hill are the Pomperaug Falls, which the Sinnots (personal communication, July 26, 1989) speculated may have been a site for taking shad.

It is premature to compare Pfeiffer's River Plain Adaptation system to other areas. Even though there is a lack of evidence for fishing in the River Plain Adaptive system, its potential economic contribution to the system cannot be ruled out. However, one must look elsewhere in order to define the technological uses of the broadspears within the system. Indeed in a site in Massachusetts Hofmann (1940; cit. in Dincauze 1972:41) discovered a deer

astragalus in which the broken tip of an Atlantic point had presumably been embedded. Although this association is limited to a single known example, this author suspects that, if broadspears were used as weapon points, there were used to fell terrestrial game. This and other possible technological uses for broadspears will be discussed below in an analysis of the assemblage from Rye Hill.

FEATURES - PITS 1, 2, 3, AND 4

What remained of Pit 1 was a bowl-shaped depression about two feet (61cm) in diameter and about five inches (13cm) deep. The material in the pit was a fine grained charcoal mixed with some fine sand. Scattered randomly through it were pieces of broken and fire-damaged bifaces. Also in the pit were twelve fragments of quartz, five of which are flaking debris and the rest are fire-shattered fragments of a large cobble stone, possibly part of a cobble stone hearth used as a crematorium. None of the artifacts from this feature were of quartz. There were eighteen small chert chips. The specific attributes of these will be discussed below (pg. 38) with the chipping debris from the surface of the site. Near the bottom of the pit were three cruciform shaped blades (Fig. 2: A, B, C) which were piled together as illustrated in Figure 3. Beside them was a smaller point with pronounced incurvate edges (Fig. 2: D). It should be noted that Figure 3 was not sketched *in situ*, but drawn a few days later from memory by the Sinnotts (See ACKNOWLEDGEMENTS, page 46).

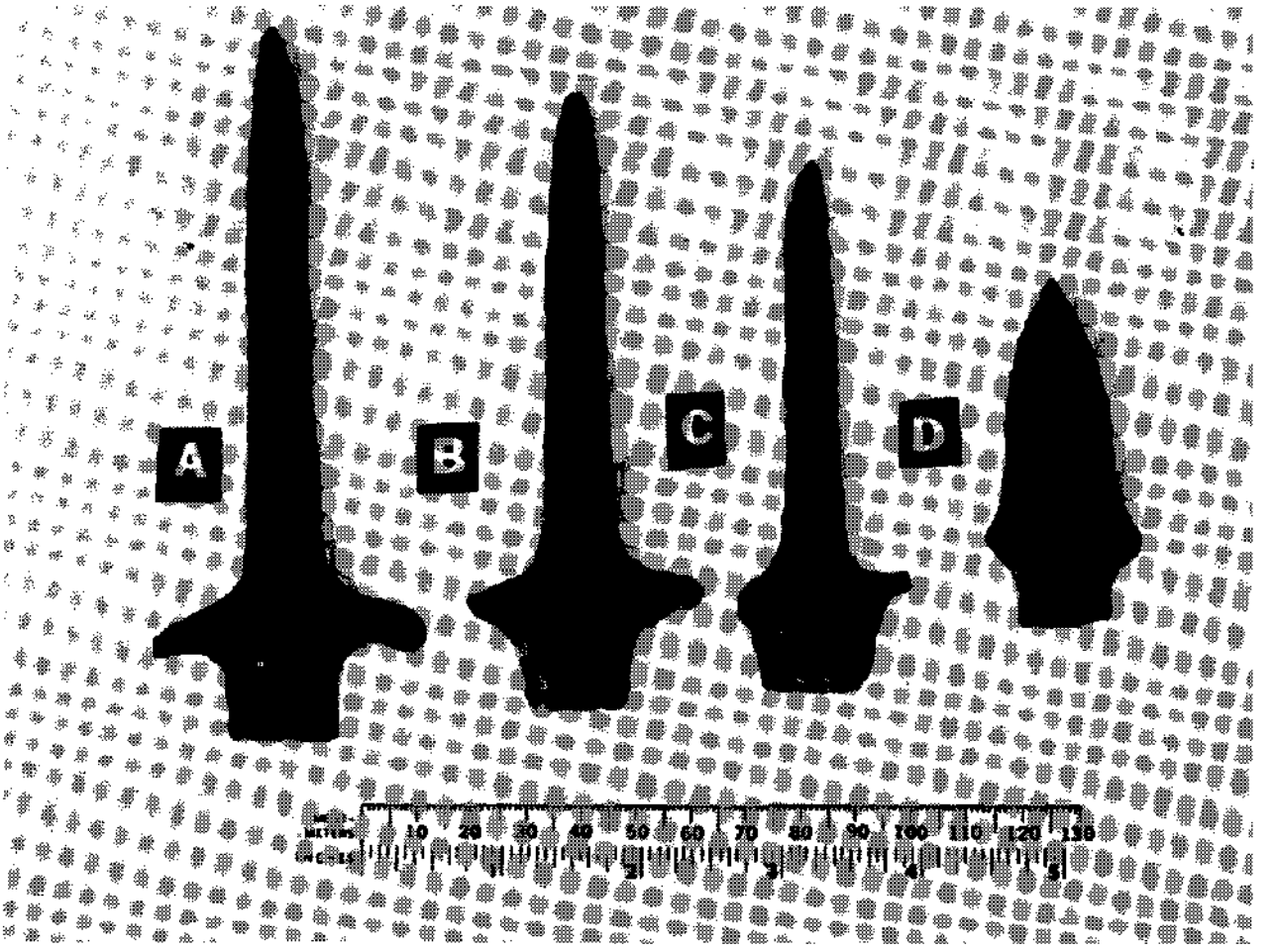

Fig. 2. *A,B,C are three cruciform shaped blades, and D is a Wayland Notched point with pronounced incurvate edges. All are from Pit 1.*

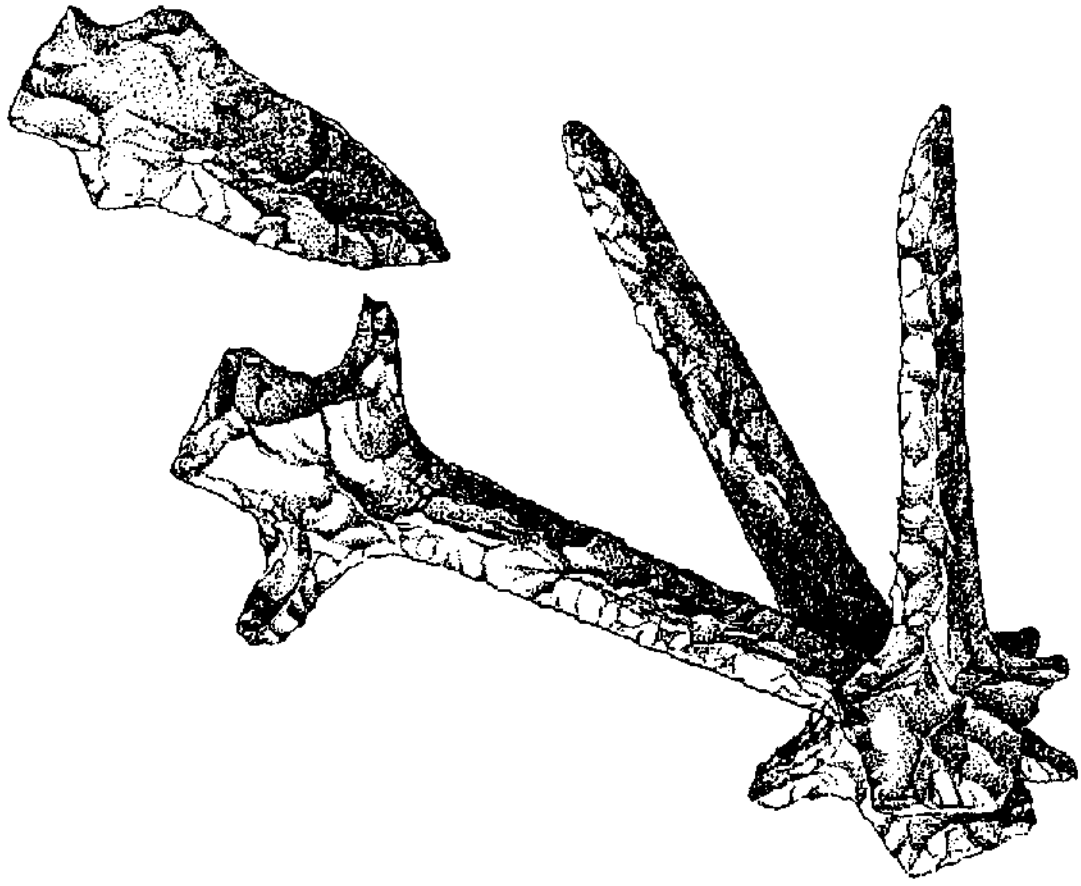

Fig. 3. *This illustrates how the artifacts in Fig. 2 were found in situ in Pit 1.*

Seventeen small fragments of chalky-white calcined bone were recovered. Several may be from long bones. Since they cannot be identified as either human or any other specific animal, it can only be *assumed* that the feature is a cremation burial. Nicholas Bellantoni, Connecticut State Archaeologist, agrees with this assessment. All fragments are diagonally fractured. Two fragments exhibit deep diagonal checking. Two others exhibit fine longitudinal striae. The last exhibits both checking and longitudinal striae. According to the criteria established by Baby (1954:2-4), diagonal fractures and deep checking indicate the burning of green bone, while longitudinal striae indicate the burning of dry bone. It is possible that both modes of cremation are to be found in this assemblage. Douglas F. Jordan, University of Connecticut, Department of Anthropology, has suggested that prior to cremation the body was dismembered. Some of

the bones would be stripped of the flesh and directly exposed to the flames (personal communication). This could account for both modes of cremation being found in one assemblage.

What can be tentatively identified are thirteen small calcined fragments of turtle shell or carapace (Fig. 4). Three of these clearly show the marginal plates of the edge of the upper shell, while others exhibit the outline of the bone plates which compose the shell. They do not have any of Baby's criteria for the burning of green or dry bone. On the basis of observing a display of mounted New England turtles in the Peabody Museum of Salem, Salem, Massachusetts these fragments may be identified as either the Spotted Turtle (*Clemmys guttata*) or the Eastern Painted Turtle (*Chrysemys picta*).

Fig. 4. *Two of the turtle shell fragments. The left edge of the one on the left (nearest the millimeter scale) is the outside edge of a carapace.*

This tentative identification would seem to be supported by comparison to Plates VIIIb and X12 illustrating the Spotted and Painted turtles, respectively in Lamson (1935). However the carapace of a turtle is composed of two layers (Pope 1971:59-61; Pls. 18,19). The outer one is of horny material which makes up the shields or laminae. The inner layer is of bony plates. The pattern of the horny shields does not coincide with that of the bony plates. Therefore one cannot identify the bone plates which have been preserved by comparison with illustrations of living examples which have the outside layer. Nevertheless, the two species suggested are about the right size, and they are common in southern New England. Both are at home in shallow muddy ponds, marshes, and the backwaters of streams. They are perhaps fauna of both the river plain and warm water lakes. These fragments of turtle shell may be the remains of an artifact which had been consigned to the cremation fire. A carapace could have been used as a bowl (Rogers 1943:55; Pl. 2:8,9,10) or perhaps as a rattle. Ritchie (1965:69, 119;Pl. 41, 218, 293, 299) remarks that rattles of box-turtle shell have not changed in design from Lamoka times to the historic Seneca. In respect to the Indian Knoll site in Kentucky, Webb (1974:300-303, Fig. 50) says that rattles made from a carapace and plastron of the box-tortoise usually are found associated with graves.

Eighteen very small (1cm or less in size) blackened, irregularly shaped cinder-like crumbs were recovered. To the author these appeared to be burned bits of cancellous material, perhaps from the interior of the joint of a long bone. However, Nicholas Bellantoni notes that the numerous holes in these fragments are too irregular and lack the regular patterned alignment which is to be expected of the sponge-like interior of bone. He suspects that these may be mineralogical, rather than biological, and may actually be cinders. If true, these burned bits raise the question as to what might have been consumed in the cremation fire and left only cinders as an archaeological record.

The black fine grained soil that formed the fill of the pit also contained many small carbonized nuts. Upon excavation the Sinnotts did not immediately notice them. There was rain during the night, and the next day the nuts were found washed out of the pile of fill from the pit. These did not entirely fill a pint-sized peanut butter jar. Shortly after being discovered, a selected sample of them were identified as oak (genus *Quercus*) by both John Reeder of Yale University (personal communication to Edmund Sinnott, July 19, 1965) and Walton C. Galinat of the University of Massachusetts (personal communication to Edmund Sinnott, June 22, 1965) as a favor to the Sinnotts.

In June of 1989 this peanut butter jar was obtained from the Sinnotts by the author with the intent of submitting the cotyledons to radiocarbon dating. However this would destroy the sample, and it now appears that there are a variety of other questions which need to be addressed. It was first examined in greater detail by Lucinda McWeeney, a PhD candidate in the Departments of Anthropology and Forestry at Yale University. She selected seventeen specimens for microscopic analysis and submitted a report to the author (personal communication June 7, 1989) from which exerps are included. Eleven were the shells of hazelnuts (Corylus) (McWeeney as cited above and Marina Mozzi, Archaeological Research Specialists, personal communication June 1989). Mozzi used modern hazelnut shells for comparison. Three cotyledons were thought to be possibly hazelnut, or hickory (*Carya* sp.) by McWeeney, but without comparative materials. Two charcoal specimens were oak, cf. White Oak *Quercus alba*. Two more charcoal specimens were hickory, one of which was badly deteriorated from bacteria or fungi. All of McWeeney's charcoal identifications were done with modern comparative samples. The remaining 80 to 100 cotyledons in the jar were spread out on a sheet of aluminum foil with tweezers. To the author, who is not a botanist, it was obvious that most were very much alike, but there were a few notable exceptions. All of these were shown to Stephen Collins, Professor

Emeritus of the Biology Department, Southern Connecticut State University, and past Vice President of the Connecticut Botanical Society. He concluded that the majority of the cotyledons not only belonged to the white oak group, but were from the dwarf Chinquapin Oak *Quercus prinoides* (Dowhan 1979; Emerson and Weed 1936:146-147; Viertel 1976: 226) which is not to be confused with the larger Chinkapin Oak *Quercus muehlenbergii* (Preston 1961:190-191). The few specimens which were noticeably different, as well as some of the other acorns were selected by Marina Mozzi to send to Tonya Largy, an archaeobotanist at Harvard, for identification. Largy's reply to Mozzi of September 10, 1989 is included as an addendum to this paper (pg.45). The Chinquapin Oak is a low wide-spreading shrub which grows in thickets. These spread radiating underground stems which send up new shoots. As do other members of the White Oak group, the abundant acorns mature in the first autumn. It is sometimes called the Scrub Chestnut Oak because the leaves resemble the leaves of the Chestnut. The dwarf Chinquapin Oak has minimum of tannin and a sweet kernel which contributes to its food value. Upon maturation Collins believes that the acorns are quickly consumed by birds, mice, squirrels, and deer. However the low size of the shrub might make collecting the collecting of the nuts easier for hunters and gatherers who would otherwise have to wait for the nuts to fall to the ground from the large species.

In the greater New Haven area Collins has encountered Chinquapin Oak in open sunny areas on top of, and particularly along the edge of West Rock which is a major Triassic basalt outcrop. It is to be noted that the Pomperaug Valley is geologically similar (Hobbs and Knowlton 1901), and although no examples are known, perhaps is also environmentally favorable for this particular species. It may also be found on barren sandy soils.

Some speculative questions aught to be raised concerning the frequency and distribution of this species under aboriginal ecological conditions when the forests were periodically burned either by lighting, or deliberately by the natives in order to reshape and manipulate the ecosystem (Cronon 1983:47-51). The burning minimized the understory plants, in order to produce and open park-like forest with widely spaced trees, few shrubs, and much grass and herbage. The larger oaks, particularly the white, since they are more fire resistant than the black oaks according to Collins, would have been an important component of these forests. A thinner forest canopy would have permitted a sunnier, warmer, and dryer forest floor which might have been conducive to the propogation of Chinquapin Oak as it was for a variety of different kinds of berries. The fact that this oak may be propagated by shoots growing up from undergound stems, may have been a significant survival factor when the forest was burned. Consequently Chinquapin Oak may have been more prolific in the past than it is today, and consequently of greater aboriginal economic significance than has previously been recognized.

Walton Galinat and Stephen Collins have raised some particular questions concerning the physiology and chemistry of acorns which may be of ecological significance in respect to the cultural behavior of hunting and gathering bands who depend upon these nuts in quantity at certain intervals during the year. Quercus may be divided into two subgenera, the white oaks, and the black (also called red by some authorities) oaks; each of which contains numerous species. The acorns of the white oaks are sweeter, and contain less tannin, than those of the black oaks. The white oaks germinate in the autumn shortly after they have fallen and, before the cold weather their first little roots are in the ground, provided they have not been eaten. The fruit of the black oaks are minute the first year, and mature the second year in the spring (Peattie 1950:194-196). Both may be used as food, since the poisonous tannic acid is easily leached out of them (Fernald and Kinsey 1943:159).

It is often assumed in the archaeological literature that the presence of

acorns in an archaeological deposit indicates a fall or winter occupation. This may be correct for the white oaks, but not necessarily follow for the black oaks. Galinat noted that the Rye Hill specimens were cotyledons which had separated from their shells. This suggested to him that the acorns had sprouted. He further surmised that perhaps oak seedlings a few inches high were pulled during the months of May and June, the cotyledons snapped off, and then roasted. If Galinat's suggestion is correct, then the time of the occupation can no longer be assumed. Indeed the spring is often a time of food shortages for hunters and gatherers. An alternative suggestion, which has been preferred by this author, is that the collectors of the acorns removed the shells.Note the pitted stone in Pit 4 which might have been used for this purpose. This of course would still support the fall or winter occupation.

However Collins believes that Galinat's conclusion concerning the harvesting of oak seedlings is significant because acorns have an enzyme inhibitor which prevents the process of germination. The difference in the timing of germination between the white and black oaks is dependent upon the action of these enzyme inhibitors. Exposure to rain and melting snow and ice leaches the inhibitor from the acorns, until finally germination would be activated. Consequently in the spring the acorns would be sweeter because of the lack of the inhibitor, and the activation of the enzymes would make them more easily digested (Howell 1985:119-127).

Howell (1985) considers that enzymes perform vital metabolic and digestive processes in all living organisms. The capacity of living organisms to produce their own enzymes is limited and exhaustible. The expenditure of them leads to serious illness, old age, and death. Four legged animals and humans, such as the Eskimo, who eat their food raw be it vegetable, or animal absorb the still active enzymes in the food. These enzymes assist in the process of digestion, so that the metabolic processes of the one who has consumed the food need only to produce a limited supply of specific enzymes as needed. The natural conservation of enzymes is conducive to good health and longevity. The cooking of food destroys all enzymes. Consequently those who are adapted to a cooked diet, must rely upon their own internal ability to produce digestive enzymes. Howell's food enzyme theory would appear to have extensive implications for human adaptation and cultural evolution. Howell considers modern man's enzyme free diet to be the fundamental cause of numerous medical complaints.

Early in his career Dr Howell turned to consuming large quantities of raw nuts of various kinds in order to avoid cooked food. After about two months he experienced an unpleasant heavy, full, sensation in the abdomen, and some nausea. It was sufficient to force him to give up his diet. It was not until several years later, after further research, that Howell realized that enzyme inhibitors were the cause of his discomfort.

The theory, research, and personal gastronomic experience of Dr. Howell may be relevant to understanding the ecological adaptations of hunting and gathering bands which are dependant upon quantities of nuts and seeds. A survey of the ethnographic literature is beyond the scope of this paper. However it appears to this author that if the collecting, the methods of processing, and consumption of nuts and seeds were discussed cross culturally, and in the context of a procedural flow model (Schiffer 1972; 1976) as is suggested in the conclusions of this paper for the lithics of the Susquehanna horizon, it may be possible to explain cultural variability on the basis of chemical variability of different species of nuts and seeds. A few points are readily apparent. Some sources indicate that it is possible to eat the acorns of the white oak group, at least in small amounts, raw (Kavasc 1979:6; Saunders 1948:68; Gibbons 1962:10). Of these the chestnut oaks, which include *Quercus prinoides* as have been identified at Rye Hill, are among the sweetest. Most acorns, and particularly those of the black oak group must have the tannic acid ($C_{14}H_{10}O_9$) (Onions 1964) leached out

of them in order to eliminate the bitter and astringent taste. It is presently unclear whether or not tannic acid is an enzyme inhibitor. There is more than one way to process them depending upon the source consulted. The cotyledons may be leached whole, or they may be first ground to flour before leaching. Grinding, as does chewing, may serve to activate the available enzymes. Saunders (1948:70) states that digestibility depends upon thorough grinding. The ubiquitous presence of grinding stones in Archaic components is a factor to be considered. Leaching may be done with boiling water which will destroy the enzymes. Or it may be done with repeated soakings with cold water. There are several variations, and length of time depends upon the degree of bitterness of the nuts being processed. One technique is to place the acorns in a hollow pocket of sand and repeatedly pour cold water over them (Fernald and Kinsey 1943:159-160). Note that Pit 4, discussed below, which contains only a pitted stone, presumably for shelling nuts, was lined with sand. Acorn flour may or may not be used for baking bread. These limited comments are sufficient to indicate both the ethnographic complexity of procedural variability, and ethnographic use of processing tools and features which need to be better explained in the archaeological record. The widespread use among prehistoric societies of highly nutritious nuts and seeds which may be eaten either raw or cooked would seem to mark a significant threshold in the dymamics of cultural growth when considered in respect to Howell's (1985) theory of enzyme nutrition.

More pits were found at Rye Hill, but none comparable to the first. Pits 2 and 3, about 40 feet (12m) from Pit 1, contained coarse charcoal, but were devoid of artifacts. The truncated bottom of Pit 4 was found a little over 200 feet (61m) to the south of Pit 1, where the bulldozer had removed of all the top soil, and a good deal of the gravel. The black fill was fine-grained, and the pit appeared to be lined with about 1 inch (2.5cm) of fine sand. This author spent one day assisting in the salvage excavations at the Schwartz site (Dincauze 1975:29) in the Connecticut River Valley. The excavation was directed by Douglas F. Jordan of the University of Connecticut. It is recalled that the bottom of the Terminal Archaic feature which this author excavated was also lined with a layer of clean white quartz sand. Imbedded in the top of this sand at the Schwartz site was a carefully deposited pavement of smooth water-worn pebbles approximately 2 - 3cm in diameter each. Above the pebbles the soil was black, greasy, carbonized, and contained numerous chert bifaces. These pebbles are perhaps functionally equivalent, as an initial dedicatory cache, to the cache of four blades which were not thermally altered in the bottom of Pit 1 at Rye Hill. In the bottom of Pit 4 a pitted stone was found (Fig. 5: B, pg. 19, 20).

Between Pits 1 and 4 was an area cleared by the bulldozer. Top soil and gravel were piled up 50 feet (15m) from Pit 1. Several large stones, 8 to 10 inches (20 - 25cm) wide were found in this pile. The stones appeared to be stained with charcoal, but their original provenience was unknown. Possibly they were part of a hearth which may have served as a crematorium. Such features are known elsewhere in association with the cremation burials of the Terminal Archaic and Early Woodland periods (Dincauze 1968:54-55; Ritchie 1955:24-25). No identifiable artifacts were found in this bulldozed pile. Although it is impossible to prove that these stones were a crematorium, further evidence will be presented below (pg. 34-35) to demonstrate that the artifacts may have been burned at the site. A funeral pyre on the summit of Rye Hill would have provided a beacon which could have been seen for a considerable distance up and down the valley of the Pomperaug. As both Ritchie (1965:177) and Dincauze (1975:31) have noted there must have been elaborate symbolism concerning the nature of high places and the meaning of fire in the context of a burial cult which has now been lost.

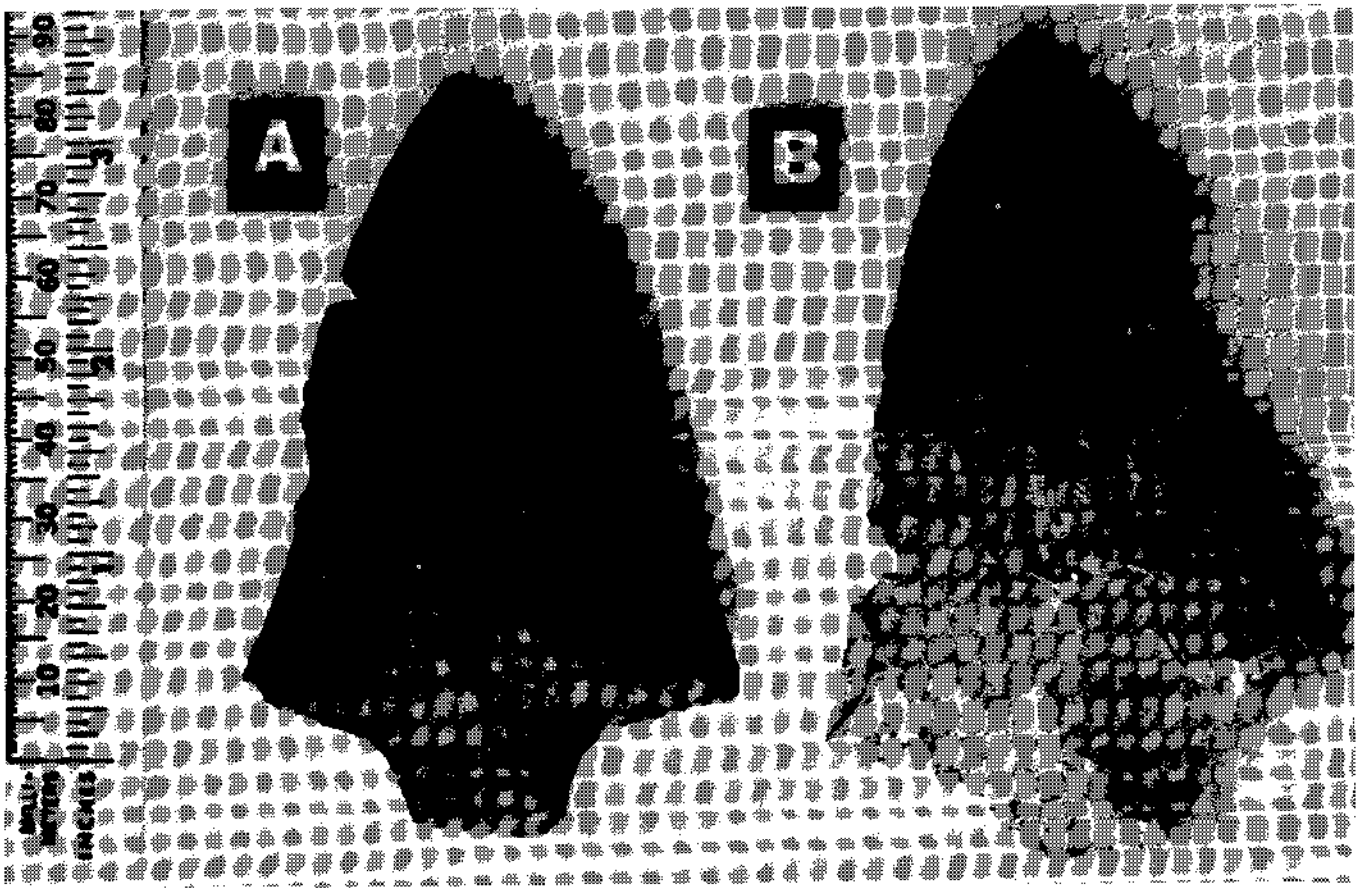

Fig. 5. *A,B are two large chert Atlantic points.*

An area 40 – 50 feet (12 – 15m) from Pit 1, somewhat east of a line between Pit 1 and Pit 4 was noticed to be thickly strewn with quartz chips. These are not to be found in the Sinnott's collection. By this time one half of the hill had been stripped, and only a few darkened spots were found containing no artifacts. The notes provided by the Sinnotts are not entirely clear as to the number and arrangement of these features, since their sketch map (Fig. 1) shows seven different features which were labeled "fire pits", but does not enumerate them.

Two packets of aluminum foil containing charcoal were provided by the Sinnotts, but without documentation. It is presumed that they come from one or more of these other features, possibly numbers 2 and 3, since the Sinnotts' notes describe charcoal as noted above. Lucinda McWeeney (personal communication June 7, 1989) has identified eight fragments as oak (*Quercus* spp, cf. *Q. rubra*) family -- Erythrobalanus group.

ARTIFACTS FROM PIT 1

Three cruciform shaped blades (Fig. 2:A,B,C) were found *in situ* in the bottom of Pit 1 (Fig. 3). For the Terminal Archaic period similar objects are described in functional terms as drills, or expanded base drills. No doubt, some specimens were used for drilling and perforating holes, as has been demonstrated by Lyent W. Russell of the Archaeological Society of Connecticut through experimentation (personal communication), and by Dena F. Dincauze (1968:28-29) through the observation of wear marks. However it seems doubtful that these

large, fragile, but yet undamaged examples from Rye Hill were ever used to perform any utilitarian tasks. Examination of the edges with a 10X hand lens revealed no indication of wear. Indeed the tip of the smallest specimen (Fig. 2:C) has been chipped asymmetrically as might be expected for a knife blade. If it had been used with a rotary motion the tip would have been worn symmetrically. Polish is visible on the ridges between the flake scars on the sides of both the bases and the blades of these tools. This polish forms a fine, sharp line, as if it had been rubbed against something flat and hard. Possibly these tools were hafted in a split wooden handle and the polish is due to friction against the wood. If true, then it is implied that these were hafted functional tools at one stage during their life use in the context of a behavioral flow model (Schiffer 1972, 1976:38-39). However these tools could have been removed from their hafts, and their edges resharpened by secondary chipping before burial. This hypothesis will be elaborated upon below in the CONCLUSIONS when discussing the synchronic flow of lithics within a systemic cultural complex (pg. 41-42).

An alternative explanation of the polish on the ridges between the flake scars has been provided by Douglas F. Jordan (personal communication). Namely several bifaces could have been carried in a leather bag by migratory peoples from camp site to camp site. The bifaces would have rubbed against each other, and against the sides of the bag. One might expect that polish produced in this fashion would have a different appearance than that described above. Obviously microscopic criteria need to be extensively employed in Connecticut archaeology to distinguish different types of wear on chert, as has been done by Keeley and Newcomer (1977:29-62) in conjunction with the experimental manufacturing and usage of lithic tools.

The bases of the two largest cruciform shaped blades have been ground. The stem-to-shoulder curve of the largest (Fig. 2:A) may have been produced by indirect percussion applied with a blunt punch. This technique has been suggested by Dincauze (1972:41). It is believed that these objects are the end result of successive resharpenings of Atlantic implement blades by pressure flaking (Dincauze 1972:40-61). Metric data may be found in Table 1:A.B.C. Aesthetically these objects are among the finest examples of chert knapping in the Northeast. They are comparable in their skillful execution to specimens found by Kraft (1970:63;Pl.9d) in the Perkiomen component at the Miller Field site, Warren County, New Jersey. The materials from which the Rye Hill specimens are made are variable dark green to black cherts which are probably all from eastern New York. They have not been altered by fire.

TABLE 1: *Artifacts found in situ in Pit 1*

Specimen	Length (cm)	Shoulder Width (cm)	Maximum Thickness (mm)
A	12.9	4.9	8.0
B	11.1	4.3	8.0
C	9.5	3.5	8.3
D	6.3	3.0	7.1

Next to these three cruciform shaped blades was found a smaller Wayland Notched point (Dincauze 1968:23-26) of dark green chert with incurvate edges, but a wider blade (Fig. 2:D). It also has not been thermally altered by the cremation fire. However, the tip and upper half of the blade of this point has a vitreous luster which Lucianne Lavin, Archaeological Research Specialists (personal communication) has suggested is due to the chert being heat treated in

order that it may be chipped more easily. The luster does not appear until after the heated chert has been chipped. These four unburned blades would appear to be an initial dedicatory cache in honor of the dead made prior to the interment of remains gathered up from the crematorium. Possibly these blades were secondarily rechipped to their present shape as part of the funeral ceremony, so that they might be considered as "dead" in a magical sense (Dincauze 1968:75). This will be discussed again in the section on CHIPPING DEBRIS (pg. 38).

Eleven specimens were found in the bulldozer back dirt pile which are presumed to have come from Pit 1. Fragments of at least two of these points (Fig. 5: B and 7:E) were found in both the pit and the back dirt pile, and later restored by the Sinnotts. This helps to confirm the fact that these artifacts did indeed come from Pit 1. These eleven points may be divided into two categories of five points in the first (Fig.5:A,B and 6:C,D,E) and six in the second (Fig. 7:F,G,H,I,J,K) on the basis of size.

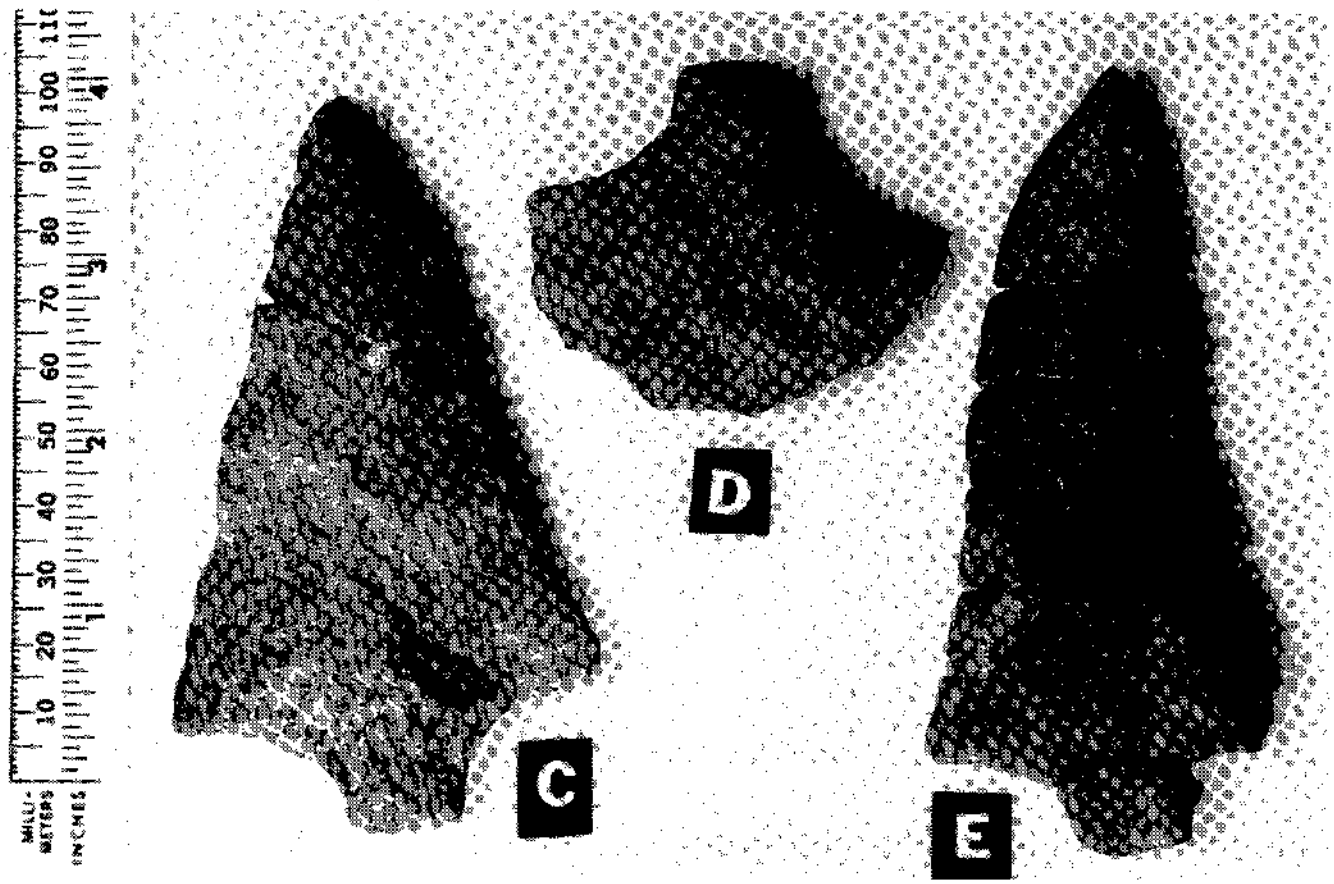

Fig. 6. *C,D,E are three large weathered argillite Atlantic points.*

The metric data which illustrate this bi-modal range of variation may be found in Table 2. In the large category the points range from 9.3 to 11.1cm in length, and between 5.9 and 6.1 in width. One has been manufactured from what is probably Normanskill chert (Hammer 1976:52) using a soft hammer technique which has left broad, flat flake scars, and a thin, flat to lenticular cross-section (Fig. 5:A). Lucianne Lavin (personal communication) has warned that there are other cherts visually similar to Normanskill. There is a minimum of secondary retouch along the edges near the tip. The stem-to-shoulder angle was chipped with indirect percussion applied with a blunt punch (Dincauze 1972:41) and subsequently secondarily chipped. Examination of the edges of the blade with a 10X hand lens reveals a high polish on the crests between the flake scars. This

wear is most noticeable on the excurvate mid-section of the blade and diminishes both toward the tip and the shoulder. Adjacent to this on the obverse face of the blade there are miniscule flake scars, several of which terminate in step fractures. These are absent on the reverse face. Although the overall form of this stemmed biface might suggest that it was intended to be a hafted spear point, these specific attributes indicate that it was used as a scraper. The tool would have been held lengthwise, on edge, and the worker would have either pulled it toward, or pushed it away from him, or herself. The high polish, and its location on the excurvate edge suggests that the tool was employed in cleaning tough, but yielding skins. The adjacent miniscule flake scars on one face were produced by the combination of vertical pressure on, and horizontal drag over the skin. Since they are only one face, the tool was dragged in only one direction. In addition to the wear marks, this artifact has been cracked and pot lid fractured in the crematorium fire.

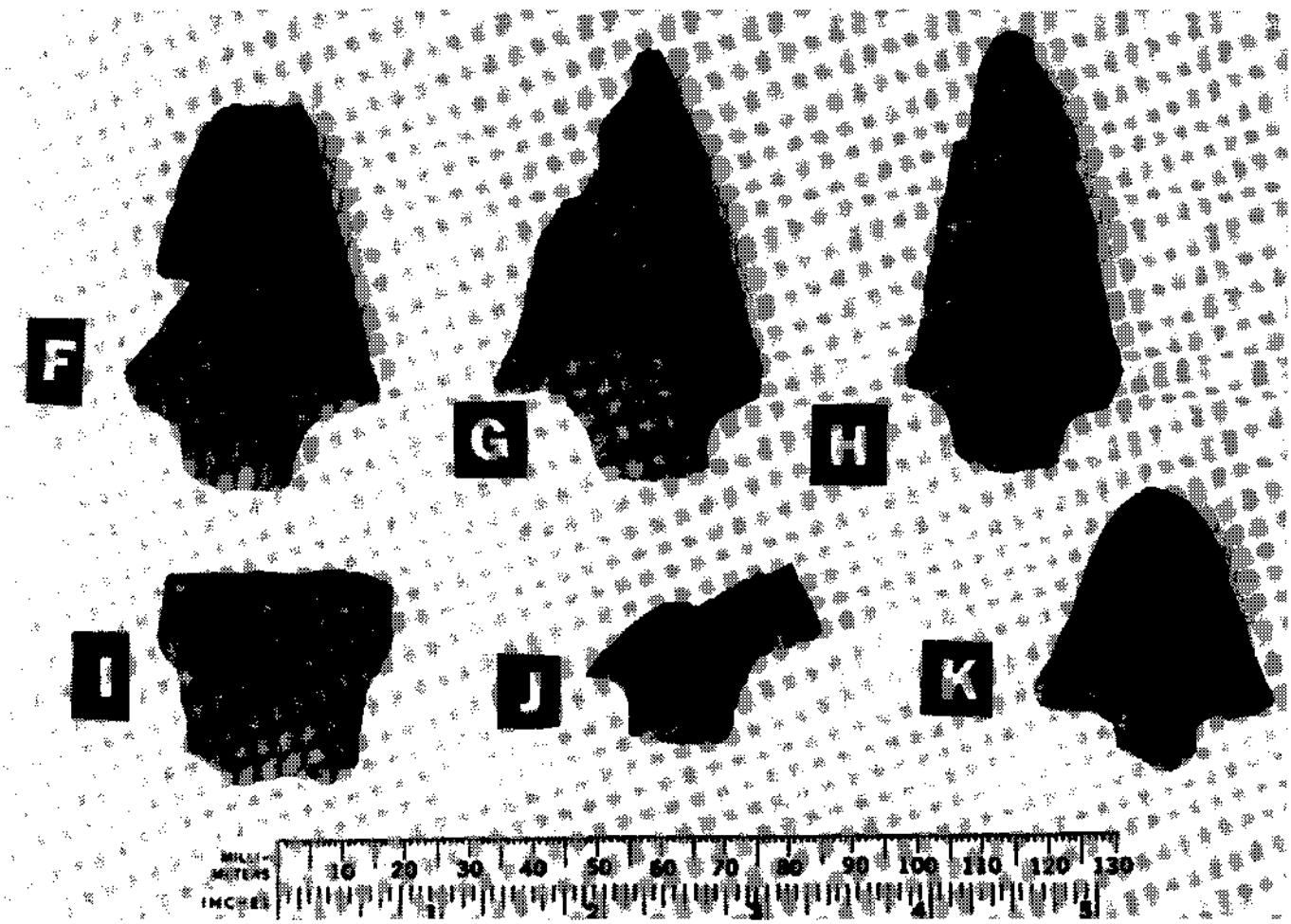

Fig. 7. *F,G,H are Koens-Crispin and/or Snook Kill points of weathered argillite and fire damaged chert. I is a Coburn stemmed blade of weathered argillite. J is a chert Snook Kill point. K is a strike-a-light. All are presumed to have come from Pit 1.*

These observations conform closely, but not exactly, to Dincauze's (1968:16–18) functional analysis of Mansion Inn implement blades used as scrapers. Atlantic blades are ancestral to Mansion Inn. A few were in the earliest features of the Watertown phase (Dincauze 1972:56). In addition to the polishing, she observed wear striations crossing the blunted edge at an angle

which indicates that the tool was pulled and/or pushed at that angle with one end leading the other. The difference has yet to be explained. Possibly it is a function of the difference in lithic materials. Mansion Inn blades are predominantly made of porphyritic felsites, and occasionally of other materials. However, the Rye Hill specimen may not have been observed with sufficient magnification.

Ethnographic analogy and experimentation may be useful in elucidating these inferred tasks. Dincauze (1968:17) believes that the polishing may be due to the abrasive action of ashes which she believes was primarily intended to soften hides. Kephart's (1917:vol II, 303-320) description of how to process fresh animal skins into first rawhide, and then into buckskin indicates that the ashes which are applied wet produce a weak lye solution which loosens the hair from the raw hide. Particularly heavy hides may be covered with wet ashes and rolled up for several days. The hide is then draped over the rounded end of a graining log which is set at about a 45° and is waist high. The workman then leans against the end of the log so that his weight will hold the hide in place as he pushes the scraper down and away from himself following the way the hair runs. Both the hair and the grain (the black epidermis) are scraped off. Consequently the scraper is in contact with wet ashes, the hair, the epidermis, and the dermis. Any one of these, or combination thereof could have produced the polish. Since the graining log as described by Kephart would not have provided a yielding surface, it is more likely that this chert scraper was used on skins which were either pegged to the ground or laced to a frame. The physics of polishing is a complex process (Rabinowitz 1968:91-99), the understanding of which requires controlling other variables, in addition to the polishing agent, such as the melting point, the chemical bond of molecules, pressure, and rubbing speed. Essentially it is the process of removing one molecule at a time.

The inside surface of the hide is not cleaned with a scraper according to Kephart. Instead, adhering pieces of flesh must be cut off with a sharp knife. Care must be taken so that the hide is not cut. Once both the exterior and the interior sides have been cleaned as described, rawhide has been produced. Turning this into buckskin is a separate process described by Kephart, but not relevant here.

Another chert specimen (Fig.5:B) from Pit 1, similar to the example just described, including the flaking of the stem-to-shoulder curve, had been so badly burned by the fire, that it has turned a light tan. The original color of the chert is impossible to determine. Close examination reveals no wear on the edges.

The last three specimens in the large sized category are made of highly weathered, or patinated siltstone or argillite (Fig. 6:C,D,E) and consequently any wear marks have been obliterated. Argillite is metamorphosed mudstone (Didier 1975:90). There is considerable variation in color between these three specimens, presumably due to the cremation fire, and consequently this identification is most tentative. One object is broken at the base, and the other two have sinuous edges which may indicate that they were used as knives or scrapers. If fishing was important as suggested above, then some of these tools might have been used to clean the catch.

Metric data for the smaller sized category (Fig.7:F-K) may be found in Table 2. Because of the breakage, the average length of these six specimens may only be estimated at approximately 7.0cm. Width ranges from 3.5 to 4.3cm. One is of highly weathered siltstone or argillite (Fig. 7:F), two are of fire altered and pot lid fractured chert (Fig. 7:G,H). These two also exhibit some polish on the ridges between the flake scars on the sides as do the the cruciform-shaped blades. It is of note that this polish persists in spite of thermal alteration. Two others (Fig. 7:J,K) are possibly of New York chert. At least two of the small sized category (Fig. 7:G,J) had the stem-to-shoulder curve produced

indirect percussion applied with a blunt punch. The sixth specimen (Fig.7:I) is the broken base of a weathered siltstone or argillite point, and is the only example from the site of a Coburn stemmed blade (Dincauze 1968:22-23, 85-87; Fig. 2;Pl XI 8, 10-18).

TABLE 2: *Artifacts presumed to be from Pit 1*

Specimen	Length (cm)	Shoulder Width (cm)	Maximum Thickness (mm)
A	9.3	5.9	8.0
B	10.1	6.2	8.0
C	10.5	6.1	9.0
D	+	6.0	8.0
E	11.1	6.0*	8.3
F	7.0*	4.0*	6.0
G	7.5*	4.3	9.0
H	7.5*	3.5*	9.0
I	+	3.5	7.0
J	+	4.0	8.0
K	4.3	3.6	7.2

*broken - estimated size
+broken - size cannot be estimated

This Coburn stemmed blade and the Wayland Notched point (Fig. 2:D) which has been considered above (pg. 33,29) are the only two broad bladed Terminal Archaic points from Rye Hill which are typologically distinct from the Atlantic to Snook Kill range of variation which is typical for the site. Dincauze (1968:71-90; Figs 8,10; 1972:40-61) has explained this typological variability on the basis of the development of distinct phases characterized by particular types within a chronological framework. On the other hand, John Pfeiffer at Wesleyan University and SUNY at Albany (personal communication), on the basis of his investigations at the Griffin site (1980:129-133), believes that the variability in any one particular component is too great to be entirely explained chronologically. Instead, other cultural factors must be operative. He suggests that cremation burial sites represent periodic gatherings of different hunting and gathering bands for the purpose of performing collective ritual. There may have been typological variation in tools between bands, and when they performed their annual rites of intensification each would have contributed their own artifacts to the common ceremony. This hypothesis is a most useful suggestion, but has yet to be fully investigated.

Determining the place of origin of the argillite and/or siltstone is a technical problem beyond the scope of this paper, but is crucial in respect to providing Rye Hill its proper cultural context within the phases of the Susquehanna horizon. The Pomperaug Basin, in which the river by the same name is situated, is a down-faulted outlier 13 miles west of the far more extensive, but geologically similar Connecticut Valley (Hobbs and Knowlton 1901; Sanders 1968; Krynine 1950). They are part of the Triassic belt of eastern North America which extends from Nova Scotia to South Carolina. In New Jersey and Eastern Pennsylvania the archaeological significance of several outcrops of argillite in the Triassic belt is well known. The origin of the raw material of the artifacts from particular sites has been determined by means of X-ray diffraction analysis (Didier 1975:90-101). In the literature of the Triassic in Connecticut sedimentary and subsequent metamorphic conditions are described which would seem

to suggest that argillaceous deposits could be present. Several broad alluvial fans as well as fine-grained lake sediments were deposited from the east toward the west at different localities. This was followed by intrusive volcanic activity which could have presumably metamorphasized adjacent sedimentary rocks. Nevertheless, Sanders (1968:299) says that the argillite deposits of the Lockatong formation in the Newark Basin of New York, New Jersey, and Pennsylvania are unlike any of the exposed strata in Connecticut. Didier (1975: 99), on the basis of this same statement by Sanders, concludes that it ought to be possible to distinguish between the New England material and the Lockatong formation argillite. On a geologic map of Orenaug Hill (Hobbs and Knowlton 1901:Pl. X) which is a mile and a half (2.4135km) north of Rye Hill is a clue which needs to be further investigated. A localized deposit of hornblende rock is indicated, but is not discussed any further by Hobbs and Knowlton. In the Lockatong formation green-brown hornblende is a metamorphic mineral associated with the Newark hornfels which is not as common as argillite, but nevertheless is archaeologically significant. Note that one source describes hornblende as a rock, and the other as a mineral. It is suspected, but not proven, that these argillaceous blades from Rye Hill are of local origin. However, if it should be demonstrated that they are of a more distant origin, then perhaps a closer affinity to the Koens-Crispin phase in New Jersey might be suggested.

None of the specimens in the small sized category exhibit any wear marks with the exception of one (Fig. 7:K), which would appear to be a chert strike-a-light. This specimen has a greatly worn, round blunt tip. The extensive wear extends down both edges, but diminishes toward the shoulders. Near the tip there are fine striations on the blunt edges which are parallel to the length of the blunt edge. These striations can only just be seen with the 10X hand lens. This wear has a slight polish to it. Also the surface relief between the flake scars on the blade has been rounded and polished. This is similar to, but more extensive than, the polish on the ridges between the flake scars on the cruciform shaped blades. The stem-to-shoulder angle was produced with a blunt punch by indirect percussion. There are three pot lid fractures on one face. It would seem that this tool was held tightly by the user between the thumb and the flexed first finger. Continual handling in this fashion could have contributed to the polish on the surface relief between the flake scars. Also, if the tool were carried in a leather pouch as part of a tool kit, rubbing against the sides of the pouch, as well as other objects in the pouch, would also contribute to this polish. This interpretation has already been suggested above (pg. 29) by Douglas F. Jordan in respect to the cruciform-shaped blades, but is perhaps more appropriate in this context. Thus held, with the flip of a wrist, the tool would be struck down sharply presumably against a fragment of iron pyrite, in order to produce a spark which in turn would ignite the tinder. Strike-a-lites are to be found in the later Watertown phase in eastern Massachusetts (Dincauze 1968:30-31), at least one of which is a basal section of a large notched point. The iron pyrite is usually missing, since it readily decomposes into limonite when buried in the soil. However, Witthoft (1966:12-49) is of the opinion that this common interpretation of iron pyrite is an error. Instead he presents considerable evidence that marcasite or iron sulfide was widely used.

Also from Pit 1 is the midsection of a large chert blade (Fig. 8) which exhibits extreme thermal alteration. The tip and base have been entirely lost. The remaining midsection consists of two fragments which have been restored by the Sinnotts. The one on the right has been burned to an extremely chalky, dirty white. The other is a mottled darker gray. On the obverse side there are six pot lid fracture scars, while on the reverse there are three. Among the flakes which were collected there are three pot lid fracture spalls which have exfoliated from this specimen. Two of these are dark gray and fit into the scars, one on each side of the dark gray fragment. The third is of

greater significance since it is black and perhaps represents the original color of the chert, which may be Normanskill. It also fits into the dark gray fragment. The contrast in color is most striking. In other words, as this artifact burned, presumably in a cremation fire, the small amount of water which was in the chert came quickly to a boil and pot lid fractures exploded from the surface. The black one may have been thrown beyond the fire so that it did not burn, and consequently its color has been altered the least. The dark gray fragment, and pot lid fractures were subjected to greater degree of thermal alteration, which the chalky, dirty white fragment was burned the most. The fact that the black spall was found suggests that the artifacts were burned at the site. If they had been burned elsewhere, gathered up from the ashes of the crematorium, and carried to Rye Hill for burial in Pit 1, then the black spall could have easily been left behind. Although circumstantial, this further suggests that the disturbed pile of charcoal-stained stones was a crematorium.

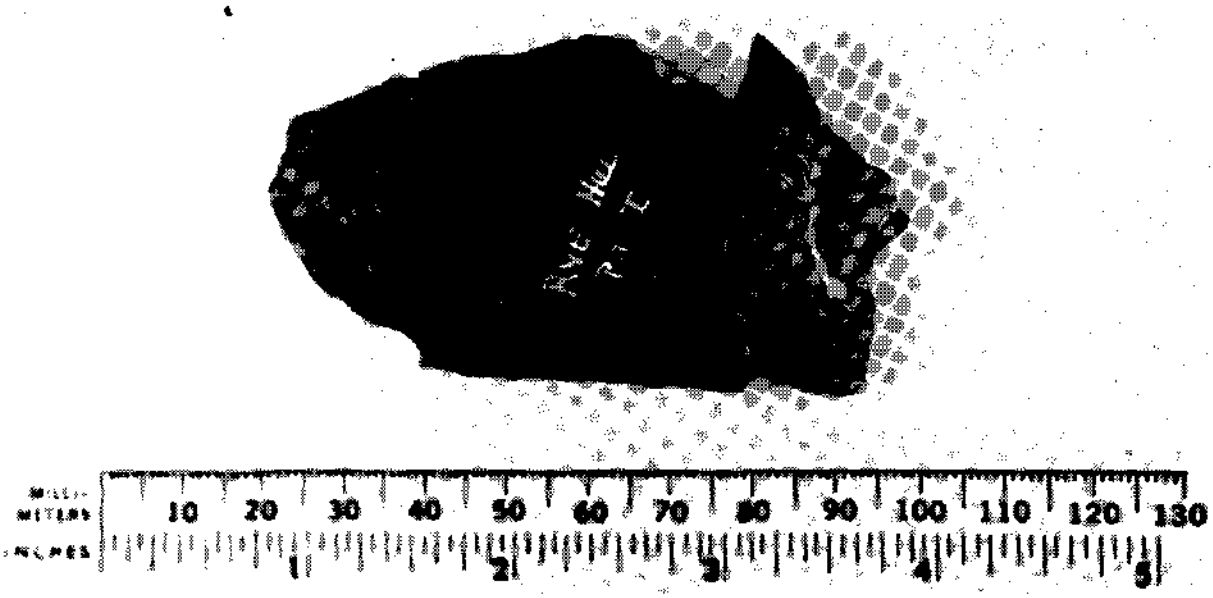

Fig. 8. *Mid-section of fire shattered chert blade. Note that there are three variations in color: A black unburned pot lid fracture spall has been placed in the scar from which it exploded in the mottled dark gray fragment. The fragment on the right has been burned the most to a chalky, dirty white.*

Also thought to be from Pit 1 at Rye Hill are seven fragmentary pieces which have not been measured or illustrated. One is the midsection of a small chert point of the Broad Spear horizon. A second fragment is the tip of another chert point. The third, fourth, and fifth pieces are bifacial fragments which may be from large chert blades. Number Six appears to be the tip of a large blade of either siltstone or argillite. Possibly it is the tip of the example illustrated in Fig. 7:D. If it is, then the midsection of the blade is missing. The Seventh fragment is the fire-shattered tip or corner of a large biface. It does not appear to fit any other specimen.

The last artifact reported to have come from Pit 1 is a beveled cobble abrading stone (Fig. 9:A) similar to ones described by Willoughby (1935:172-175, Fig. 98) and by Dincauze (1968:37-38) for the Watertown phase, as well as for the Atlantic phase (Dincauze 1972:55;Pl,VIIII,9) in eastern Massachusetts. One

round edge of this smooth, hard cobble fits conveniently in the hand. The opposing edge has been severely abraded into a series of ripple-like corrugations. This class of artifact may have been used to soften thongs or vegetable fiber for making cordage. A cluster of such material would have been stretched tight and then rubbed back and forth with the edge of the cobble stone. This specimen has been fire cracked into four fragments.

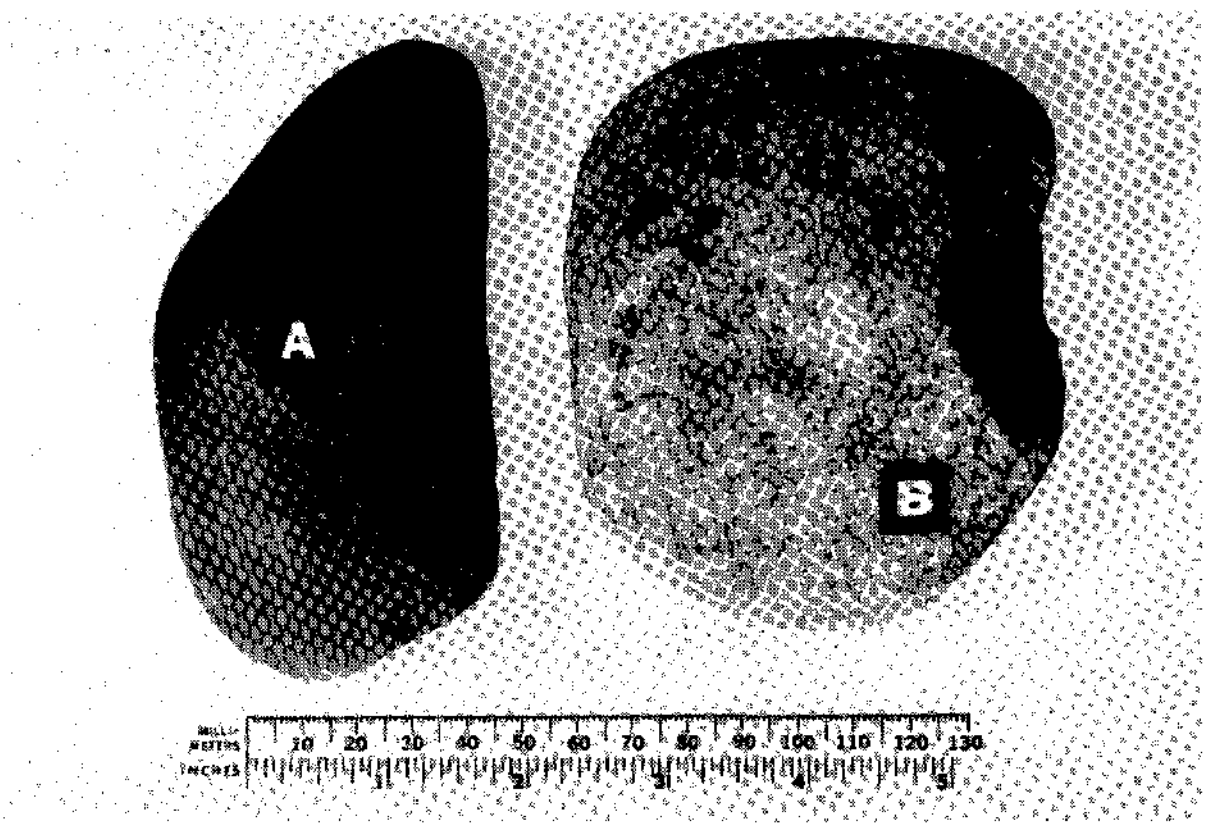

Fig. 9. *A is an abrading stone which is reported to have come from Pit 1. B is the pitted stone from Pit 4. (The label on the artifact may be ignored).*

ARTIFACT FROM PIT 4

One pitted stone (Fig. 9:B) came from the bottom of Pit 4. It is a somewhat irregular sandstone cobble with one small pit on each opposing side. It would have been a suitable anvil for cracking nuts, and perhaps for removing their shells.

ARTIFACTS FOUND ON THE SURFACE

There were seventeen quartz points (not illustrated) of the Sylvan Stemmed series (Funk 1976:159-161, Pl. 68). Three of these conform to the Bare Island type, and the rest are Wading River points. These were the first specimens which were found when the Sinnotts started to surface hunt and presumably may be relatively high in the soil. The discovery of a locus of quartz chipping debris (pg. 28) suggests an occupation by people the Narrow Stemmed Point tradition. In view of what is now known concerning the persistent temporal continuity of this

tradition which has been summarized by Lavin and Salwen (1983:40-41) and by McBride (1984:55-72), it is difficult to say if this occupation at Rye Hill is earlier than, the same age as, or later than the Atlantic-Snook Kill occupation. Pagoulatos (1988:71-93) has concluded that the Salmon Cove phase of the Susquehanna tradition in the Connecticut River Valley is totally independent of contemporaneous and nearby manifestations of the Narrow Stemmed Point tradition. Consequently it is difficult to arrive at any conclusions concerning this material at Rye Hill.

In addition there is one Brewerton Eared-Notched point, and nine others of undetermined typology. There are five small points of the Susquehanna horizon, made of a variety of cherts which probably come from New York. The points conform closely to the Snook Kill type (Ritchie 1961:47;Pl.27). Metric data may be found in Table 3. Two of these points (Fig. 10:A,B) have very slender sharp tips, while their edges are relatively straight and thick due to extensive retouching. Also there is polish on the ridges between the flake scars on the sides of these two points similar to the cruciform-shaped blades which suggests that the two points were also hafted in split wooden shafts. They probably functioned as spear points, designed for piercing, and not for cutting or scraping. Dincauze (1976:26-27) has noted similar attributes of the tip and edge to infer a piercing usage for Neville points.

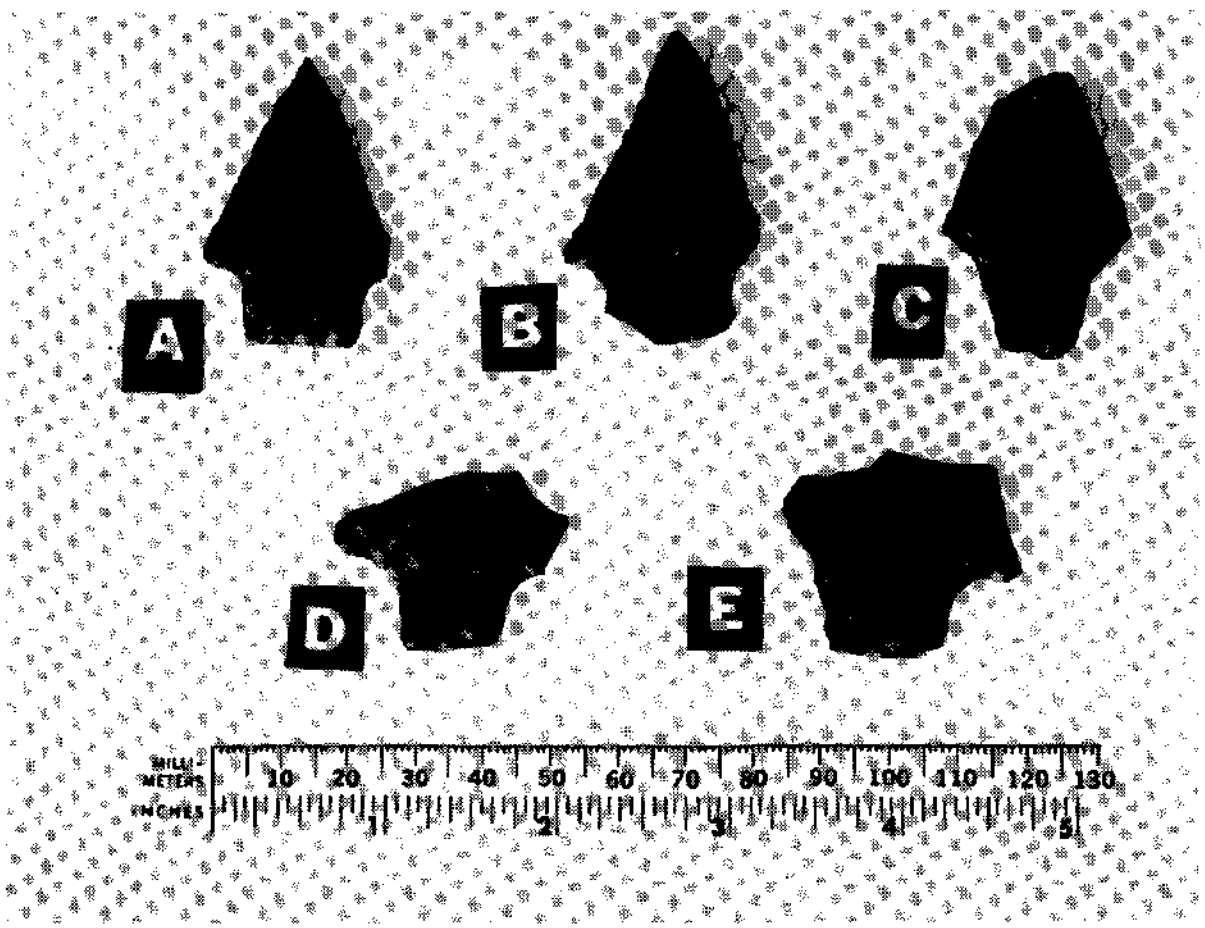

Fig. 10. *A,B are probably functional Snook Kill chert spear points, since they have sharp tips and relatively blunt edges. The tip is broken off of C and the resulting edge has been bifacially chipped. Extensive polish on this edge indicates that it was probably used as a knife. It is also a Snook Kill point. D,E are badly broken.*

The same is probably true for five of the six points in the small sized category (Fig. 8:F,G,H,I,J). Unfortunately, breakage and thermal alteration have destroyed the attributes necessary to support this conclusion. Another specimen (Fig. 10:C) may also have been intended as a spear point; the tip, however. has been snapped off at an oblique angle to the main axis of the point. The resulting edge has been bifacially rechipped. Under high magnification it exhibits wear and polish, and consequently it may have been used as a knife for slicing. The two remaining specimens (Fig. 10:D,E) are so badly broken that a functional interpretation cannot be offered. The stem-to-shoulder angle of at least three of these (Fig. 10:C,D,E) was made by indirect percussion applied with a blunt punch.

TABLE 3: *Five Snook Kill points from the surface of the site*

Specimen	Length (cm)	Shoulder Width (cm)	Maximum Thickness (mm)
A	4.6	3.0*	8.0
B	4.3	2.8*	7.0
C	4.7*	2.8	8.0
D	+	3.6*	7.0
E	+	3.5	7.3

*broken - estimated size
+broken - size cannot be estimated

CHIPPING DEBRIS

The attributes of a total of 151 chips from the site are to be discussed below. This figure includes the five quartz chips which were in Pit 1. Of little significance are 13 chips from the surface. 11 of them are of unidentified local lithic material and one is of quartz. There is one chert chip of an exotic lustrous mottled blue material with the cortex of a pebble on it.

Of greater significance are 85 brown, black, and dark green chert chips from the surface of the site which are of similar material as the artifacts from the bottom of Pit 1 that had not been thermally altered. One one of the chips has suffered thermal alteration. All have been closely examined with a 10X hand lense. They are thin, and flat with low bulbs of percussion. All 85 of them may be characterized on the basis of their striking platforms as follows:

56 of them are missing striking platforms due to breakage, or have no recognizable striking platform.

5 chert chips have flat striking platforms.

9 chert chips may be characterized as rejuvenation chips (Fig. 11) which have been secondarily struck from from the edge of a bifacial blade in order to produce a sharp, freshly chipped cutting edge on the blade (Fig. 11, 1 and 2). The point at which these chips are struck is the edge of the blade of the biface. Consequently these chips lack a prepared platform. Instead the platform is the bifacially chipped edge of the biface (Fig. 11, 3 and 4).

An additional 15 chert chips are not only rejuvenation chips, but also exhibit wear and polish on the bifacially chipped edge. This does not appear to be abrasion done to create a striking platform, but is similar to the polish observed on the edge of one of the larger points (Fig. 5:A) which has been interpreted above as a side scraper for removing the hair from skins. A few of the largest of these chips exhibit the sinuous edges of a bifacially flaked

tool. The outer face of these chips exhibit multiple flake scars as would be found on the sides of large bifaces (Fig.11, 3) Perhaps all of these 85 chert chips are rejuvenation flakes. It is difficult to escape the conclusion that used, worn, and dull-edged bifacial chert tools were being resharpened at Rye Hill with either a billet or a small hammerstone. This is reflected in the cruciform-shaped bifaces which were presumably reduced to that form from a broad point, as well as the single Wayland Notched point with incurvate edges, and the smaller Snook Kill spear points. One question which ought to be resolved through experimentation is the effect of the presence of extensive wear and polish on the edge of a biface upon the angle of the striking platform. It is suspected that the more the biface edge has been worn down, the higher the chipping angle is needed in order to remove the wear.

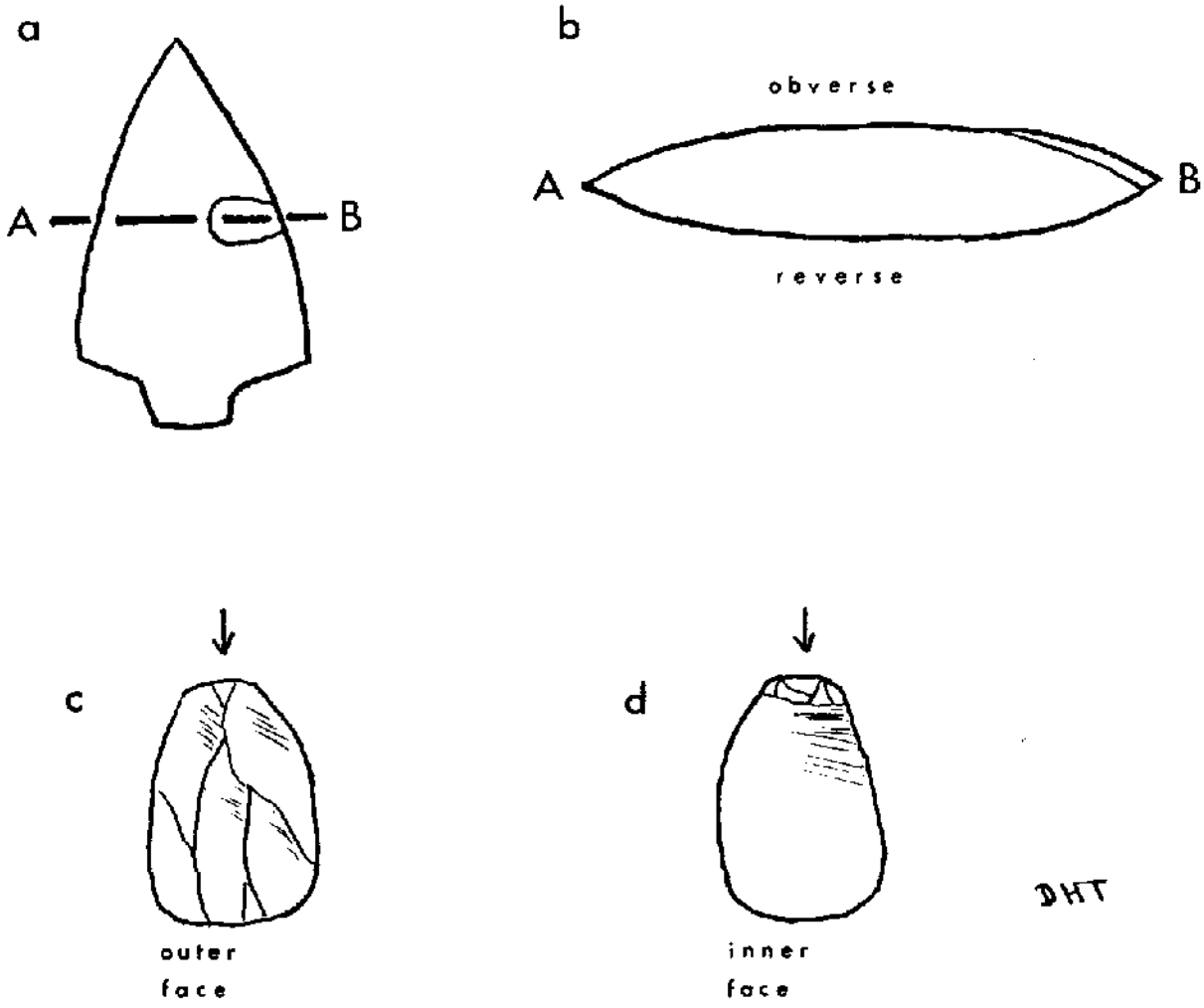

Fig. 11. *An idealized drawing of the production of a rejuvenation chip. a) A Snook Kill or Atlantic blade with excurvate edges which could have been used as side scraper so that the edges would be worn. Cross section A-B passes through the excurvate mid-section of the blade where wear is expected to be the greatest and through one rejuvenation chip. b) Enlargement of Cross-section A-B through both the blade and the chip. c) The outer face of the chip exhibiting flake scars removed from the obverse face of the blade. The arrow points toward the original edge of the blade which may exhibit wear. d) The inner face of the chip exhibiting remnants of flake scars on the reverse face of the blade.*

The 18 chert chips found in the context of Pit 1 may be described by the same categories as the 85 chert chips from the surface. 13 are missing striking platforms due to breakage. Six of these may be thermally altered. The five remaining chips have striking platforms. One of them is flat. The other four are rejuvenation chips and are worn on the edge. This reinforces the same conclusions arrived at above.

There are 30 non-silicious chips from the surface which have been greatly patinated to a uniform light tan. An occasional broken edge indicates that the interior is a dark brown. Compared to chert this material is more granular and has been identified as siltstone by Lucianne Lavin (personal communication). However it is difficult to compare it to the broad points which have been described above (pg. 30,31; Fig. 6:C,D,E) as either siltstone or argillite, because of differences in color, not only between the chips and the points, but also between the three points. As stated above, these three points have not only been patinated, but also have been subjected to thermal alteration. Broken edges on the points indicate that the interior is a darker color. It is to be noted that Didier (1975:90-101) has described a wide range of variation in the composition of argillite that may be relevant here.

About 20 of these siltstone chips are sufficiently thin and flat to be interpreted as rejuvenation flakes from the edges of broad points. Their striking platforms lack the polish which may be characteristic of similar chert chips.

The remaining 10 siltstone chips are thicker, more irregular, and have larger striking platforms. They are not comparable to the chert chips. Possibly they are the debris resulting from the initial stages of biface reduction. This is difficult to demonstrate because the patination does not permit the identification of primary, or secondary decortication chips. Debris from the initial stages of biface reduction is to be expected, if the material is of local origin in the Pomperaug River valley as has been suggested.

CONCLUSIONS

When the archaeologist's intent is to reconstruct the cultural systems of the remote past, the archaeological record is always incomplete. When the developer's bulldozer runs through the center of the site, and there are only two dedicated avocational archaeologists with limited time to collect the data, then the archaeological data is more incomplete. This review of the Rye Hill data has raised several unresolved questions concerned with the qualitative and quantitative identification of features and their content. Other questions such as the specific mineralogical identification of the lithics, and their quarry of origin could possibly be answered with further research. The examination of wear patterns might be enhanced under magnification greater than 10X.

It has been suggested that Rye Hill is a burial site, a sacred precinct, at which the collective ritual, the rites of intensification, of band society were performed. This assumption has been based upon broad comparisons with other similar Southern New England sites which have already been cited above. The actual evidence at Rye Hill is very limited. Perhaps in part because of the way in which the site was excavated. Since the bits of calcined bone cannot be positively identified, it can only be assumed to be a human cremation. The distinction between "burial site" as opposed to "occupation site" is perhaps an artifact of the culture of the archaeologist who is compelled to fill pigeon holes for the sake of site survey forms. There is not need to cite examples of other cultures in which the dead are buried in trash heaps, beneath the floors of houses, placed in trees, and skulls even put in the rafters of the house. It

is possible to argue that some of the features at Rye Hill may indicate human occupation such as the scatter of quartz chipping debris, the projectile points other than the Susquehanna types, the pile of fire-blackened cobbles, and the several pits which were devoid of artifacts. It could be argued on the basis of ethnographic analogy that Pit 4 with a layer of clean sand in the bottom and a pitted stone was actually a basin for leaching acorns. How this interpretation might apply to the Schwartz site at which this author noted at least one out of many pits had a similar layer of sand in the bottom, is not for this author to suggest, since he is not familiar with all the data. In order to strengthen the burial site argument, the question of possible occupation must be asked of all the southern New England Susquehanna cremation burial sites.

Typologically the larger points would seem to be similar to the Atlantic blade (Dincauze 1972:41-42), while the smaller ones would appear to be similar to Snook Kill points (Ritchie 1961:41-48; Pl. 27). However, since several in each category are made of highly weathered argillaceous material, they would appear to have close affinities to the Koens-Crispin point (Mounier 1974:18-19). Less direct relationships may be postulated with the Lehigh Broad and the Savannah River types within the Susquehanna horizon. To be more specific in assigning Rye Hill to a phase within the Susquehanna horizon would require a lengthy critical review of all the phases and types within this horizon. This author has used the term 'horizon' as opposed to 'tradition' in keeping with Cook's (1976:350-353) definition of the Broadpoint horizon as a laboratory in which "maritime economics and band-level societies can be studied." Perhaps Cook attempts to find the truth when he observes that there are no real typological distinctions within the Susquehanna horizon, but only clinal variations because of a lack of real geographical barriers along the Atlantic slope of eastern North America. Dincauze (1972:42), however, believes that "Increased control of dating and better understanding of cultural contexts of these several types may eventually lead to their redefinition as regional variants of a single type." Cook and Dincauze have expressed divergent views on the nature of the typology which need to be reconciled within a critical review. It appears to this author that the heuristic value of the several Broadspear types has about reached a state of exhaustion and they are in need of extensive reevaluation. This task is beyond the scope of this paper.

The bi-modal distinction in size between the larger Atlantic and the smaller Snook Kill types may very well have been the intent of the artisan. However, since this implies knowing the cultural processes taking place in the head of the prehistoric chert knapper, it is impossible to verify. It is hypothesized here that the so-called Broad Spears of the Susquehanna horizon are to be best understood within the context of a dynamic, culturally defined reductive process. They start their existence within a systemic cultural context in the quarries producing the high quality lithics needed for production, or in nearby workshops. They may enter the tool kits carried by members of hunting and gathering bands simply as large flakes, or as quarry blanks. The author has watched Jeffrey Kalin of Primitive Technologies Inc. produce a Snook Kill point from a large flake with only a small hammer stone.

These quarry blanks might be of service as is, or they might be reduced further to become a large knife, or side scraper as described above. As these were used and worn they may have been rejuvenated, or recycled (Schiffer 1972; 1976:38-39) as a slightly smaller version of the same tool. It is suspected that there is considerable flexibility within this process depending upon the specific degree of wear and breakage, as well as the immediate need and economic choice for new tools within an annual cycle of adaptive activities. At any time they could be transported to another site. With further reductive flaking these tools could be laterally cycled (Schiffer 1972; 1976:38-39) to perform a variety of tasks. Drills or perforators, end scrapers, strike-a-lights, and ultimately

grave goods are common examples to be found in Susquehanna assemblages. In order to understand the synchronic flow of lithic tools in a cultural system from quarry site to their final rest in an archaeological context it is necessary to eventually apply an appropriate flow model. Schiffer (1976) discusses the construction and application of several models. In order to assess a particular component it will be necessary to give equal effort to the analysis of chipping debris, and unfinished and broken bifaces, as well as complete artifacts. The reporting of this kind of data, as well as the explicit usage of this perspective is sorely lacking in the extensive published literature on the Susquehanna horizon. However, there are a few sources in which this perspective is at least implied for segments of the sequence, for example Witthoft's (1953) original discussion of the Transitional period cultures. This, and other, sources need to be explicitly reviewed. Admittedly at Rye Hill this author has been blessed with a limited number of available chips which may be interpreted as the results of rejuvenation. At more extensive sites the quantity of chipping debris may be numerically astronomical. Indeed at the Griffin site, although there were no random chips from on-site tool production, Pfeiffer (1980:131) reports that immediately adjacent to a cache of Mansion Inn blades there was another cache of 101 chips of the same material. In the interpretation of Rye Hill it has been suggested that the rejuvenation of the edges of bifaces may have been part of the burial ritual. It would appear that these two deposits at the Griffin site might provide further data with which to test this proposition.

Both Turnbaugh (1975:51-86) and Cook (1976:337-357) speculate that during Susquehanna times there must have been numerous mobile hunting and gathering bands distributed along the Atlantic seaboard of North America. Once having obtained lithic raw material at the quarry, any particular band could move from site to site in order to continue its seasonal exploitive activities. Such activities could continue until the need for fresh lithics recurred. Pagoulatos (1988:71-93) has suggested that the Salmon Cove phase of the Susquehanna tradition in the lower Connecticut River Valley practiced a collecting strategy. There were "semisedentary" camps in a riverine environment from which organized task groups would depart in order to exploit resources in other environmental zones. Distant camps would be temporary and task specific. The exploitation of quarry sites may easily be perceived within the context of this settlement model. Consequently the application of an appropriate flow model should generate new questions concerned with the seasonal activities of hunting and gathering bands.

Pfeiffer (1984:73-88) has suggested that there is both historical and cultural continuity between the Lake Forest adaptive system (Tuck 1978; Snow 1980)and the River Plain adaptive system. If this author reads Pfeiffer correctly, there is only one real difference between these two adaptive systems and that is a switch in the formal typology of the point types. The smaller side and corner notched Brewerton and Vosburg forms cease to be made while the much larger forms of the Susquehanna horizon become popular.

"Although stylistically different, the technologies employ the same exotic materials, are very standardized in terms of proportions, and probably used the same blade flake technology. Thinness and fine workmanship are central to both adaptations' point styles." (Pfeiffer 1984:84).

This author does not know what "exotic materials" are. Indeed, as cited above (pg. 30), I have been cautioned about applying the names of specific New York cherts to the Rye Hill artifacts. Comparisons between the lithics of different point types cannot be made without technical mineralogical studies. Pfeiffer does not provide a table of length/width measurements for the point types in question from which proportions may be deduced. Such measurements need to account for breakage and resharpening. If the proportions are similar, this

author suspects that similar proportional relationships could be found almost at random on a world wide basis, and are therefore meaningless. Pfeiffer does not define "blade flake technology". This author does not know if this refers to flakes used as preforms, or to the secondary flaking of the cutting edge of a biface, or something else. "Thinness and fine workmanship" are purely subjective.

On the contrary, there are rather sharp differences between the point types of the Laurentian as opposed to the Susquehanna horizon in terms of gross size, shape, and hafting elements. The primary and secondary flake scars on the surface of the Laurentian types of points are much smaller than on Susquehanna types which implies a considerable difference in manufacturing techniques. They are two separate technological traditions. Nevertheless Pfeiffer (1984:73-88) has developed a broadly based argument that widely dispersed populations of bands of hunters and gatherers using a series of Laurentian, and Laurentian-like assemblages rapidly gave up this technological tradition and adapted a new lithic tradition. The strength of this argument rests in the frequency in which Laurentian related components are found distributed across the northeastern landscape. The disappearance of these populations as well as, their artifactual assemblages needs to be explained. There is nothing in the learning experience to prevent a hunting and gathering band from abandoning one technological tradition and adapting another. After all, our present-day chert-knapper, Jeffrey Kalin, can manufacture the tools of both traditions with equal skill, as well as the lithics of several other traditions.

If this is the case, then this author feels that the explanation ought to rest in the realm of technological adaptability. Of what advantage are Susquehanna tools over Laurentian tools? This should perhaps be answered in terms of both intended use, as well as multiple covert functions (Sharp 1952: 342-348). If one were to construct two atlatl darts exactly the way, equip one with a Brewerton point and the other with a Snook Kill point; there would probably be a difference in the trajectory of the two darts. As has been discussed above, large Susquehanna blades were used as knives and side scrapers. Is this to be construed as an advantage over the smaller Laurentian tools? What Laurentian tools would have performed comparable tasks? If they did not, then why should there be an increase in large large knives and side scrapers? We lack understanding of the sociocultural context in which our formal typologies function. A working hypothesis might be that large Susquehanna blades became functionally superior within the context of the economics of band society, simply because they are large. These blades are made of scarce resources, high quality lithics which are found only within specific quarry sites. The Laurentian tools are perhaps made of wider variety of lithics from both local and distant sources in respect to specific band territories. There is need for extensive comparative mineralogical research. The makers of these tools were no doubt aware of the reductive process of wear and breakage. Making them large would an economic advantage, because it would require fewer treks to the distant quarry. However Pfeiffer's hypothesis is obviously more complex than this, because once made, larger tools are going to be used differently than smaller tools such as the atlatl points, knives, and side scrapers as cited above. If Pfeiffer is indeed correct, then the real causes of change lie within a dimly perceived economic and sociocultural upheaveal, and the restructuring of the functions of band society.

Pfeiffer is to be lauded for attempting to deal with dynamics of culture change at the end of the Late Archaic period and the beginning of the Terminal Archaic. He has been frustrated by an old and difficult problem: "The Paradigm Trap". Historically the periods or stages of Northeastern prehistory have been defined, not entirely, but to a great extent upon the typology of artifacts. Typology defines cultures as set of normative standards to which the

practitioners, be they chert knappers, or potters attempt to adhere. However these artisans always have the potential to break the rules. Indeed the rules must be broken, if culture change is to occur. The problem rests in our static, normative, typological understanding of the past of which Ritchie's (1961) typology is a prime example. We will continue to be trapped by the confines of our own thinking until we develop, and apply the conceptual tools with which to break the bonds of normative culture. The writings of Michael B. Schiffer have been cited more than once in this paper. His approach is at least one means of avoiding the paradigm trap.

ADDENDUM: ANALYSIS OF ARCHAEOBOTANICAL SPECIMENS FROM THE RYE HILL SITE

Tonya Baroody Largy
Archaeobotany Consultant

A sample consisting of charred nutmeats and two fragments of charred nutshell from the Rye Hill site were submitted for the purpose of species identification. The specimens were compared with fresh nutmeats collected during the late September and early October. Acorn species collected included black oak (*Quercus velutina*), red oak (*Q. rubra*), and white oak (*Q. alba*). The hazelnut species used for comparison was *Corylus americana*.

After examining every specimen, I have determined that all nutmeats are acorns, *Quercus*, spp. Hazelnut has been ruled out based on the compressed morphology of the apex of the nutmeat, where the radicle is located. All specimens are well rounded in this area which is more characteristic of acorns.

More than one species of oak is present in the sample. Some of the specimens are nearly spherical indicating one species while the rest are ovoid, indicating a different species. Acorns of one species maintain their shape consistently although there may be size differences even among acorns from the same tree.

Examination of acorns of different species show the variation in both white oak and red oak groups. Species in both groups have acorns with elongate, or ovoid, cotyledons. In the absence of other data, the samples from Rye Hill cannot be classified safely into either group due to this variation. It is reasonable to conclude the Rye Hill sample includes more than one species of oak (*Quercus*, spp.) without attempting to go beyond the genus.

Among the archaeological specimens are several acorn cotyledons which might be considered anomalous. These are compressed on the exterior surface of the cotyledon, giving them a "bean" shape. (They are not beans). Examination of the fresh reference materials provided an explanation for this anomaly. The White Oak acorns collected included a number which contained two seeds within a single nutshell. This might be compared to a "twin" in a single ovary. The second seed did not continue to develop within the acorn. It did, however, cause an indentation on the surface of the cotyledons of the more fully developed seed similar to those observed on the archaeological specimens (Figure 1).

The two fragments of unidentified nutshell most likely are hazelnut (*Corylus*, sp.) The thickness and density of the fragments compares favorably with hazelnut. One of the fragments, when viewed on cross-section shows a trace of one channel, one of the diagnostic criteria for this genus.

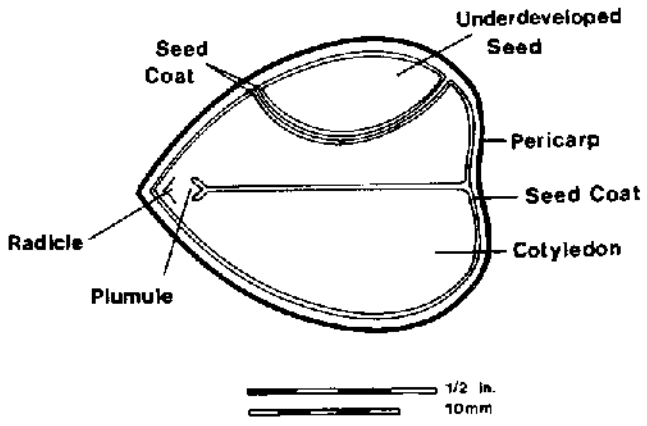

Fig. 1. *Seed with an underdeveloped "twin".*

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RADIOMETRIC DATES FROM TWO CREMATION BURIAL SITES IN SOUTHERN NEW ENGLAND

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ABSTRACT

An ongoing archaeological investigation in southeastern Connecticut has produced data demonstrating prehistoric aboriginal burial ceremonialism for the fourth millennium B.P. Radiometric dates from two similar cremation burial sites are discussed. These sites represent two temporally distinct ritual activities. The burial complex, however, retained its diagnostic characteristics across the time span. The Northeast has seen archaeological evidence of burial sites prior to the publication of this article. But the Griffin-Bliss sites document one of the few instances in which substantial information and dates have emerged to suggest that there was a prehistoric "burial ground" to which people returned over the long term to repeat a specific cremation ceremony.

INTRODUCTION

This paper is the result of archaeological research in southeastern Connecticut sponsored by the State University of New York at Albany and Wesleyan University anthropology departments as well as the Archaeological Society of Southeastern Connecticut. Since the 1981 summer field season, the investigation has been oriented toward cultural systems definition for the Late and Terminal Archaic periods of Northeastern prehistory (Snow 1980:4). Previous regional investigations have identified cremation sites (Pfeiffer 1980a, 1980b) and many small stemmed point tradition (Dincauze 1975), or "Mast Forest" (Snow 1980), habitation sites. The relationships of cremation burials with these two kinds of sites have been a critical topic of discussion in Northeastern archaeology (e.g., Cook 1976). Are cremation burial sites associated with the Late Archaic Small Stemmed/Mast Forest sites? Or are they associated with some other thus far undetected Terminal Archaic habitation sites, and make up a distinct but presently hypothetical culture system referred to as Broad Spear?

Cremation burials are not unknown in the Northeast (e.g., Linton and Hawkes 1916; Dincauze 1968, 1972; Ritchie 1969; Tuck 1978; Snow 1980). As the regional research has progressed, we have become increasingly convinced that "Broad Spear" actually exists as a complete culture system. Recent excavations in the Black Hall and Lieutenant river drainages of Old Lyme in southeastern Connecticut have revealed four Broad Spear habitation sites. They are the Ames IV, Brodeur, Murdoch, and Chadwick sites. Data from these sites should show the existence of and help elucidate a complete cultural system. Much more analysis, however, is demanded before a final report can be issued concerning the Broad Spear culture system.

The goal of this paper is not to directly report the current systems studies but to address the data which evidence the longevity of cremation ceremonialism in the Northeast. Nevertheless, because there now is some infor-

mation suggesting more than an ideological subsystem for Broad Spear, the dating of burial sites may imply a similar longevity of the culture system.

DISCUSSION

The Griffin site (Pfeiffer 1980a, 1980b), excavated in 1975 and the Bliss site, excavated during the 1981 summer field session of ASSEC, Wesleyan University, and SUNY Albany (Pfeiffer 1984a) have expanded our knowledge of ceremonialism in the Late and Terminal Archaic periods of southern New England. Both sites contain complex cremation burials, and at the Griffin site it has been shown that the cultural deposit is the result of one relatively brief event, the component having an extremely limited time span. The same condition is strongly suspected for the Bliss site, where during preliminary laboratory work seven of 21 features were tied together through reconstruction of heat spalled artifact fragments scattered amongst the features.

Both sites show: 1) similar featural construction and matrix of cremation ash, 2) predominantly dry bone cremation (see Pfeiffer and Ziac this issue and Gejvall 1970), 3) the use of red ochre, 4) ritual killing of ceremonial offerings, 5) the use of exotic materials for producing artifacts, 6) the incorporation of plant and animal materials, and 7) long, thin bifacial projectiles which demonstrate a strong similarity in production mode (Witthoft 1953, Dincauze 1968). Based on the apparent similarity of the inferred ideological subsystem (Snow 1980), there is a very strong likelihood that both sites relate to the same mortuary complex.

Radiometric analyses of organic materials from both cremation sites have been made. The Griffin site has been dated by two charcoal samples submitted to Geochron Laboratories. Dates of 3495 ±150 B.P. or 1545 B.C. (GX 5565) and 3535 ±140 B.P. or 1585 B.C. (GX 5564) were generated (Pfeiffer 1980a). Six other samples were run by one of the authors (Stuckenrath, Smithsonian Institution Radiation Biology Laboratory). His findings demonstrate remarkably close age determinations. The sample numbers, samples, and generated dates are listed in Table 1.

Table 1. *List of six radiocarbon samples from the Griffin site and their associated dates, run by the Smithsonian Institution Radiation Biology Laboratory.*

Sample Number	Materials	Radiocarbon Dates
SI 4840	Hickory nuts	3005 ±60 B.P. 1055 B.C.
SI 4841	Charcoal	3005 ±70 B.P. 1055 B.C.
SI 4842	Charcoal	3250 ±60 B.P. 1300 B.C.
SI 4843	Charred nut shells	3105 ±60 B.P. 1155 B.C.
SI 4844	Charcoal	2985 ±70 B.P. 1035 B.C.
SI 4845	Charcoal	3140 ±60 B.P. 1190 B.C.

There is an obvious variance in the Geochron and Smithsonian generated dates; however, both laboratories revealed tight temporal association for the Griffin site. The discrepancy in the laboratories' findings probably relate to different laboratory cleansing and preparation techniques used on the organic samples (Kreuger, personal communication 1981).

The Bliss site, which is thirty meters (90 feet) west of the Griffin site, was sampled during a survey in November, 1980. At that time one cremation feature was discovered in Test Pit 12. A charcoal sample was sent with the six Griffin samples to the Smithsonian Institution Radiation Biology Laboratory. This sample, SI 4846, yielded a date of 4280 ±85 B.P. or 2330 B.C. This sample was directly associated with a quartz triangular form that has been subsequently dated at the Arbucci site to 4470 ±100 B.P. or 2520 B.C. (GX 10852) (Pfeiffer 1984b).

At the time of the survey it was not certain to which cultural system the Bliss site actually belonged. With the detailed 1981 excavation of the Bliss site by a joint field crew of the Archaeological Society of Southeastern Connecticut, Wesleyan University, and the State University of New York at Albany anthropology departments, it became clear that the Bliss site was a cremation burial component separate and distinct from the Griffin site. The radiocarbon date suggests that the Bliss site is a thousand or more years older than the Griffin site. However, both sites have very similar mortuary practices. Bliss did differ slightly in artifact types with most apparent differences being the presence of atlatl weights and the absence of soapstone vessels. Typologically, projectile points at the Bliss site were different from those at the Griffin site, yet were still broad bladed forms similar in technology and production mode.

The preliminary interpretation is that there is good evidence for a coherent cremation ceremonial complex in southern New England during the entire fourth millennium B.P. The area of Griffin–Bliss appears to have been used repeatedly in prehistory as a ceremonial "burial ground". Discussions with local landowners indicate that there were other loci with "dark pits and Indian artifacts". They are probably other cremation offering pits which make up temporally distinct sites. It is likely that there are, or once were, several temporally distinct cremation components in an area of about 15,000 square meters, a situation sometimes referred to as horizontal stratigraphy. If rigorously excavated and analyzed, these sites and their habitation sites should give Northeast archaeology an insight into cultural continuity and change during the Late and Terminal Archaic periods.

Present and future investigations should attempt to answer several questions: First, how securely can we archaeologically distinguish and date other cremation sites occurring in the study area? Second, how completely do the components of the burial ground encompass the Late and Terminal Archaic periods, and what changes occur through time? Third, what is the relationship of the cremation complex of Griffin–Bliss to other burial sites in southern New England? Fourth, are there two different mortuary practices relating to two separate ideological subsystems (i.e., cremation ceremonialism and primary burials) for the southern New England Terminal Archaic (Dincauze 1975)? If so, do they relate to two separate culture systems, "Mast Forest" with primary burials, and "Broad Spear" with cremation burials? Fifth, if there are two cultural systems, what is the relationship between them? The radiometric dates have greatly enhanced the analysis of these mortuary sites and permitted the passage of investigation to more complex problems.

ACKNOWLEDGMENTS

We thank the Smithsonian Institution for the donation of effort, expertise, and interest in this project, as well as the radiometric dates which were invaluable to the success of this analysis. We also thank Drs. Snow and Wright of the Anthropology Department at Albany for their scrutiny and encouragement.

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DRY BONE CREMATIONS FROM FIVE SITES IN NEW ENGLAND

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ABSTRACT

This study presents an osteological analysis of five Late Archaic/Terminal Archaic cremation burial sites from New England. Griffin and Bliss are adjacent sites in southeastern Connecticut. The South Woodstock site is located in northeastern Connecticut. Tolle's Road is in central Connecticut, and the Eddington Bend site is located in Maine. All sites appear to be dry bone cremations and have the pattern of over-representation of identifiable cranial fragments, fingers and toes, bones from the upper torso, and complete combustion of long bones.

INTRODUCTION

The Bliss Site, a Late Archaic variant of the Laurentian tradition described by Snow (1980) and dated by four tight dates at an average of 4688 BP (2738 BC) is the oldest ritual cremation burial in the Northeast. Thus far, it has yielded 21 features, each consisting of a black greasy matrix, burned bone, and ceremonial artifacts. Laboratory analysis has positively indicated that the site represents one point in time, a single event--in this case a burial. Examining similarities between Bliss and other cremation sites in New England should help us to better understand cremation ceremonialism associated with the 5th and 4th millenia BP. Other sites in the New England series include (Fig. 1):

1. Tolle's Road site in Wallingford, Connecticut, dated to 3055 ±20 BP (SI 5131), and excavated by amateur archaeologists Red Wilson and Bill Applegate, but never published. The samples shown to us by Wilson and Applegate from burial number 2 contained fewer than 12 shaft fragments. Some were bird bone while others had the size and characteristics of human bone--absence of epiphyses accounted for lack of positive identification. Evidence that the burial was a cremation is the presence of dry rather than green bones and a black and greasy featural matrix, as described by Dincauze (1968) and by Pfeiffer (1980) for previously discovered prehistoric cremations in southern New England.

2. The Eddington Bend site in Maine which contained cremated bone, basal fill of black soil, and heat spalled artifacts of the Susquehanna tradition (Snow 1980:244). Bone was non-human--bird and possibly dog, as well as human--cranial fragments, a tarsal, part of a right frontal, a tibia, humerus fragments, mandibular fragments, a phalanx of the hand, and a vertebrae (Wilkinson, personal communication 1982). A charcoal sample taken in 1980 yielded a radiocarbon date of 3480 ±145 BP (1530 BC; SI 789) (Snow 1975:53).

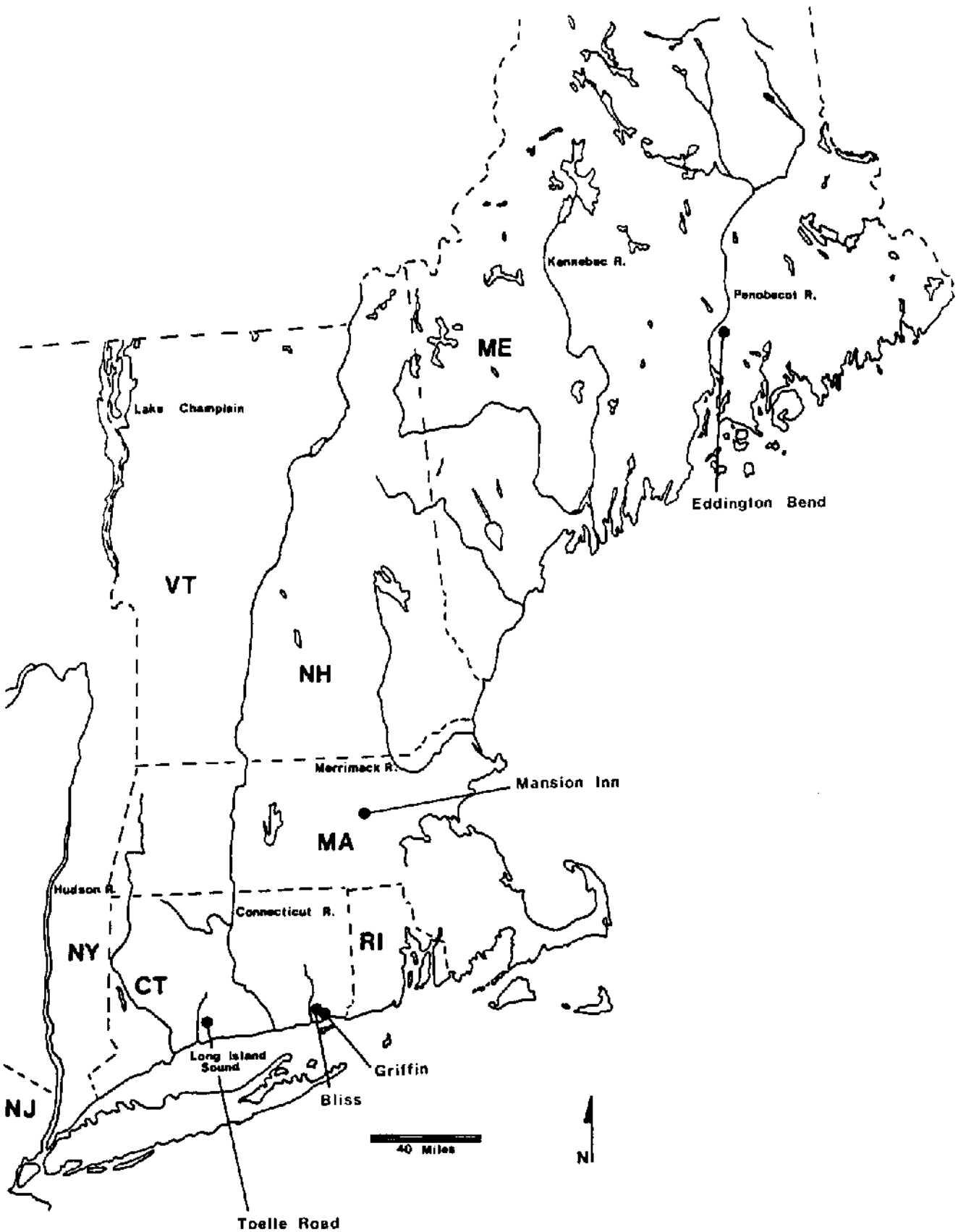

Fig. 1. *Map of New England with cremation sites.*

3. The South Woodstock site in northeastern Connecticut (artifacts presently part of the Yale University Anthropological Collections). Several features had originally been reported to be "council pits" by Basto and Praus in the late 1930's (Basto, personal communication 1979). Upon re-examination by Pfeiffer it was determined that the features were cremation burials. The one box of bone, cremated when dry, contained about 30 fragments, including a human zygomatic bone and a metacarpal.

4. The Griffin site in Old Lyme, Connecticut, date by eight different radiocarbon samples (two Geochron and six Smithsonian) with an average of 3160 BP or 1210 BC (Pfeiffer and Stuckenrath 1989). It consisted of 19 burial pits within a 137 square meter area (Pfeiffer 1980b), and yielded 483.98 gms of bone fragments. Human metatarsals and a premolar were identified.

5. The Mansion Inn, Watertown Arsenal, and Vincent sites, all located in eastern Massachusetts and excavated by Dincauze in the 1960's as an outgrowth of Byers' studies in the 1950's. They yielded pockets of bone fragments, red ochre, and characteristic checking and warping of bone burned while still fresh (Dincauze 1968:40, 75), respectively. These characteristics are all considered by Dincauze to evidence interment ceremonies which had become elaborate rituals by 3450 BP (Dincauze 1968: 90). The osteological remains from these Massachusetts sites have not been analyzed by us to date.

STATEMENTS OF PURPOSE AND METHODOLOGY

Questions were sought to answer (after Gejvall 1970:469) as we examined the above literature and materials concerned (1) the number of individuals represented, (2) the sex and age at death of these individuals, and (3) the condition of the bone at the time of burning.

Our methodology consisted of examining the burial sites' skeletal material feature by feature. Each burial pit's contents were cleaned and labeled, identified, weighed with a triple beam balance, and then sorted by body part fragments for future reconstruction. This approach enabled us to determine the number of individuals per feature and per site, and suggested age, sex, and general patterns which may be indicative of specific mortuary practices. For the Bliss site, we compiled identifications and weights from each feature listed in Table 1.

DISCUSSION

How many individuals are represented by the amount of human osteological material examined from the Bliss site? If one were to estimate by bone weight, the result is about 3.5 individuals. This determination is based on modern crematoria averages where the yield for a cremated adult is approximately 1.14kg of remains (Germaine, personal communication 1982). It should be kept in mind that this result of 3.5 individuals at Bliss is conservative because fragments smaller than about 6mm by 6mm were not recovered through the 6.35mm (1/4 inch) screen used during the excavation. The osteological estimate generated from sorting of body parts implies that at least 5 individuals were interred at Bliss. This is shown by the recovery from Feature M of 5 frontal fragments each of which contains a left orbit. Since some of these fragments are robust while others are gracile, possibly both sexes are present (Fig. 2).

Table 1. *Identifications and weights of bone by feature.*

Feature	Identifications	Weight
B	nonhuman bone, human cranial fragments, long bones, possible ribs, femur, phalanx of the hand, calcaneus or talus, temporal, parietal	nonhuman: 12.7g human: 749.8g
C	nonhuman bone, human metacarpal or phalanx, tarsals, calcaneous or talus	nonhuman: 2.5g human: 229.0g
D	nonhuman bone, human cranial fragments, parietal or temporal, mandible	nonhuman: 1.9g human: 408.7g
E	nonidentifiable fragments	human: 6.7g
G	phalanx of the hand, vertebrae	human: 57.7g
H	dens epistrophei, tooth (canine)	human: 120.5g
I	cranial fragments, basilor portion of occipital	human: 45.7g
J	cranial fragments, long bone, metatarsal	human: 111.2g
K	cranial fragment, femur, ilium or femur	human: 12.0g
L	long bone, radius, humerus, left ulna, phalanx of the hand	human: 77.0g
M	nonhuman bone, human cranial fragments, long bones, mandibular fragments, phalanges of the hand and foot, ulna, rib, talus, carpals, right scapula, right clavicle, right navicular vertebra, maxilla, left hamate, capitates	nonhuman: 1.8g human: 2210.8g
TOTALS	HUMAN: 4029.1g	NONHUMAN: 18.9g

Bliss contains nonhuman bone, probably dog, as well as human bone in the burials. At Griffin, too, dog and other nonhuman bone are represented (Taveras 1980). The nonhuman bones included in the burials seem to have been either green or in-flesh when cremated, as is suggested by the twisting and longitudinal cracking seen on some specimens. Perhaps these represent offerings of meat incorporated in the burial pits.

Is there preferential treatment associated with the human osteological remains? An over-representation of fingers, toes, and bone fragments from the waist (Fig. 3) up may suggest preferential treatment of one part or one portion of the body (Wilkinson personal communication 1982).

The dates and artifacts found associated with the burials at the Bliss site in conjunction with the dates and artifacts of other sites in New England suggest a mortuary complex reaching from Connecticut to Maine and spanning

thousands of years.

From the semicircular cracking on the bones, we have determined that the Bliss site burials were a dry bone cremations (after Ubelaker 1978:35). This is consistent with Dincauze's (1968) interpretation of skeletal material from eastern Massachusetts.

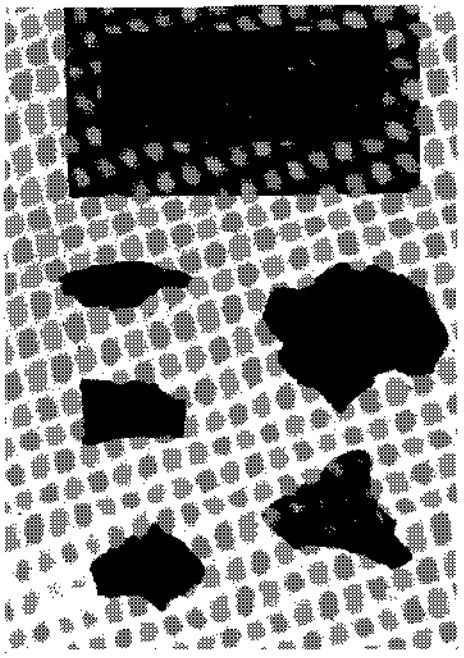

Fig. 2. *Frontal bone -- 5 superior borders from left orbit -- suggest at least 5 individuals in feature m.*

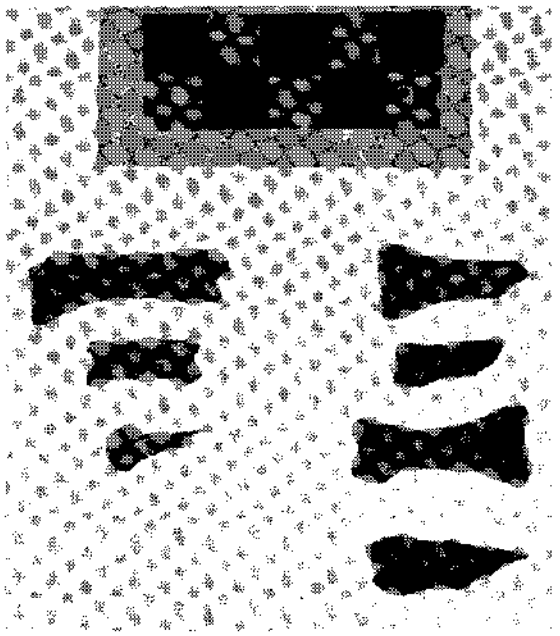

Fig. 3. *Fingers -- small long bones which have persisted through cremation while large long bones were unidentified -- suggesting preferential treatment (features c,m).*

PROBLEMS

The problems we encountered when examining the osteological material were many, the most obvious of which involved the small size (<2.0cm by 2.0cm) of the fragments and the controversy concerning identification of dry, green, and in-flesh cremations. Identification was complicated by poor preservation of epiphyses, the lack of osteological characteristics normally used for sexing and aging, and the lack of evidence for pathologies.

CONCLUSIONS

We conclude that 1) the Bliss site represents a multi-individual burial area. 2) At Bliss and other sites nonhuman bones are included with human bones, and the nonhuman bones were differentially treated. 3) All five New England sites included in our study show remarkable similarity in human and non-human bone condition and mortuary practices. 4) The sites show over-representation of human extremities and upper torso.

ACKNOWLEDGMENTS

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AN INVESTIGATION INTO THE ANCIENT BURIAL GROUND AT CRESCENT BEACH, NIANTIC, CONNECTICUT

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ABSTRACT

Over the last decade there has been a growing awareness and sensitivity toward Native American "sacred sites". Much of this has worked into the inner reaches of Connecticut-based archaeology, as evidenced by recently enacted antiquities legislation.

Attached to this legislative bill are factors which acknowledge the cultural importance of these sacred sites. They include implementation of a process to identify and eventually protect these places. It would appear, therefore, that Connecticut is coming of age in this regard with the responsibilities and position of the archaeological community finally being recognized.

We have been lagging being our neighboring states in preservation of both historic and prehistoric sites, a fact succinctly brought forth during the 50th Anniversary meeting of the Massachusetts Archaeological Society in April of 1989. As different archaeologists discussed activities in their respective states, the shortfall of Connecticut was painfully evident.

If Connecticut archaeology is really undergoing a metamorphosis and showing an energetic surge of enlightened cultural awareness, why has it been so difficult for ourselves and a few of our colleagues to get satisfactory protection of the Indian Burial Ground at Crescent Beach in East Lyme?

INTRODUCTION

Two episodes of archaeological salvage have taken place which vividly demonstrate the sacred nature and fragility of this site (Figs. 1,2). Both excavations were carried on by volunteers and Wesleyan University graduate students; the state offices of both Historic Preservation and Archaeologist were called in. Amateur and professional archaeologists throughout the state were likewise alerted and a few made visits. The Indian Affairs coordinator was contacted and constantly kept informed as to progress and discoveries.

What was generated from all of this was little more than "lip service". There were no state funds nor state assistance in helping to delay the construction project (the discoveries were a direct result of private house renovations). Rather, what was received were strong arm tactics to wrestle the artifacts from the landowner and/or the Archaeological Society of Southeastern Connecticut. The sum result of this confusion was a demand by the landowner in October, 1988, for $2500 to cover construction delays. This was paid personally by co-author and excavation director, John Pfeiffer. After prolonged negotiation, those artifacts which demanded conservation were place in the "lab" of the Office of State Archaeologist. As of May, 1989, however, no such conservation has occurred.

To further complicate matters, this cemetery is in the direct line of a federally funded sewer project. In 1987, the Department of Environmental Protection Water Compliance Unit was petitioned to have this area resurveyed,

since a survey in the late 1970s had found nothing of significance and the property was "signed off". With proper urging and insistence from various quarters, DEP did reopen the issue and asked for an amended and updated archaeological Phase I survey. This was put out to bid and the Public Archaeology Survey Team received the contract.

Fig. 1. *Crescent Beach burial ground. Features E and F represent two flexed mid-17th century primary burials excavated prior to construction of the patio.*

At this juncture, it appeared that the State was making great strides towards accepting its cultural and archaeological responsibilities. To our

dismay, it was learned on April 20, 1989, that the recommendation of P.A.S.T. was to permit the sewer pipeline to go though the burial ground with archaeological mitigation as needed. Construction contracts are currently out to bid and it is problematical when excavations will commence.

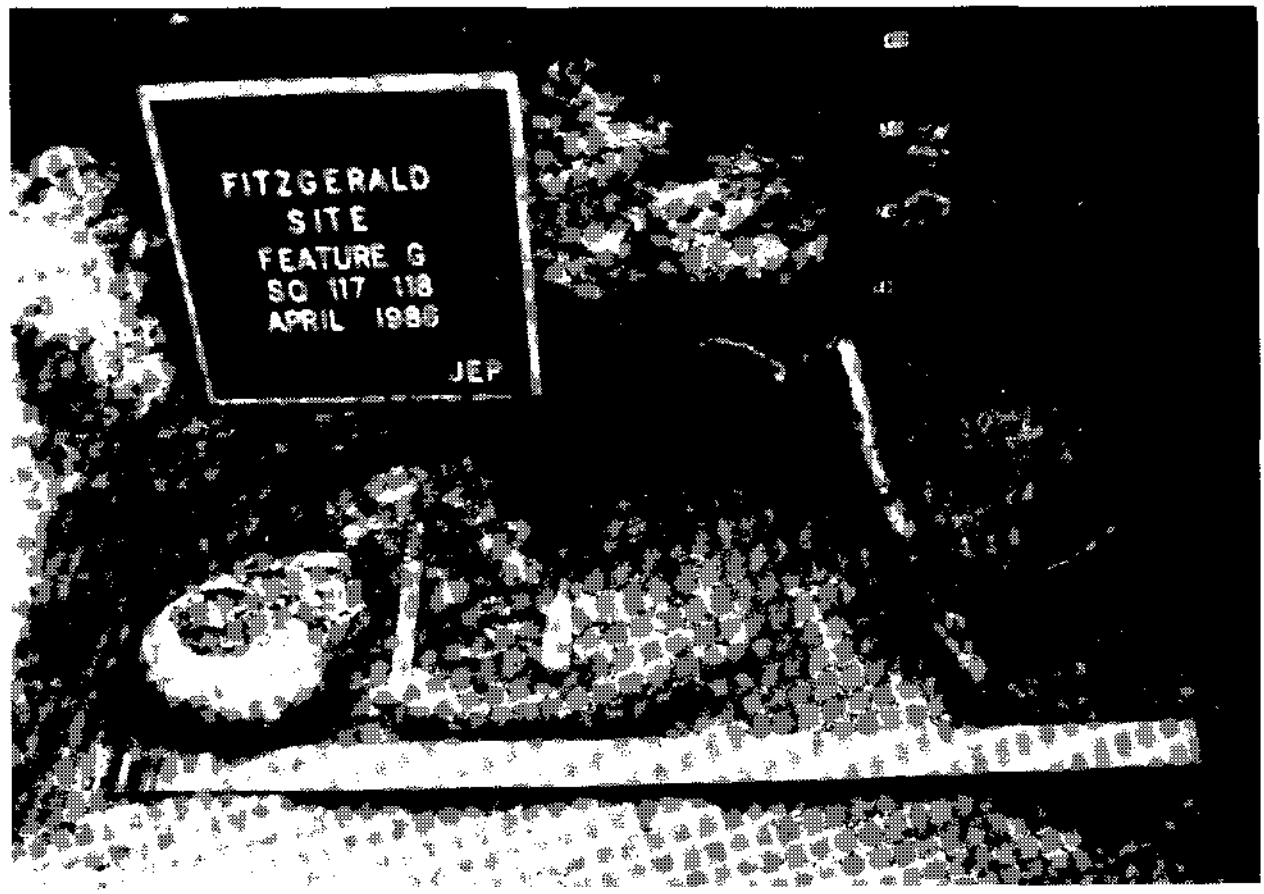

Fig. 2. *Feature G -- primary extended burial -- early 18th century.*

While the practical and financial aspects of this sewer project are fully comprehensible, the lack of ethical and moral implications is not. This is especially focused when it is realized that the head of the State Historic Preservation Office, the State Archaeologist, and the director of P.A.S.T. were all present when the salvage excavations took place. They are the same individuals who have so vehemently advocated the antiquities legislation with its "sacred places" proposal. The dichotomy of their positions is bewildering at the very least. The legislation is certainly being ignored and, in the final analysis, another in a long line of injustices on Native Americans in general, and the Western Nehantics in particular is being facilitated.

The ensuing text documents the West Nehantic Burial Ground and the demise of the tribe itself during the past 300 years. While not yet complete, and perhaps still preliminary, it represents a formidable data base from which to make assertions concerning the West Nehantic culture system. This site and all its implications comprise a highly charged test case for not only the state legislation, but for our obligations as "enlightened" archaeologists.

THE BURIAL GROUND

This section will summarize briefly what is known about the history of the burying yard and attempt to put into perspective its relative importance in the eighteenth, nineteenth, and twentieth centuries. Hopefully, it will also raise questions about this "yard" that are not only historical and archaeological, but social, economic, ideological, moral, and legal.

The site is located on a ridge approximately thirty feet (10m) above sea level and three hundred feet (100m) from Niantic Bay, which it faces southeasterly, at Crescent Beach in the Black Point section of East Lyme (Fig. 3). It is surrounded by four streets: Columbus Avenue to the north, Atlantic Avenue to the east, Ocean Avenue to the south, and Hillside Avenue to the west. The easiest way to reach this place is to take Columbus Avenue south off CT route #156 (Main Street), follow the highway across the railroad bridge to the intersection of Crab Lane, which is the approximate eastern perimeter of the cemetery. There are currently three "year-round" houses plus outbuildings on this site.

A significant, adjacent geographic feature is a pond, directly in front of the cemetery, as one faces the bay. This is currently known as "Little Indian Pond" and is perhaps an acre in size. In the past, however, it was much larger, measuring 500' EW adn 200'NS in 1893 (Hurd and Co. Map, page 133 of CT collection) and was named "Indian Grove Pond". This nomenclature was revealed to be either a copying error (the East Lyme land records index has been retyped) or a renaming of this specific feature. It is referred to in the older, handwritten records as "Indian Grave Pond" and/or the "Fresh Water Pond". The bank of the ridge flowing down to this body of water appears to have been altered into a more gradual slope over the past one hundred years.

The Western Niantic (Nahantick, Nehantic, etc.) tribe of Indians occupied a somewhat indeterminate land area at the time of European contact (for map of West Nehantic territory, see Fig. 3). This has been defined in various ways and sizes, from being as large as the Pequot (Thames) River to the Connecticut River, to the more conventional Niantic River to the Connecticut. One usually very reliable source, however, the Reverend David Dudley Field, placed the "Nehanticks" throughout southern Middlesex County with their principal settlement being in the eastern part of Lyme (Statistical History of Middlesex County 1819:6). Whatever the case, "the Indians had little conception of private ownership of land" (CT State Natural History Survey 1930:49) and exact parameters of their tribal territories do not always coincide with English ideas of boundaries. Interestingly enough, the word "Niantic" means "those who live at the point" (Huden 1962:145), strengthening the idea that the Black Point area could very well have been the focal point of their land.

Lyme was separated from the Saybrook Colony in 1665, and named in 1667. The settlement of this relatively large area (i.e, from the Connecticut River to New London) was the start of the confinement of the Niantic Tribe. In 1671, James Steele, Hugh Walls, and Ensign White were ordered to go to Lyme and to measure 5 miles eastward from the "Connecticutt" River and 4 miles westward by the "Peguit" River, to determine what was in between, and make a report at the next October Session of the Colonial Assembly (Public Records of CT 3:174). Subsequently,the Niantics were furnished with about 300 acres of land in eastern Lyme.

A series of repeated encroachments on this newly established Indian reservation started very shortly. In May 1693 for example, a certain Joseph Bull was allowed to lease 100 acres for the "herbegg" of the land, but not to hinder the Indians plowing and planting (Public Records 4:94). This particular document illustrates two very important facts: First, that this reservation in Lyme was divided into three adjacent parcels, each of approximately 100 acres and named

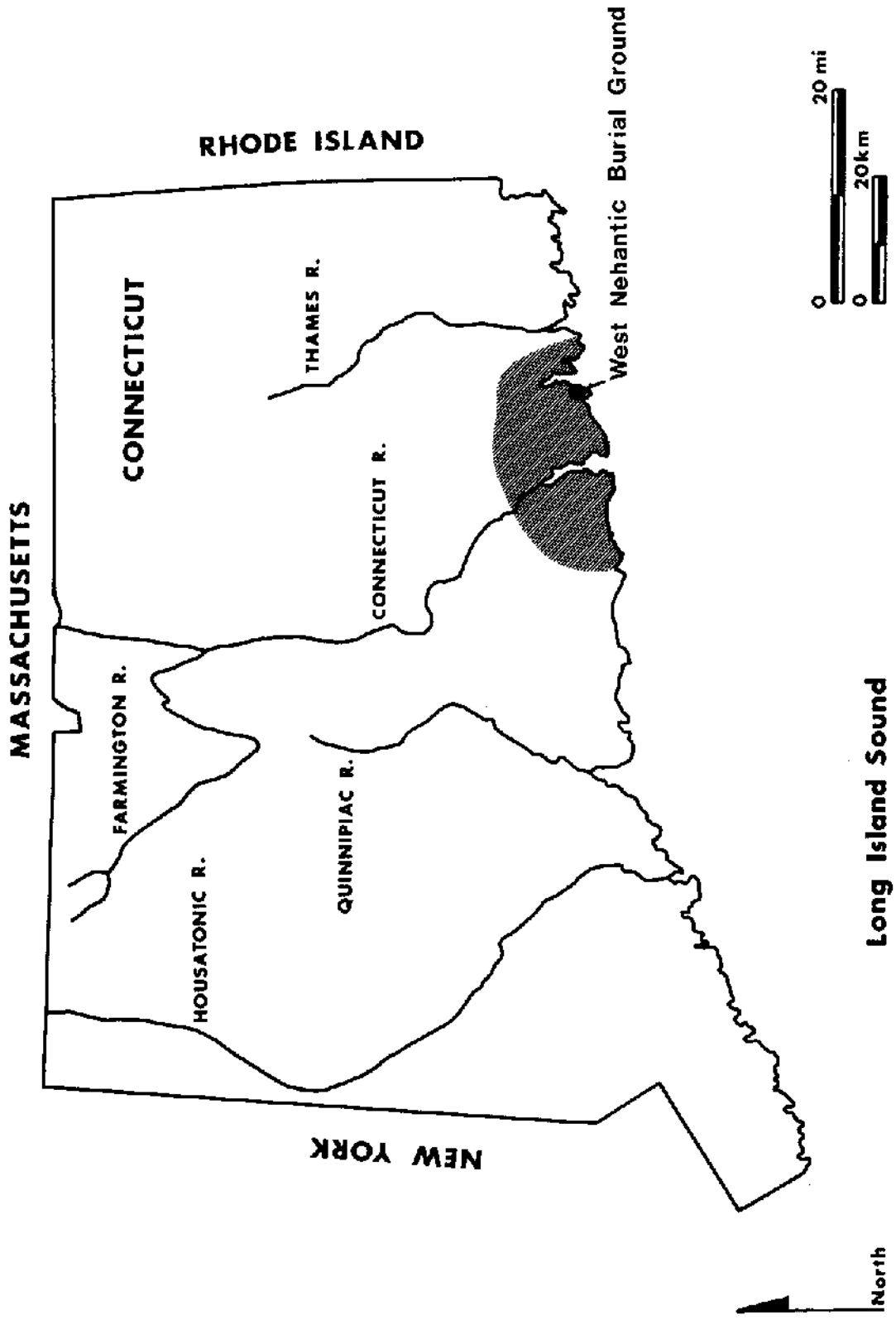

Fig. 3. *Map of West Nehantic territory.*

the upper, middle, and lower "100" respectively. Secondly, all sales, leases, and transactions involving the Niantics were to be handled by the State (or Colony in this case). While this action was not significant to Connecticut, it did place the Native Americans in a "second" class or protective status, a situation repeated in the national census incidentally. Indians were not counted after 1790. In August 1715, the Indians complained to the General Assembly that certain Indians, "induced by drink", had consented that some Englishmen should enclose a pasture of considerable size out of the 300 acres allotted to the Niantics (Public Records, Volume 5).

These and other incursions led the Assembly to formalize this 300 acre parcel in October 1734, defining quite precisely the boundaries with adjacent property owners, and stating "the afore mentioned bounds shall ALWAYS be and remain the bound of said Indian lands (Public Records 7:524-525). This same volume 7 indicates further on page 491 that two prominent Lyme people, the Messrs. John Griswold and Thomas Lee, were to see that the rights of the Indians were upheld and their boundaries maintained. It must be noted and surmised that the original boundary lines of the reservation may have been somewhat indefinite, simply because so much land was held in common by the white settlers, in the English manner. By 1734 however, much more land had been distributed, allowing for a definitive survey.

In the October 1762 session of the General Assembly, one of the most important decisions involving this tribe was made. It was decided that after many complaints and counter complaints that the "upper 100", the exact land leased almost 70 years earlier to Joseph Bull, be divided equally between the Indians and Edward Champlin, Joseph Smith, and Elijah Beckwith. The Indians received the western portion, which included a section of "the highway down to Black Point", while the three Englishmen got the eastern half. It is here that mention is made of the burying place of the Indians on this eastern section: "excepting and reserving to the Indians the PERPETUAL USE OF THEIR BURYING PLACE, which is on that part of said tract (eastern) to bury their dead" (Public Records 12:115-116). Smith, Champlin, and Beckwith subsequently subdivided this land (LLR 11/254-1763; LLR 11/309-1765). The burying ground ended up being enclosed by Mr. Champlin's property.

It is necessary to interject some very applicable information at this juncture. On September 20, 1641, Weekwash (also Wequash), sachem of the Niantic Indians sold land in what is now the East River section of Madison, CT (further enlarging the apparent Western Niantic boundaries, although it came to him by marriage) to the famous Reverend Henry Whitfield. He dies shortly thereafter and was buried in the Indian Burial Ground on the west side of Niantic Bay (Steiner 1897:31). Even though this is referred to as the "Christian" Indian graveyard (Weekwash was a convert), it does establish the existence of such a place in the mid seventeenth century.

Edward Champlin turned over his 40 acre section to his son Caleb in 1790 (LLR 18/535). It then went to his son Benjamin in 1831 (LLR 33/151). In all of these transactions after 1762, there was no mention of the burial ground, although one undocumented source, "The Last of the Niantics" by Mrs. Jane Smith, states that Benjamin Champlin had built a stone wall around the graveyard "about the year 1820". This may be the case, but his ownership did not commence until 1831, as already indicated.

On May 31, 1858, Benjamin Champlin deeded 60 acres, dwelling house, and buildings (the Champlin family had accumulated much land in East Lyme), "being the place where I now live" to his four children. Why he did this remains a mystery, considering the basic rural culture of East Lyme, for Benjamin did not die until November, 1877. In any event, this acreage included the Indian Cemetery. Indeed, in 1868 the first comprehensive commercial map of East Lyme (which had separated from Lyme in the late 1830s) very clearly indicates the

presence of this landmark (Beers and Co. 1868 Maps of New London County).

These heirs subsequently sold two large parcels in 1882 to Mr. James V. Luce for $6000. The second of these properties is described as being bounded in one area by the walls of the Indian Burying Grounds, leading to the SW corner thereof, thence southerly by another wall to the west side of the fresh water pond (ELLR 7/676-677). This extraordinary description clearly establishes (along with another deed, ELLR 8/316-5/24/1890) the western and southern extremities of the Indian Cemetery, as well as excepting this place from the sale.

At this point it is prudent to point out another related land transaction. A special law was passed on July 3, 1868 (Special Laws of CT 6:374) allowing the sale of a great deal of remaining tribal property, and distributing the proceeds among the remaining members of the tribe, EXCEPT SO MUCH AS MAY BE NECESSARY TO KEEP THEIR INDIAN BURIAL GROUND IN EAST LYME IN GOOD REPAIR". This was done under the guise of the court appointed administrator, Mr. Learned Hebard, Esq.

Mr. James Luce, through Mr. Norman W. Rogers, representative to the General Assembly from East Lyme, as well as overseer to the Niantic Tribe, petitioned that government body to sell him the last remaining Indian property in East Lyme, the Burying Ground itself. This was granted as House Resolution #213 on March 26, 1886, with the proviso that the proceeds from the sale provide for the removal of the Indian remains to the nearby Niantic Cemetery, now called the Union Cemetery. The sale of the Burial Ground and the purchase of a 40' by 60' plot in the new cemetery were both accomplished on the same day, October 30, 1886 (ELLR 7/540 and 7/554). Six headstones and five footstones, plus a large granite marker, all supposedly from the Crescent Beach Cemetery were moved to this location and are still visible and identifiable.

Mr. Luce now owned all the land overlooking Niantic Bay in "White Beach" as it had come to be called. This was quickly broken up in a succession of sales as indicated by ELLR 10/58, 10/77, 10/78, 10/79. 10/80. 10/103. 10/163, 10/212, etc. culminating in the construction of the White Beach Hotel by Mr. Luce on the same ridge as the cemetery, but about 200 feet to the east. The complete dispersal of the Indian lands was now a fact.

George Keeney of Brooklyn, N.Y., son-in-law of James Luce, and Mr. P.H. Billings of Hartford, CT were sold the property of the graveyard itself (in two separate parcels) in 1889 and 1903 (ELLR 10/58 and 14/142). The land was continually developed under a series of owners before reaching a critical point with the excavation of a basement under the "Keeney" Cottage in 1984, which revealed the remains of human beings. The discovery was subsequently reported to Mr. Pfeiffer, who initiated the salvage operations.

One problem was still outstanding. Nowhere was there any legal documentary evidence of the actual size of the Burial Ground, and this was a key to all further historical conclusions. The answer was found in a most unusual place--the Itineraries of The Reverend Ezra Stiles, President of Yale College in the latter half of the eighteenth century. Stiles clearly indicates the location and shape of the Indian Burial Ground on a map he drew of the area between Saybrook and Niantic, and he wrote the size under it--"ONE ACRE" (Stiles 1762 1:498-499). With this asset in hand, it is logical to propose that the actual dimensions of the Burial Ground can be approximated within a few feet. It must be emphasized however, that close archaeological testing represents the ultimate answer to the exact perimeters.

THOUGHTS, QUESTIONS, AND CONCLUSIONS

There are certain factors that bear on the selling of the Indian Burying Ground in 1886 that must be considered. Initially, the population density figures involving Niantic for 1850 and 1920 seem to present an incongruous

situation, for they are the same (CT Geological and Natural History Survey 1930:98). If this were the case, why the seeming rush to buy and sell land at the end of the nineteenth century? The answer lies in a type of population that reflected the new economic culture which arose as a result of the Industrial Revolution.

The growing affluence of many people and the new ease of transportation represented by the railroads allowed vacations and ventures that were undreamed of only a few years previous. Crescent Beach was turned into a summer resort area, with even its own railroad depot. The land adjacent to that of Mr. Luce's on the south was developed into a Baptist Seaside Resort by Mr. H.B. Cruttenden of Norwich. This type of growth accounts for the apparently dichotomous idea of a very stable permanent population combined with intense land speculation. Many seasonal hotels were built during this era in Niantic, including the Ninigret House and the still operative Morton House. Overall, we can observe the Indian lands making a quick turn in the late nineteenth century from subsistence agriculture to temporary residential use. Almost 100 years later another significant change, from "summer cottage" to full time residency, resulted in the unearthing of the graves.

Two other questions are immediately raised when one considers the possible significance of this Graveyard. First, how many Native Americans were buried there, and secondly, could it possibly have had prehistoric use as well as historic? The answer to the second question lies primarily with the field of archaeology, with one possible side consideration. We have seen this place being used for burials in 1640 (Weekwash). Could the mere fact that this was a focal point of the Western Niantics have led the English to settle the 300 acre reservation here? This can be merely a rhetorical question at this juncture.

Regarding the first query, the demography of the Nehantic tribe is confusing at best. Population estimates range from 600 and more prior to 1620, to 104 in 1774, to extinction (according to the State of CT) in 1870. In all probability, none of these are totally accurate. The Niantics were not extinct in 1870, for one tribal member--Mercy Nonesuch Andrews, did not die until 1912. Reverend Ezra Stiles states there were about 100 Niantic "men" in 1712 (Stiles 1762(1):496) which would conservatively translate into a total population of over 400. The only known fact is that the tribe essentially disappeared in 260 years. But if the number of persons did in fact range from a high of 600 to extinction, the total accumulation of deaths would have been considerable. The number interred here is therefore a matter for intense speculation and consideration.

Overall, this document search has demonstrated a continual use of this cemetery from the early part of the seventeenth century to the end of the nineteenth at least. We have uncovered the size and approximate dimensions of the cemetery, and combining this with the salvage archaeology projects of 1986 and 1988, can suggest the site is still relatively intact and definitely sacred.

Three immediate points should be made. First, the data revealed by this archival study should be viewed as an irrefutable base for this site to be declared sacred. Secondly, on the basis of professional archaeological standards this site necessitates preservation. Thirdly, the legal establishment hundreds of years ago of this "perpetual graveyard" raises the issue of whether anyone has ever had or now has the right to disrupt the cemetery. If such encroachment as has occurred since 1886 is permitted to continue in a site of this nature and documentation then the public, we as archaeologists, and Native Americans who are acting on behalf of their ancestors are all failing miserably, and deserve no title more than "The Rapists of American Heritage".

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RECIPIENTS OF THE MR. AND MRS. BERNE A. RUSSELL MEMORIAL AWARD

1962	Mr. Claude C. Coffin
1963	Dr. Irving B. Rouse
1964	Mrs. Eva Lutz Butler
1965	Mr. Frank Glynn
1966	Mr. George M. Johnson
1967	Mr. John H. Smith
1968	Mr. Donald N. Clark
1969	Mrs. Edmund Sinnott, Jr.
1970	Dr. Gustavus Pope
1971	Mr. Edmund Sinnott, Jr.
1972	Mr. Andrew J. Kowalsky
1973	Mr. David Cooke
1974	Mr. Edmund K. Swigart
1975	Mr. Maurice Wilson
1976	Mr. David H. Thompson
1977	Mr. John Pawloski
1978	Dr. Frederick Warner
1979	Dr. Roger W. Moeller
1980	Mrs. Cecelia Kirkorian
1981	Mrs. Denise Tratolatis
1982	Mr. William J. Krause
1983	Mr. Ernest Wiegand
1984	Mrs. Jane French
1985	Mrs. Renee Kra
1986	Dr. Kenneth Feder
1987	Dr. Douglas Jordan
1988	Mr. John Pfeiffer
1989	Dr. Robert Funk

Substitute House Bill No. 7479

PUBLIC ACT NO. 89-368

AN ACT IMPLEMENTING THE RECOMMENDATIONS OF THE TASK FORCE ON INDIAN AFFAIRS

Be it enacted by the Senate and House of Representatives in General Assembly convened:

Section. 1. (NEW) As used in sections 2 to 13, inclusive, of this act:

(1) "Native American" means people who occupied Connecticut prior to European settlement and their historic descendents, Indians as defined by section 47-63 of the general statutes, as amended by section 22 of this act, who are residents of this state and all members of other tribes recognized by the United States or by Canada or its Provinces who are residents of this state;

(2) "Archeological site" means a location where there exists material evidence that is not less than fifty years old of the past life and culture of human beings in the state;

(3) "Archeological artifact" means material evidence that is not less than fifty years old of past life and culture in the state that is found in connection with an archeological site;

(4) "Archeological investigation" means any subsurface tests or excavation or other activity resulting in the disturbance or removal of artifacts of data from an archeological site;

(5) "Sacred site" or "sacred land" means any space, including an archeological site, of ritual or traditional significance in the culture and religion of Native Americans that is listed or eligible for listing on the National Register of Historic Places (16 USC 470a, as amended) or the state register of historic places defined in section 10-321a of the general statutes, including, but not limited to, marked and unmarked human burials, burial areas, and cemeteries, monumental geological or natural features with sacred meaning or a meaning central to a group's oral traditions; sites of ceremonial structures, including sweat lodges; rock art sites, sites of great historical significance to a tribe native to this state;

(6) "Sacred object" means any archeological artifact or other object associated with a sacred site;

(7) "State lands" means land owned, leased, or administered by the state or in the custody or control of any state agency, department or instrumentality of the state.

Sec. 2. (NEW) There is established a Native American heritage advisory council to evaluate and make recommendations on the Native American heritage to the state archeologist and the Connecticut historical commission. Such council shall consist of the following members: One representing each of the following Indian tribes, appointed by the tribe: the Schaghticoke, the Paucatuck Eastern Pequot, the Mashantucket Pequot, the Mohegan and the Golden Hill Paugussett; one representing the Indian affairs council, appointed by the chairperson of the council; one representing the commissioner of environmental protection, appointed by said commissioner; one representing the Archaeological Society of Connecticut, appointed by the president pro tempore of the senate; and three who are knowledgeable in Native American history, traditions, and archeology, one appointed by the speaker of the house of representatives, one appointed by the minority leader of the house of representative and one appointed by the minority

leader of the senate.

Sec. 3. Section 10-321 of the general statutes is repealed and the following is substituted in lieu thereof:

(a) The Connecticut historical commission shall consist of twelve members to be appointed by the governor. On or before January fifth in the even-numbered years he shall appoint six members for terms of four years each to replace whose terms expire. One of such members shall be the state historian. [The terms of all members shall terminate on July 1, 1987, or upon the appointment of a successor, whichever is later.] Commencing on July 1, 1987, members shall be appointed in accordance with the provisions of section 4-9a. No member shall serve for more than two consecutive full terms which commence after July 1, 1987. Any member who fails to attend three consecutive meetings or who fails to attend fifty percent of all meetings held during any calendar year shall be deemed to have resigned from office. The governor shall biennially designate one member of the commission to be chairman. The governor shall fill any vacancy for any unexpired portion of the term and he may remove any commissioner as provided by section 4-12. No compensation shall be received by the members of the commission but they shall be reimbursed for their necessary expenses.

(b) The commission may (1) study and investigate historic structures and landmarks in this state and encourage and recommend the development, preservation and marking of such historic structures and landmarks found to have educational, recreational and historical significance; (2) prepare, adopt and maintain standards for a state register of historic places; (3) update and keep current the state historic preservation plan; (4) administer the National Register of Historic Places program; (5) assist owners of historic structures in seeking federal or other aid for historic preservation and related purposes; (6) cooperate with the department of economic development by furnishing data, historical facts and findings which will enable said department to promote and publicize existence of historic structures and landmarks within the state either of a public nature or operated and maintained by nonprofit organizations; (7) recommend to the general assembly the placing and maintaining of suitable markers, memorials or monuments or other edifices to designate historic structures and landmarks found to have historical significance; (8) make recommendations to the general assembly regarding the development and preservation of historic structures and landmarks owned by the state; (9) maintain a program of historical, architectural and archeological research and development including surveys, excavation, scientific recording, interpretation and publication of the historical, architectural, archeological and cultural resources of the state; (10) cooperate with promotional, patriotic, educational and research groups and associations with local, state and national historical societies, associations and commissions, with agencies of the state and its political subdivisions and with the federal government, in promoting and publicizing the historical heritage of Connecticut; (11) formulate standards and criteria to guide the several municipalities in the evaluation, delineation and establishment of historical districts; (12) cooperate with the state building inspector, the codes and standards committee and other building officials and render advisory opinions and prepare documentation regarding the application of the state building code to historic structures and landmarks if requested by owners of historic structures and landmarks, the state building inspector, the codes and standards committee or other building officials; (13) review planned state and federal actions to determine their impact on historic structures and landmarks; (14) operate the Henry Whitfield House of Guilford, otherwise known as the Old Stone House, as a state historical museum and, in its discretion, charge a fee for admission to said museum and account for and deposit the same as provided in section 4-32; (15) provide technical and financial assistance to carry out the purposes of this chapter; (16) *adopt regulations in accordance*

with the provisions of chapter 54 for the preservation of sacred sites and archeological sites, and (17) inventory state lands to identify sacred sites and archeological sites. The commission shall study the feasibility of establishing a state museum of Connecticut history at an appropriate existing facility.

(c) The Connecticut historical commission shall be with the department of education for administrative purposes only.

(d) Notwithstanding the provisions of this section or section 1-19, the Connecticut Historical Commission may withhold from disclosure to the public information relating to the location of archeological sites under consideration for listing by the State Historical Commission or those listed on the National Register of Historic Places or the state register of historic places whenever the commission determines that disclosures of specific information would create a risk of destruction or harm to such sites. On or after July 1, 1982, the provisions of this subsection shall not apply to any such site unless the person who reported or discovered such site has submitted a written statement to the commission requesting that no disclosure be made. Upon receipt of such statement, the commission may withhold such information from disclosure until the July first succeeding such receipt. Such person may request that a period of nondisclosure be extended by submitting such statements prior to July first of any year subsequent to 1982.

Sec. 4. Section 10-321a of the general statutes is repealed and the following is substituted in lieu thereof:

For the purposes of sections 10-321, 10-321a to 10-321f, inclusive, *as amended by this act,* "commission" shall mean the Connecticut historical commission established under section 10-321, *as amended by section 3 of this act;* "municipality" shall include any town, city or borough; "private organization" shall mean a nonprofit organization which has the power to acquire, relocate, restore and maintain historic structures and landmarks in the state of Connecticut; "historic district" shall mean an area in a municipality established under section 7-147a or by special act; "historic structures and landmarks" shall mean any building, structure, object, or site that is significant in American history, architecture, archeology and culture or property used in connection therewith *including sacred sites, and archeological sites;* "historic preservation" shall mean research, protection, restoration, stabilization and adaptive use of buildings, structures, objects, districts, areas and sites significant in the history, architecture, archeology or culture of this state, its municipalities or the nation; and "state register of historic places" shall mean the commission's itemized list locating and classifying historic structures and landmarks throughout the state, as discovered in the commission's field survey of 1966-1967 and as subsequently augmented.

Sec. 5. (NEW) (a) The state museum of natural history shall be the state repository for all artifacts found and data gathered during archeological investigations on state lands.

(b) On or before July 1, 1990, the board of directors of the state museum of natural history shall establish a collections policy which shall include procedures for (1) acquisition of material and the acceptance of gifts appropriate to the public trust, (2) the preservation, care and display of sacred objects, and the use of sacred objects for religious and ceremonial purposes and (3) loans and transfers of sacred objects and other materials, including archeological artifacts, to Native American museums or other institutions.

Sec. 6. (NEW) The Connecticut historical commission, with the concurrence of the state archeologist, may examine sites and lands to determine if such sites or lands are of state or national archeological importance and meet all the requirements for listing on the National Register (16 USC 470a) or the state register of historic places defined in sections 10-321a of the general statutes.

Upon determination that any site or land investigated is of state or national archeological importance, the commission may declare such site or land to be a state archeological preserve, provided (1) each property owner of any private site or land proposed for designation has been informed of the implications of the designation and consented in writing to such designation, (2) the state agency with custody or control of any public land has been notified in writing of the proposed designation and (3) written recommendations on the proposal have been sent to the commission by the state archeologist and, if there is evidence of Native American activity, the Native American heritage advisory council established pursuant to section 2 of this act. The commission shall cause notice of such designation to be filed on the land records in the town where such preserve is located.

Sec. 7. (NEW) (a) The Connecticut historical commission shall adopt regulations in accordance with the provisions of chapter 54 of the general statutes for the establishment, care, use and management of sites or lands designated as state archeological preserves pursuant to section 6 of this act.

(b) On or after the effective date of designation of sites or lands as a state archeological preserve, no person may conduct any archeological investigation, initiate construction or demolition activities or undertake any other activity which would endanger the archeological integrity or sacred importance of such preserve without complying with the provisions of section 8 of this act except if the commission declares an emergency.

Sec. 8. (NEW) (a) No person may conduct an archeological investigation on state lands or on a state archeological preserve without a permit from the Connecticut historical commission. Any such permit shall be issued with the concurrence of the state archeologist. The application shall submit an application on such form as the commission may prescribe and with such information as the commission, after consultation with the state archeologist and the advisory council established pursuant to section 2 of this act, deems necessary, including, but not limited to, the time, scope, location and specific purpose of the proposed research. The applicant shall submit (1) evidence satisfactory to the commission of qualifications to perform the excavation, including evidence of experience, training and knowledge; (2) an excavation plan for the site satisfactory to the commission which includes provisions on the method of excavation and (3) a written statement that upon completion of the excavation the applicant shall submit a report of the investigation which shall include a description of archeological artifacts discovered and relevant maps, documents, drawings and photographs. No permit shall be issued for an investigation that would disturb a known Native American cemetery, burial site or other sacred site without a review of the advisory council established pursuant to section 2 of this act. Failure to comply with the terms of a permit issued under this section shall be grounds to deny a subsequent permit.

(b) The commission shall adopt regulations in accordance with the provisions of chapter 54 of the general statutes establishing procedures for the issuance of permits required under this section. Such regulations shall be developed with the concurrence of the state archeologist.

(c) Notwithstanding the provisions of this section, the commission, in consultation with the state archeologist, may authorize an archeological investigation without a permit if time for investigation is limited.

(d) The applicant shall pay the cost of reburial of any human skeletal remains discovered in accordance with the terms and conditions of a permit issued under this section.

Sec. 9. (NEW) Each state department, institution and agency shall review, in consultation with the Connecticut historical commission, their policies and practices for consistency with the preservation and study of the state's archeological sites and sacred lands and sites. Such review shall include

preparation of an evaluation document which specifies projects and programs requiring detailed consultation to identify and protect archeological sites and sacred lands and sites. Any project submitted to the commission for review under the provisions of sections 22a-1a to 22a-1f, inclusive, of the general statutes, as amended by this act, is exempt from the provisions of this section.

Sec. 10. (NEW) (a) Any person who knows or reasonably believes that any human burials or human skeletal remains are being or about to be disturbed, destroyed, defaced, removed or exposed shall immediately notify the chief medical examiner and state archeologist of such fact. If human burials or human skeletal remains are encountered during construction or agricultural, archeological or other activity that might alter, destroy or otherwise impair the integrity of such burials or remains, the activity shall cease and not resume unless authorized by the chief medical examiner and the state archeologist provided that such authorization shall be made within five days of completion of the investigation of the chief medical examiner pursuant to subsection (b) of this section.

(b) After notification under subsection (a) of this section, the chief medical examiner shall determine if the remains represent a human death required to be investigated under section 19a-406 of the general statutes. After completion of his investigation, if the chief medical examiner determines that the remains may be the remains of a Native American or were found in the subsurface and buried for more than fifty years, the chief medical examiner shall notify the state archeologist of such fact. The state archeologist, upon such notification, shall in consultation with the Connecticut historical commission, the Native American heritage advisory council, established under section 2 of this act, the commissioner of environmental protection, and the landowner determine, within seventy-two hours, if the site where such remains were discovered can be preserved in situ and protected by a preservation restriction as defined in section 47-47a of the general statutes.

(c) If in situ preservation is not prudent and feasible or not agreed to by the landowner, the state archeologist, upon consultation with the landowner and, if appropriate, the Native American heritage advisory council, the Connecticut historical commission, and the commissioner of environmental protection shall, if feasible, provide for removal and reburial of the remains at another location or for additional archeological investigations or scientific analysis prior to reburial. Any excavation and recovery of remains by the state archeologist shall be completed not more than five business days after notification by the chief medical examiner under this section unless the landowner consents to additional days.

(d) Human skeletal remains discovered during archeological investigations shall be excavated under the supervision of the state archeologist, pursuant to a written agreement between the state archeologist and the holder of the permit specifying the excavation, methods to be used and data to be collected. Due care shall be exercised during excavation, subsequent transport and storage of skeletal remains to insure that the sacred meanings of the remains for Native Americans are respected and protected.

(e) The provisions of this section shall not be construed to require the owner of private lands on which human skeletal remains are found to pay the costs of excavation, removal analysis or reburial of such remains.

Sec. 11. (NEW) (a) Notwithstanding the provisions of sections 7-67 and 7-69 of the general statutes, the state archeologist, in consultation with the Connecticut historical commission, the Native American heritage advisory council, established under section 2 of this act, the commissioner of environmental protection and the archeological community, shall adopt regulations in accordance with the provisions of chapter 54 of the general statutes establishing procedures for the storage, analysis and reburial of human

skeletal remains discovered during an archeological investigation.

(b) The commissioner of environmental protection shall designate state lands for use as sites for the reburial of Native American human skeletal remains. Such sites shall be deemed sacred lands and designated as state archeological preserves in accordance with section 6 of this act.

(c) Any human remains discovered on and after the effective date of this act shall be reburied. The state archeologist, the Native American heritage advisory council and the commissioner of environmental protection shall jointly determine the contents and organization of each reburial ceremony for Native Americans.

Sec. 12. (NEW) (a) No person shall excavate, damage or otherwise alter or deface any archeological or sacred site on state lands or within a state archeological preserve unless such activity is in accordance with the terms and conditions of a permit issued under section 8 of this act or in the case of an emergency.

(b) No person shall sell, exchange, transport, receive, or offer to sell, any archeological artifact or human remains collected, excavated or otherwise removed from state lands or a state archeological preserve in violation of subsection (a) of this section.

(c) No person shall engage in any activity that will desecrate, disturb or alter any Native American burial, sacred site or cemetery, including any associated objects, unless the activity is engaged in pursuant to a permit issued under section 8 of this act or under the direction of the state archeologist.

(d) Any person who violates any provision of this section shall be fined not more than five thousand dollars or twice the value of the site whichever is greater, and imprisoned not more than five years of both.

(e) Any person who violates any provision of this section shall be liable to the state for the reasonable costs and expenses of the state in restoring the site and any associated sacred objects or archeological artifacts.

Sec. 13. (NEW) On or before January 1, 1991, the Connecticut historical commission, in consultation with the state archeologist, the Native American heritage advisory council established under section 2 of the act and the commission of environmental protection shall develop procedures to inventory Native American burial sites and cemeteries, such procedures shall provide for the availability of the inventory to state agencies, departments and institutions.

Sec. 14. Section 23-75 of the general statutes is repealed and the following is substituted in lieu thereof:

(a) The commissioner of environmental protection shall acquire land by purchase, gift or devise for the purposes set forth in section 23-74. The title to any land acquired pursuant to sections 23-73 to 23-80, inclusive, shall be vested in the state. In determining whether sites shall be acquired, the department shall consider whether the site is: (1) Identified as having high priority recreation, forestry, fishing, wildlife or conservation value and as being consistent with the state comprehensive plan for outdoor recreation and the state plan of conservation and development; (2) a prime natural feature of the Connecticut landscape, such as a major river, its tributaries and watershed, mountainous territory, an inland or coastal wetland, a significant littoral or estuarine or aquatic site or any other important geologic feature; (3) habitat for native plant or animal species listed as threatened or endangered or of special concern in the data base; (4) a relatively undisturbed outstanding example of a native ecological community which is now uncommon; or (5) threatened with conversion to incompatible uses or *contains sacred sites or archeological sites of state or national importance.* In acquiring a site that has been identified as having a high priority recreation value, the department

shall give priority to sites near population centers.

(b) No site shall be acquired which has not been evaluated by the department, through the data base, to determine if threatened or endangered species or species of special concern inhabit or use the site or to determine if the site is of special ecologic quality or has other outstanding natural values as a community of living things.

Sec. 15. Section 22a-1b of the general statutes is repealed and the following is substituted in lieu thereof:

The general assembly directs that, to the fullest extent possible:

(a) Each state department, institution or agency shall review its policies and practices to insure that they are consistent with the state's environmental policy as set forth in sections 22a-1 and 22a-1a.

(b) Each state department, institution or agency responsible for the primary recommendation or initiation of actions which may significantly affect the environment shall in the case of each proposed action make a detailed written evaluation of its environmental impact before deciding whether to undertake or approve such action. All such environmental impact evaluations shall be detailed statements setting forth the following: (1) A description of the proposed action; (2) the environmental consequences of the proposed action, including direct and indirect effects which may result during and subsequent to proposed action; (3) any adverse environmental effects which cannot be avoided and irreversible and irretrievable commitments of resources should the proposal be implemented; (4) alternatives to the proposed action, including the alternative of not proceeding with the proposed action; (5) mitigation measures proposed to minimize environmental impacts; (6) an analysis of the short term and long term economic, social and environmental costs and benefits of the proposed action; [and] (7) the effect of the proposed action on the use and conservation of energy resources; *and (8) a description of the effects of the proposed action on sacred sites and archeological sites of state or national importance. as used in this section, "sacred sites" and "archeological sites" shall have the same meaning as in section 1 of this act.*

Sec. 16. Section 47-59a of the general statutes is repealed and the following is substituted in lieu thereof:

(a) It is hereby declared the policy of the state of Connecticut to recognize that all resident Indians of qualified Connecticut tribes are considered to be full citizens of the state and they are hereby granted all the rights and privileges afforded by law, that all of Connecticut's citizens enjoy. It is further recognized that said Indians have certain special rights to tribal lands as may have been [granted to them in the past] SET FORTH by treaty or other agreements.

(b) *The State of Connecticut further recognizes that the indigenous tribes, the Schaghticoke, the Paucatuck Eastern Pequot, the Mashantucket Pequot, the Mohegan and the Golden Hill Paugussett are self-governing entities possessing powers and duties over tribal members and reservations. such powers and duties include the power to: (1) determine tribal membership and residency of reservation land; (2) determine the tribal form of government; (3) regulate trade and commerce on the reservation; (4) make contracts, and (5) determine tribal leadership in accordance with tribal practice and usage.*

Sec. 17. (NEW) (a) Effective October 1, 1990, the governor shall enter into a trust agreement with each willing indigenous Indian tribe. Any such trust agreement shall define the powers and duties possessed by the tribe that is party to the agreement and shall be consistent with recommendations on trust agreements contained in the final reportof the Indian Affairs Task Force made pursuant to special act 87-103, as amended by section 28 of this act.

(b) Nothing in this act shall be construed to confer tribal status under federal law on the indigenous tribes named in section 16 of this act or to

confer additional rights of ownership and title to such tribes of land in the state which was not held in trust for such tribes on June 1, 1989.

Sec. 18. (NEW) (a) Each tribal leader shall file with the governor his name and a written description of the method of selecting tribal leaders and the process by which tribal leaders exercise their authority. The governor shall file such description with the secretary of state and the Indian Affairs Council established under section 47-59b of the general statutes, as amended by section 20 of this act.

(b) A leadership dispute shall be resolved in accordance with tribal usage and practice. Upon request of a party to a dispute, the dispute may be settled by a council. Each party to the dispute shall appoint a member to the council and the parties shall jointly appoint one or two additional members provided the number of members of the council shall be an odd number. If the parties cannot agree on any joint appointment, the governor shall appoint any such member who shall be a person knowledgeable in Indian affairs. The decision of the council shall be final on substantive issues. An appeal may be taken to the superior court to determine if provisions of the written description filed with the secretary of the state pursuant to this section have been followed. If the court finds that the dispute was not resolved in accordance with the provisions of the written description, it shall remand the matter with instructions to reinstitute proceedings, in accordance with such provisions.

Sec. 19. (NEW) (a) On or before March 15, 1990, and annually thereafter, the tribal leader selected in accordance with the method filed under section 18 of this act, shall file a copy of the rules for tribal membership and government and a current membership roll with the governor. The membership rules may include provisions for revocation of membership. The governor shall file the rules and membership roll with the secretary of that state and the Indian Affairs Council established under section 47-59b of the general statutes, as amended by section 20 of this act.

(b) A membership dispute shall be resolved in accordance with tribal usage and practice. Upon request of a party to the dispute, the dispute may be settled by a council. Each party to the dispute shall appoint a member of the council and the parties shall jointly appoint one or two additional members provided the number of members of the council shall be an odd number. If the parties cannot agree on any joint appointment, the governor shall appoint such member who shall be a person knowledgeable in Indian affairs. The decision of the council shall be final on substantive issues but an appeal may be taken to the superior court to determine if membership rules filed in the office of the secretary of the state pursuant to this section have been followed. If the court finds that the dispute was not resolved in accordance with the provisions of the written description, it shall remand the matter with instructions to reinstitute proceedings, in accordance with such provisions.

Sec. 20. Section 47-59b of the general statutes is repealed and the following is substituted in lieu thereof:

(a) There shall continue to be an Indian Affairs Council, consisting of one representative from each of the following Indian tribes: the Schaghticoke, the Paucatuck *Eastern* Pequot, the Mashantucket Pequot, the Mohegan and the Golden Hill Paugussett; to be appointed by the respective tribes, and three persons appointed by the governor who are electors within the state but are not elected or appointive officials of the state or of any of its political subdivisions and are not of Indian lineage. Appointments made under this section shall be for terms of three years.[, beginning October 1, 1973.] Each Indian tribe may designate from among its members an alternate representative who may serve from time to time in place of its appointive representative. Vacancies on said council shall be filled by the respective appointing authority for the unexpired balance of the term. The members of said council shall be compensated for their

services thereon at the rate of twenty-five dollars per day and shall be reimbursed for their necessary expenses. Said council shall provide services to the Indian reservation community of the state and formulate programs suitable to its needs. The council may select an executive director who shall serve at no expense to the state but may be compensated with funds contributed by the tribes.

(b) [The Indian Affairs Council shall determine the qualifications of individuals entitled to be designated as Indians for the purposes of administration of this section and sections 47-59a, 47-63, 47-64, 47-65, 47-65a and 47-66, and shall decide who is eligible to reside on reservation lands, subject to the provisions of subsection (a) of section 47-64 and section 47-63.

(c) The Indian Affairs Council shall review the regulations governing Indian affairs in the state of Connecticut and advise the commissioner* on promulgation of new regulations. The council shall report annually, no later than September first, to the governor and the general assembly on the activities of the council and the state of affairs of the Indian people in the state.

Sec. 21. Section 47-60 of the general statutes is repealed and the following is substituted in lieu thereof:

(a) *Any reservation land held in trust by the state on the effective date of this act shall continue to be held in trust in perpetuity to prevent alienation and to insure its availability for future generations of Indians.* Except as otherwise expressly provided, all conveyances by any Indian of any land belonging to, or which has belonged to, the estate of any tribe shall be void.

(b) *A tribe shall exercise on reservation land all rights incident to ownership except the power of alienation.*

Sec. 22. Section 47-63 of the general statutes is repealed and the following is substituted in lieu thereof:

The following terms as used in [sections 47-63 to 47-66, inclusive] *this chapter,* shall have the following meanings: "Indian" means a person [of at least one-eighth Indian blood] *who is a member* of any of the following tribes, Paucatuck *Eastern* Pequot, Mashantucket Pequot, Schaghticoke, Golden Hill Paugussett and Mohegan; [or as may be determined by the council under the provisions of subsection (b) of section 47-59b] "reservation" means the Paucatuck *Eastern* Pequot reservation in the town of North Stonington, assigned to the use of the Paucatuck *Eastern* Pequot tribe; the Golden Hill Paugussett reservations in the towns of Trumbull and Colchester, assigned to the Golden Hlll Paugussett tribe; the Schaghticoke reservation in the town of Kent, assigned to the Schaghticoke tribe, and the Mashantucket Pequot reservation in the town of Ledyard, assigned to the Mashantucket Pequot tribe; "tribal funds" means the money held by the state for the use and benefit of a tribe as distinguished from legislative appropriations.

Sec. 23. Section 47-64 of the general statutes is repealed and the following is substituted in lieu thereof:

(a) [Reservations shall be maintained for the exclusive benefit of Indians who may reside on such lands, except that any person, other than an Indian, who lawfully resided on a reservation on July 1, 1973, may continue to reside thereon. The lawful spouse and children of an Indian may reside on a reservation with such Indian for as long as such Indian so resides. If such spouse or children do not qualify for such residence on the death of such Indian, such spouse or children shall be reimbursed on the basis of the actual sale price of any building minus any expenses to the state incurred in the sale of any building on such reservation which may belong to such Indian.] *Each tribe shall determine who may live on reservation land provided any person lawfully residing on a reservation on the effective date of this act may continue to reside on such reservation. Residents may be removed in accordance with rules filed under*

section 19 of this act.

(b) [No portion of any reservation shall be leased, but any lease in effect on July 1, 1973, may continue for the duration of such lease and may be renewed at the discretion of the Indian Affairs Council.] *Each tribe may lease reservation land for not more than twenty-five years.*

(c) Notwithstanding any provision of the general statutes or any special act to the contrary, any Indian reservation property that escheats to the state shall be preserved as an Indian historical area, under the control of the department of environmental protection.

Sec. 24. Subsection (a) of section 12-19a of the general statutes is repealed and the following is substituted in lieu thereof:

(a) On or before January first, annually, the secretary of the office of policy and management shall determine the amount due, as a state grant in lieu of taxes, to each town in this state wherein state-owned real property *or reservation land held in trust by the state for an Indian tribe*, except that which was acquired and used for highways and bridges, but not excepting property acquired and used for highway administration or maintenance purposes, is located. The grant payable to any town under the provisions of this section in the state fiscal year commencing July 1, 1988, and each fiscal year thereafter, shall be equal to the total of (1) one hundred per cent of the property taxes which would have been paid with respect to any facility listed in subsection (w) of section 1-1 and any other facility certified by the commissioner of corrections, on or before August first of each year, to have been used for incarcerative purposes for at least six months during the preceding fiscal year and, (2) twenty per cent of the property taxes which would have been paid with respect to all other state-owned real property, except for the exemption applicable to such property, on the assessment list in such town for the assessment date two years prior to the commencement of the state fiscal year in which such grant is payable.

Sec. 25. Subdivision (2) of section 12-81 of the general statutes is repealed and the following is substituted in lieu thereof:

(2) Property belonging to, or held in trust for, this state *and reservation land held in trust by the state for an Indian tribe.*

Sec. 26. Section 12-81 of the general statutes is amended by adding subdivision (71) as follows:

(NEW) (71) Any motor vehicle owned by a member of an indigenous Indian tribe or spouse and garaged on the reservation of the tribe.

Sec. 27. Section 10-266 of the general statutes is repealed and the following is substituted in lieu thereof:

Any town in which state property *or reservation land held in trust by the state for an Indian tribe* is located and from which pupils residing on such state property *or reservation land* attend a public elementary or high school at the expense of such town shall be paid by the state an amount which shall be determined in the following manner: The amount paid to the town pursuant to section 10-262c shall be subtracted from the town's net current expenditures, as defined in subsection (a) of section 10-261; the remained shall then be divided by the number of pupils in average daily membership, as defined in said subsection (a); the resulting per pupil amount shall then be multiplied by the number of pupils who reside on state property and attend school at such town's expense, and the cost of transporting such pupils shall be added to the resulting product. Data from the fiscal year prior to the fiscal year in which payment is made shall be used to calculate each grant under this section. The provisions of this section shall not apply to any special education expenses for pupils residing on state property and receiving special education instruction at the expense of such town. Payment for the provision of such special education instruction shall be made in accordance with the provisions of subsection (a) of

section 10-76d.

Sec. 28. Special act 87-103 is amended to read as follows:

(a) There is established a task force on Indian affairs to review existing statutes, budgets, agencies and programs affecting Connecticut Indians. The task force shall study and make recommendations on all aspects of the state's responsibilities for Indian affairs including, but not limited to, the following: (1) [Title to reservation land and state responsibility for land held in trust for a tribe by the state; (2) state responsibility for reservations; (3) the jurisdiction of criminal and civil law on reservations and law enforcement; (4) the legal process for determining tribal membership; (5) the rights of tribal government; (6) the escheat provisions of section 47-64 of the general statutes; (7) the determination of membership of Indians of tribes not recognized by the state on the Indian Affairs Council; (8) the imposition of state and local taxes on reservations and tribes; (9) access to sacred sites on state and private land for ceremonial purposes; (10) determination of procedures to be followed upon discovery of a burial site; (11) the responsibility for Indian remains, including those of Indians of tribes not recognized by the state; (12)] *The resolution of state government roles and duties to Native Americans; (2) the role, structure and funding of the Indian Affair's Council; (3) resources available for technical assistance to tribal government; (4) state endorsement or assistance to tribes seeking federal recognition; (5) preservation of reservation land for tribes and the escheat provisions of section 47-64 of the general statutes; (6) access to sacred sites on state and private land for ceremonial purposes; (7) authorization of Indian spiritual leaders to perform marriages; (8) application of the state sales tax to transactions on the reservation; (9) description and review of trust agreements; (10) jurisdiction for criminal and civil law on reservations;* (11) ways to increase state government awareness and sensitivity to [Indians; (13) the adequacy of job training and economic assistance for tribes and the need for additional programs; and (14)] *Native Americans and* (12) the impact of expected federal budget cuts for Indian development and proposed measures to deal with such cuts.

(b) The task force shall consist of sixteen members as follows: (A) one representing each of the five Connecticut tribes appointed by said tribes; (B) four Indian persons knowledgeable in the field of federal Indian law and Connecticut Indian affairs, culture, history and law appointed by the governor; (C) an archeologist knowledgeable in Indian affairs, appointed by the governor; (D) the secretary of the office of policy and management, the commissioner of environmental protection, and the chairman of the Indian Affairs Council or their designees and (E) three members of the general assembly, from either house, one appointed by the president pro tempore of the senate, one appointed by the speaker of the house of representatives and one appointed jointly by the minority leaders of the house of representatives and the senate. Any designee shall have full voting authority. Said task force shall choose a chairman from among its members.

(c) The task force shall hold its first meeting, to be called by the commissioner of environmental protection, on or before September 1, 1987. The task force shall submit a report of its study and recommendations to the governor and general assembly on or before [January 1, 1989] *February* 1, 1990. The task force may report recommendations in whole or in part, at any time prior to said date.

Sec. 29. Sections 47-66e and 47-66f of the general statutes is repealed.

Sec. 30. This act shall take effect from its passage, except that sections 25 and 26 shall take effect July 1, 1989, and sections 1 to 24, inclusive, and section 29 shall take effect October 1, 1989.

Certified as correct by

_____
Legislative Commissioner

_____
Clerk of the Senate

_____
Clerk of the House

Approved _____,1989

_____
Governor, State of Connecticut

Editor's Notes:

Changes to existing legislation are noted in two ways: new text is italicized and deletions are enclosed in brackets.

This legislation was drafted by the subcommittee of the Governor's Task Force on Indian Affairs. In the Report to the General Assembly of February, 1989, the subcommittee consisted of Native Americans Trudie Lamb Richmond and Mikki Aganstata and archaeologist Kevin McBride, Task Force members with the aid of Resource Persons Nicholas Bellantoni (State Archaeologist), David Poirier (Connecticut Historical Commission), and Russell Handsman (American Indian Archaeological Institute).

CONSTITUTION OF THE ARCHAEOLOGICAL SOCIETY OF CONNECTICUT, INC.

ARTICLE I: NAME

The name of this organization shall be the ARCHAEOLOGICAL SOCIETY OF CONNECTICUT, INC., hereinafter called the Society. It is a non-profit corporation, organized and existing under and by virtue of the laws of the state of Connecticut.

ARTICLE II: OBJECTIVES

Its objectives shall be: a) to promote the study of historic and prehistoric archaeology in the state of Connecticut; b) to promote and encourage scientific research in this field and to discourage careless and misdirected activity; c) to promote the conservation of important archaeological sites and monuments; d) to promote the spread of archaeological knowledge, especially by means of publications and meetings; e) to serve as a bond between archaeologists in this state and elsewhere.

ARTICLE III: MEMBERSHIP

A. The membership shall consist of five (5) classes:

1. Contributing Members
2. Sustaining Members
3. Active Members
4. Institutional Members
5. Family Members, consisting of spouses and children of Active Members. (Family Members shall not be entitled to receive publications.)

B. Annual dues for each of the classes shall be fixed by the Board of Directors subject to ratification by the membership at the next annual meeting of the Society.

C. Members one (1) year in arrears shall not be entitled to vote or to receive publications from the Society. Members two (2) years in arrears shall be removed from the rolls.

D. Notification of Society business will be by the Society office or designee, to all members in classes other than Family members.

ARTICLE IV: ADMINISTRATION

A. Board of Directors:

1. The officers, together with committee and organizational chairpersons, shall constitute a Board of Directors to whom the administration of the Society shall be entrusted. Decisions regarding matters of policy shall be

subject to ratification by membership.

2. Meetings of the Board of Directors shall be held at least quarterly at the call of the President. A majority of the Directors shall constitute a quorum.
3. The Board of Directors shall be the governing body of the Society.

4. Special meetings of the Board may be called by the President or upon the request of four (4) Board members or twenty (20) members of the Society.

B. Officers:

1. The officers of the organization shall consist of a President, First, Second, and Third Vice Presidents; a Secretary, a Treasurer, and an Editor. They shall be elected at the Annual Meeting in even years for a term of two years, and shall serve until their successor takes office.

2. The officers shall have those duties as are ordinarily incumbent on such officers, and other duties as may be prescribed from time to time by the Board of Directors.

3. The resignation of any officer shall be confirmed in writing to or by the Board of Directors, who shall appoint a substitute to fill that office until the next meeting of the Society when a new officer shall be elected to complete the unexpired term.

4. The Board of Directors shall have the right to remove any officer from office if it is deemed by a 2/3 majority of the Board that such an officer is derelict in his or her duties, or is not performing such duties in the best interest of the society.

5. The President shall report on the activities of the Board at each annual meeting of the Society.

C. An Executive Committee, consisting of the Society officers, is empowered to act for the Board when it has received specific authorization to do so.

ARTICLE V: FINANCES

A. The fiscal year shall begin January 1st, when all dues are payable.

B. The expenditures of the Society shall be guided by an annual budget prepared by the Treasurer and approved by the Finance Committee and/or the Board of Directors.

C. All checks against the accounts of the Society shall be drawn by the Treasurer with the President as alternate signatory in case of emergency.

D. The Finance Committee, and/or the Board of Directors shall approve all expenditures exceeding a figure to be set by the Board of Directors.

E. An audit shall be made of the Society accounts at the end of each fiscal year and reported to the membership.

ARTICLE VI: MEETINGS OF THE SOCIETY

A. The annual meeting of the Society shall be held during the spring at such time and place as the Board of Directors shall designate.

B. A semi-annual meeting may be held in the fall at such time and place as the Board of Directors shall designate.

C. Special meetings shall be called by the President upon the request of four (4) Board members or twenty (20) voting members of the Society.

D. Twenty (20) voting members shall constitute a quorum at all meetings of the Society.

ARTICLE VII: COMMITTEES

The President with the approval of the Board of Directors, shall appoint:

A. A Finance Committee consisting of three or more individuals in addition to the Treasurer ex-officio.

B. A Publications Committee consisting of three or more individuals in addition to the Editor ex-officio.

C. A representative to the Eastern States Archaeological Federation.

D. Such other committees as from time to time are deemed necessary.

ARTICLE VIII: PUBLICATIONS

A. The Society shall attempt to publish a Bulletin and Newsletter for distribution to members (except for Family members) who are current members. Policy changes for said publication are subject to ratification by the Board of Directors.

B. Minutes of Society meetings and the Treasurer's report shall be published and distributed via the Newsletter.

ARTICLE IX: LOCAL ORGANIZATIONS

A. Local organizations may be established. Their activities must be in accord with the objectives of the Society.

B. The formation of local organizations shall require a petition signed by at least five (5) members of the proposed organization who are also members in good standing of the Archaeological Society of Connecticut, Inc. This petition shall be submitted to the Secretary of the Society for consideration by the Board of Directors.

ARTICLE X: AMENDMENTS

Proposed amendments to these Bylaws shall be submitted to the Secretary of the Society for consideration by the Board of Directors in writing, signed by at least four (4) members of the Board or twenty (20) members of the Society. The Board of Directors shall then direct the Secretary to include the proposed amendments with the next Society meeting notice at least four weeks in advance of the next annual meeting of the Society.

ARTICLE XI: DISSOLUTION OF THE SOCIETY

In the event of the dissolution of the Society, its assets shall go to a legally recognized non-profit organization at the discretion of the Board of Directors.

ARTICLE XII: POINTS OF ORDER

Robert's Rules of Order is adopted and shall be the authority for rules of order on all points not herein provided for.

THE CONTRIBUTORS

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