

# Prehistoric Land Use in the Arnold Arboretum

In the thirty-seven years since Ernest Jesse Palmer wrote his excellent report on "Indian Relics of the Arnold Arboretum" archaeologists have learned a great deal about Massachusetts prehistory.

It has been demonstrated beyond doubt that the styles of objects made by prehistoric men changed through time, as do the styles of things we make and use now. Through careful excavation of layers of food refuse and discarded tools, archaeologists have learned the order in which the many recognizable styles occurred through time. They have learned, also, which styles of spear points were in use with particular knife forms, or axe heads, or other tool types. The kinds of tools found together, the nature of the places where they are found, and the occasional traces of ancient houses and hearths have provided evidence about the way of life of the makers of the various tools. Human remains in graves with these tools show that the people who made them were of the same physical type as modern American Indians.

Physicists have provided archaeologists with a technique for directly dating organic material associated with prehistoric artifacts. The age of organic matter, ideally charcoal, can be estimated from the measurable activity of radioactive carbon isotopes, the decay rate of which is approximately known. The age of organic matter thus analyzed is usually expressed as a number of years before the present, and often converted by simple subtraction into a date in terms of the Gregorian calendar. Radiocarbon years as now calculated apparently do not exactly equate with calendar years (Ralph & Michael 1967); in general, the older the radiocarbon age the younger it is than the actual age. Age and date estimates quoted below will be in radiocarbon years and therefore minimal.

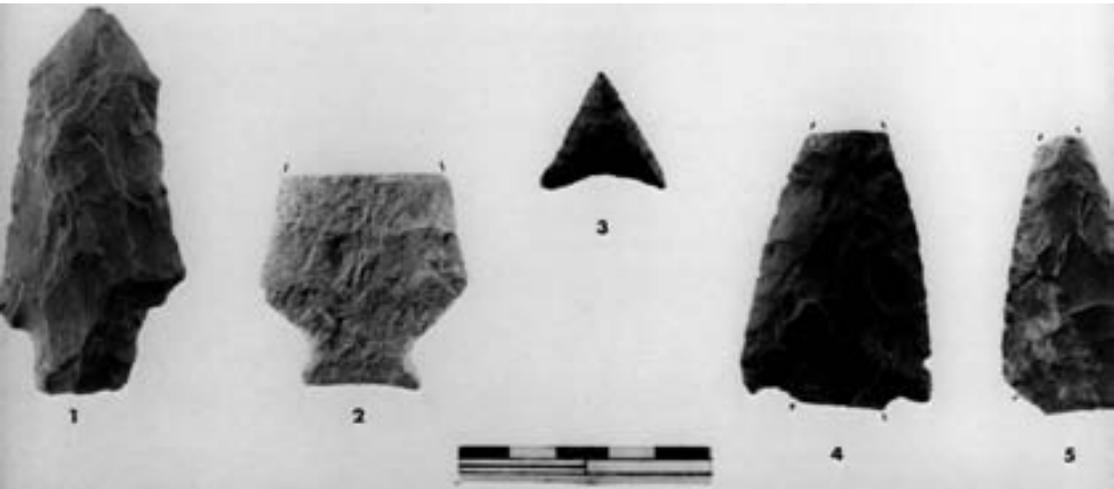
Geologists, zoologists, and botanists who concern themselves with prehistoric conditions have learned something about old landforms and ancient animal and plant communities in the

Boston area and have made inferences from such evidence about past climatic changes. It is clear that the Boston landscape, forest composition, and animal population have changed during the period of human occupation.

The Arboretum collection of Indian stone tools has been augmented since 1934 by occasional finds made by Palmer and by Mr. Alfred J. Fordham on the sites Palmer enumerated and by some pieces recovered from the grounds of the Biological Laboratory adjacent to the Arboretum on South Street.

The oldest tool styles in the collection are represented by the specimens numbered 6, 12 and 15 in Palmer's illustration, which are at least 5500 years old. These were followed 4500 years ago by spearpoints such as those numbered 4, 11 and 25, and by pieces like Nos. 8, 21, 22 and 26-28 (Ritchie 1969). A major new style appeared in southern New England about 4000 years ago, of which Figure I No. 1 is a representative. This particular spearpoint was originally wider, but has been narrowed by resharpening. By 3400 years ago, knives like No. 2 in Figure I were in use, with spearpoints like No. 24 in Palmer's illustration. Palmer's Nos. 18 and 20 were made between 3200 and 2600 years ago (Dincauze 1968). Figure I No. 5 is apparently of the same age, although it is not possible to be certain about it because of its broken base (Ritchie 1961:35). Number 4 of Figure I may be less than 2000 years old. Number 3 represents the last style in stone projectile points in the area; similar points were made of sheet brass and copper whenever the Indians could obtain the soft metals from Europeans.

By bringing to the Arboretum collection information obtained elsewhere (Ritchie 1969; Robbins 1968) we can see that Palmer's Spring Brook Village and Centre Street Border areas were occasionally occupied by small groups of Indians as early as the fourth millennium B.C. These areas even now offer some protection from extremes of winter temperature (A. Fordham,



personal communication) and Palmer has summarized other special attractions.

In the second millenium B.C. the Spring Brook, South Street and Meadow Border areas were foci for Indian activities. At Spring Brook, finds of stone flakes and unfinished tools indicate that tools were being made there and suggest that this was a dwelling area, not simply a camp site for hunters. The perforator (Palmer's No. 16) also suggests manufacturing or repair of domestic equipment, possibly sewing of leather or bark. Spring Brook Village may have been a winter camp site for one or two families at many different times. There is no evidence for the continued use of the Center Street Border area after 2000 B.C.

After 1000 B.C. the Spring Brook camp may have been abandoned for the Meadow Border area. It is in the latter vicinity that tools of the period from 1000 to 600 B.C. were found. There is no evidence in the collection for any camping activity in the Arboretum after this period. Of tools which can be confidently dated, only a few projectile points are younger than 600 B.C. Number 4 in Figure I was found on Peters Hill, a good place from which to watch for game and refit hunting equipment. This knife blade or spearpoint is especially interesting, as is No. 5, because both were made of cherts which outcrop in the Mohawk Valley of New York state and are forms more common there than in Massachusetts. The triangular arrowhead, No. 3 in Figure I, was also found on Peters Hill, where it was lost sometime during the last 300 years of Indian hunting there.

The Palmer-Fordham collection is obviously too small to support firm conclusions about prehistoric land use in the Arboretum, but it does suggest some interesting hypotheses. It appears that from a very early time the area was occasionally occupied by small groups of people who stayed for a number of days or weeks and carried on normal household activities. Sometime after 1000 B.C., people gave up living in the area, visiting only in the course of hunting expeditions. Indian horticulture was established in Massachusetts sometime around 1000 A.D., during the centuries when the Arboretum land was rarely frequented, so that it appears unlikely that any Indian gardens grew there.

While the earlier Indians were living in the Arboretum area, the landscape and environment of the Boston area were somewhat different from what we know. The sea-level was many feet lower when the first campers came, and it continued to rise toward its present height as the last of the continental glaciers



*Figure II Bussey Brook Valley in the Arnold Arboretum, 1908. Photo: T. E. Marr.*

melted, far to the north (Kaye & Barghoorn 1964). In the third millennium B.C., a large intertidal fishweir was constructed by the Indians on the mudflats of Back Bay, 20 feet below the tidal zone of modern Boston (Johnson 1949; Byers 1959:242). As the sea rose and buried the Back Bay weir, the mouth of the Muddy River became brackish and tidal. By the time the Indians gave up living at the Arboretum, the intertidal zone was far up the Charles River valley, just below its modern location at the Watertown bridge (Dincauze 1968:9).

Studies of old pollen deposits in southern New England have shown that during the second and third millennia B.C. the

deciduous forest composition was like that now found only south of the region, with a greater representation of hickories than in the forests which stood here in historic times (Davis 1965). Interpretation of this evidence is still debated, but it appears justifiable to see this period as a time of climatic amelioration, warmer and perhaps somewhat drier than the present average (Sears 1963). The abandonment of habitation in the Arboretum occurred at about the same time as the establishment of the modern forest association, which may indicate some deterioration of climate. Perhaps harsher winters forced the Indians to seek more shelter than the Arboretum sites offered. Deeper snows may have made this rough country inaccessible in winter. Whatever the reason for the change, abandonment of upland campsites at this same time has been noted elsewhere. Several sites in the Charles River basin show use almost continuously to 1000 B.C. and none later.

For the two thousand years before the English came to cut hay, the Arboretum land was a swampy backwoods area, home to muskrats and other wild animals, attracting an occasional human hunter.

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#### *References Cited*

- Byers, D. S.  
 1959 The Eastern Archaic: Some Problems and Hypotheses. *American Antiquity*, vol. 24, no. 3, pp. 233-256.
- Davis, M. B.  
 1965 Phytogeography and Palynology of Northeastern United States. In *The Quaternary of the United States*, edited by H. E. Wright, Jr. and D. G. Frey. Princeton University Press, 1965.
- Dincauze, D. F.  
 1968 *Cremation Cemeteries in Eastern Massachusetts*. Papers of the Peabody Museum, vol. 59, no. 1. Cambridge.
- Johnson, F., ed.  
 1949 *The Boylston Street Fishweir, II*. Papers of the R. S. Peabody Foundation for Archaeology, vol. 4. Andover.

- Kaye, C. A. and E. S. Barghoorn  
1964 Late Quaternary sea-level change and crustal rise at Boston, Massachusetts, with notes on the autocompaction of peat. *Geological Society of America, Bulletin*, vol. 75, pp. 63-80.
- Palmer, E. J.  
1934 Indian Relics of the Arnold Arboretum. *Arnold Arboretum Bulletin of Popular Information*, 4th series, vol. 2, no. 12, pp. 61-68. Cambridge.
- Ralph, E. K. and H. N. Michael  
1967 Problems of the Radiocarbon Calendar. *Archaeometry*, vol. 10, pp. 3-11. Oxford.
- Ritchie, W. A.  
1969 *The Archaeology of Martha's Vineyard: a framework for the prehistory of southern New England*. Natural History Press, New York.  
1961 *A Typology and Nomenclature for New York Projectile Points*. New York State Museum and Science Service Bulletin no. 384. Albany.
- Robbins, M.  
1968 *An Archaic Ceremonial Complex at Assawompsett*. Massachusetts Archaeological Society, Special Publication. Attleboro.
- Sears, P. B.  
1963 Vegetation, Climate, and Coastal Submergence in Connecticut. *Science* vol. 140 no. 3562, pp. 59-60.