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CONTENTS

THE GREEN HILL PAPERS: PART TWO

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THE GREEN HILL PAPERS: PART TWO

EDITOR'S NOTE

The articles in this issue of the *Bulletin* complete the preliminary report on the Green Hill site in Milton and Canton which was begun in the previous issue (Vol.41 no. 1). Part One carries the full list of References Cited, Figures 1-5, and Tables 1-4. All locational and environmental data appear in Part One. Part Two reports on the cultural data and concludes with a Summary and Interpretation of the site.

Additional excavations have been undertaken at the site since this report was compiled. In addition, a fuller study of the collections has been initiated under the general direction of Dr. Charles Nelson of the University of Massachusetts at Boston. Changes in interpretations may be expected as the study develops.

Dena F. Dincauze

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FEATURES AT THE BASE OF GREEN HILL

John Rosser

A total of 262 five-foot squares were excavated at the western base of Green Hill from 1966-72 (Figs. 2-3 in Part I, 41(1)). This compares with only 10 features excavated elsewhere at the site and justifies defining the base of the hill as an area of focus for this report. How representative data from this one area are for the site as a whole is not known. From the 262 squares at the base of the hill (79 from the 1966-72 grid, 183 from the 1972-76 grid) there is information on 126 features, including 60 charcoal refuse pits, one workshop refuse pit, 22 soil stains, 4 hearths, 3 stone piles, 35 post molds and one modern intrusion (Fea. 72). These features were excavated in subsoil, the depth of which varies at the base of the hill (Fig. 7, lower right), but averages about 16 inches (40.6 cm). The average number of features per square at the base of the hill was 0.5, compared to 0.1 per square for the nearby Ponkapoag site, M-35-7 (Martin 1977:56-58). The 0.5 features per square average (and 2.5 artifacts per square), however, is misleading since within the 1966-72 grid feature recovery was lower (0.2 per square) but artifact recovery higher (3.4 per square). Feature density varies even in this limited area of the site.

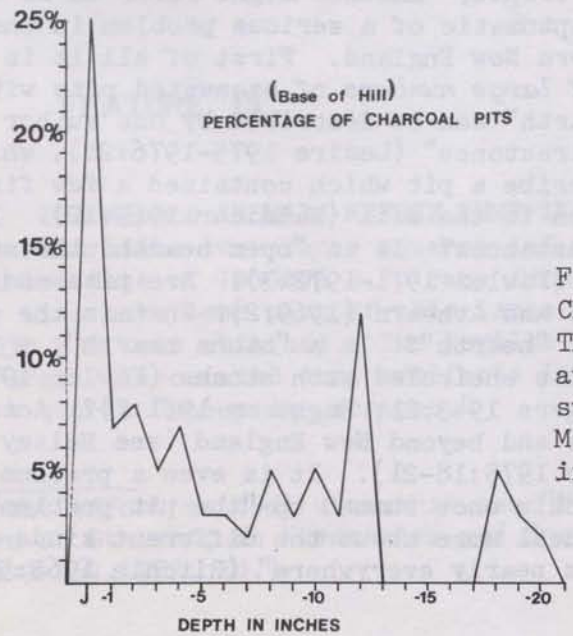


Figure 6. GRAPH SHOWING PERCENTAGE OF CHARCOAL REFUSE PITS AT VARIOUS DEPTHS THE BASE OF GREEN HILL. The sudden increase at 12 inches (30.5 cm) below the topsoil-subsoil junction (J) is partly due to the Middle Archaic refuse dump (Fea. 13, etc.) in Section A.

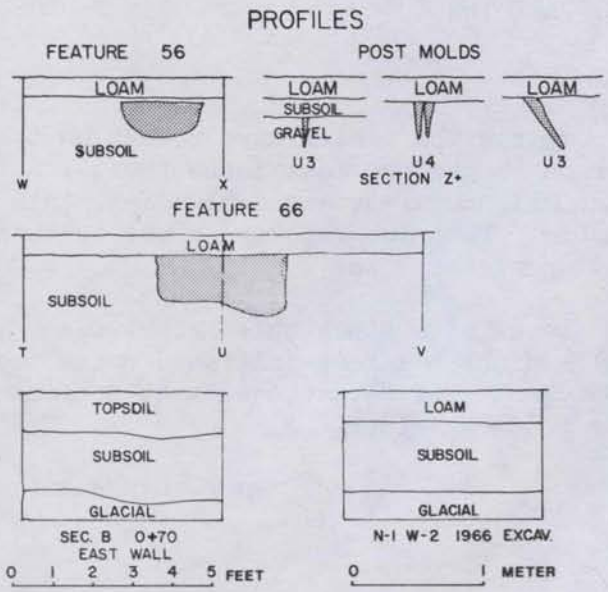
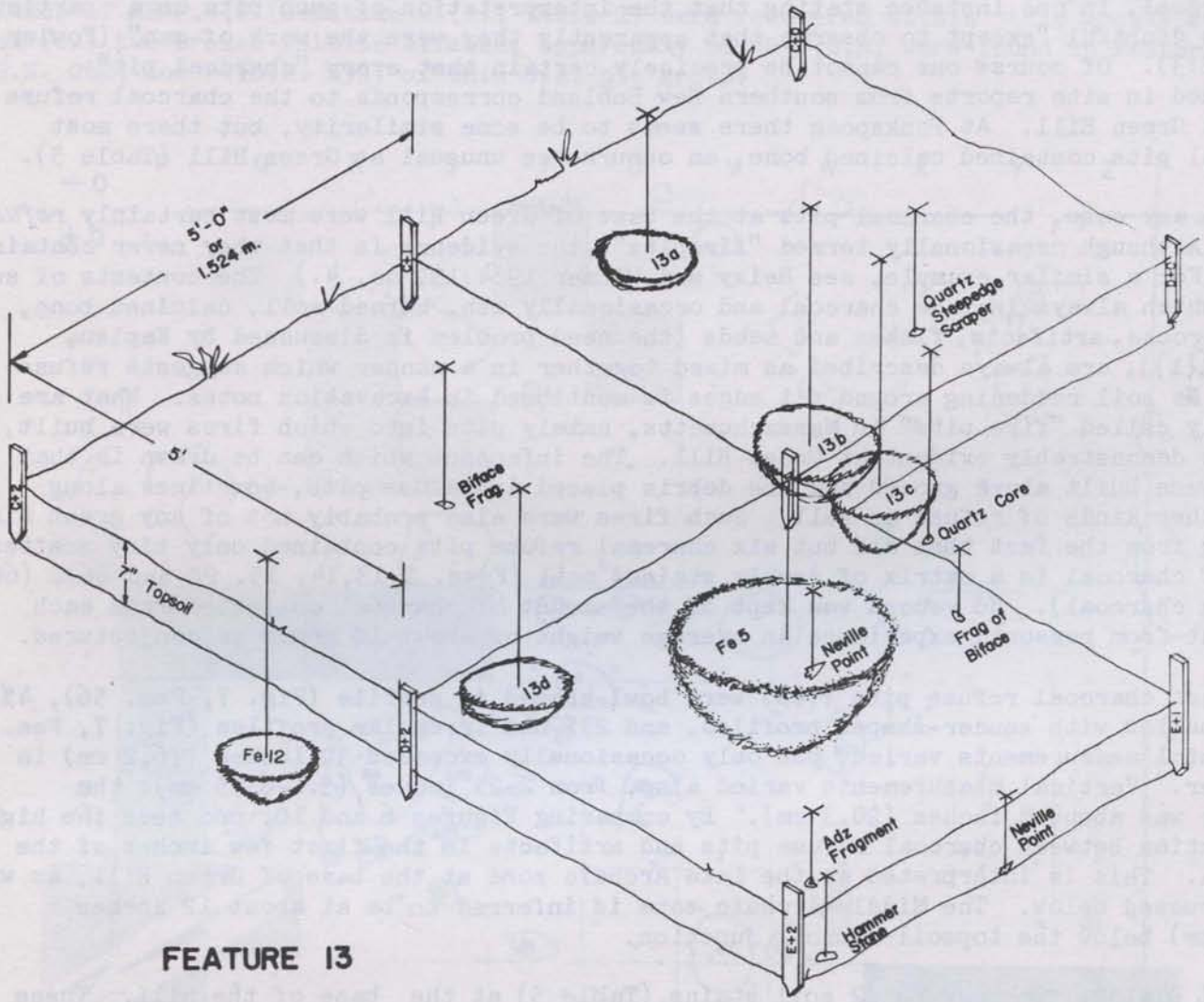


Figure 7. SELECTED PROFILES. Charcoal refuse pits (upper left), post molds (upper right), and the walls of squares. The wall profiles in the lower left are from 1975 test squares in the lower field; those in the lower right are from the base of Green Hill.

Any body of archaeological data contains problems and deficiencies, usually glossed over in site reports. Two problems are worth mentioning with respect to Green Hill feature interpretation, since they affected the conclusions of this report. The first was what generally can be described as a lack of overall data integration as the excavation expanded after 1972. One sympton of this problem was the occasional failure of excavators to note what was recovered in adjacent squares (which may have been excavated weeks or months before). The result was a few incompletely excavated features (Feas. 73, 83 and 91; locations on Table 5) and in one instance a disturbance around peg Q +3 in Section Z (Fig. 9) was recorded as three separate features (Feas. 39, 82 and 99). Also related is the fact that there is no information for 11 features from the base of the hill (Feas. 10, 22, 24, 25, 28, 33, 37, 52, 53, 54, 58). Feature 28 seems to have been a duplicate number given to Feature 27. The information about Feature 10 was lost by the excavator. The integration problem was not the norm at Green Hill and should not be exaggerated, but it was a problem.

The second problem affecting interpretations in this report goes well beyond the Green Hill site. Stated simply it is the dearth of a reliable classification of feature types and descriptions thereof for prehistoric features in southern New England. What one excavator at Green Hill might call a "firepit," another might refer to as a "charcoal pit", even a hearth. This is symptomatic of a serious problem in the literature about prehistoric pits in southern New England. First of all it is not uncommon to find in site reports mention of *large numbers* of excavated pits with virtually no supplied detail. An "open hearth" can be described by one author as having been composed "of solid charcoal without firestones" (Lemire 1975-1976:21), while the same term is used by another author to describe a pit which contained a few fire-burned stones, much charcoal and heat discoloration in the soil (Waddicor 1969:12). Is the same type of pit being described in both instances? Is an "open hearth" the same as a "fire pit"? Can a hearth "form" a firepit (Fowler 1971-1972:3)? Are pits and hearths distinct (as could be inferred from Staples and Athearn (1969:2)? What is the clear distinction between an "open hearth" and a "hearth"? Is a "stone hearth", a term in one instance used to describe small fire pits encircled with stones (Fowler 1973:17), the same as the older term "fireplace" (Rogers 1943:21; Engstrom 1951:7)? Actually this problem goes beyond descriptive labels and beyond New England (see Heisey and Witmer 1964:13-15; Binford 1972:125; Kinsey 1975:18-21). It is even a problem in the Southwest (Martin and Plog 1973:232). Ritchie once summed up "the pit problem" in a terse sentence: "We need to learn a great deal more about the different kinds of pits which occur on Indian sites of various ages nearly everywhere" (Ritchie 1965:59-60).

Among the first steps toward a solution are better defined classifications and frank discussion about the problems encountered in the excavation and interpretation of pits (e.g. Robbins 1944:18).* At any rate, the author devised a classification for Green Hill after compiling and comparing the data summarized in Table 5. The classification is a simple one: A. Refuse Pits (charcoal refuse pits, soil stains and a single workshop refuse pit); B. Hearths; C. Post Molds;and D. Small Stone Piles. Each of these categories is discussed, after which important single features and groups of features are treated. Finally, there is brief mention of the 10 features excavated in site areas other than the base of Green Hill.



FEATURE 13

Figure 8. THE MIDDLE ARCHAIC REFUSE DUMP IN SECTION A (see Fig. 3). This consisted of a soil discoloration over three squares and smaller concentrations (13*a-d*) of charcoal. A radiocarbon date of 7950±95 B.P. came from 13*c*. Features 5 and 12, charcoal refuse pits, may also have been part of this large dump area. From Feature 5 a radiocarbon date of 7875±230 B.P. was obtained. The Neville points were found adjacent to, but not within the dump area. Associated dump artifacts included a broken felsite biface, a quartz core and a quartz "steepedge scraper."

*(For recent effort to deal with this see "Pits in the Northeast: A Typological Analysis" by Marilyn C. Stewart, in *Researches and Transactions of the New York State Arch. Assn.* XVII(1):149-164,1977. Ed.)

A. REFUSE PITS

1. CHARCOAL REFUSE PITS. There were 84 refuse pits reported for the base of the hill (60 charcoal pits, 22 soil stains, one workshop refuse pit and one modern refuse pit). The majority (71%) were of a variety which is common at the Ponkapoag site and there termed "charcoal pits" (Martin 1977:57). At Ponkapoag no interpretation was offered as to the function of these pits. The first use of the term "charcoal pit" in Massachusetts seems to have been by Bullen and Hofmann(1944:22) to denote shallow pits filled with charcoal and occasionally with fire-burned rock, charred twigs and flakes as well. William S. Fowler used the term in reports to describe pits filled with small fragments of charcoal, in one instance stating that the interpretation of such pits on a particular site is doubtful "except to observe that apparently they were the work of man" (Fowler 1971-72:3). Of course one cannot be precisely certain that every "charcoal pit" mentioned in site reports from southern New Enbland corresponds to the charcoal refuse pits at Green Hill. At Ponkapoag there seems to be some similarity, but there most charcoal pits contained calcined bone, an occurrence unusual at Green Hill (Table 5).

In any case, the charcoal pits at the base of Green Hill were most certainly *refuse pits*. Although occasionally termed "firepits", the evidence is that they never contained fires.(For a similar example, see Heisy and Witmer 1964:13, no. 4.) The contents of such pits, which always include charcoal and occasionally ash, burned soil, calcined bone, burned rocks, artifacts, flakes and seeds (the seed problem is discussed by Kaplan, (Vol.41(1)), are always described as mixed together in a manner which suggests refuse pits. No soil reddening around pit edges is mentioned in excavation notes. What are commonly called "fire pits" in Massachusetts, namely pits into which fires were built, are not demonstrably evident at Green Hill. The inference which can be drawn is that fires were built above ground and the debris placed in refuse pits, sometimes along with other kinds of refuse as well. Such fires were also probably not of any great size, judging from the fact that all but six charcoal refuse pits contained only tiny scattered bits of charcoal in a matrix of darkly stained soil (Feas. 5,13,14, 15, 20 and 66), (66 had copious charcoal). No record was kept of the amount of charcoal collected from each pit, but from personal experience an average weight of about 10 grams is conjectured.

Most charcoal refuse pits (70%) were bowl-shaped in profile (Fig. 7, Fea. 56), 4% were shallow with saucer-shaped profiles, and 23% had irregular profiles (Fig. 7, Fea. 66). Horizontal measurements varied, but only occasionally exceeded 30 inches (76,2 cm) in diameter. Vertical measurements varied also, from 2-25 inches (5.1-63.5 cm): the average was about 8 inches (20.3 cm). By comparing Figures 6 and 10, one sees the high correlation between charcoal refuse pits and artifacts in the first few inches of the subsoil. This is interpreted as the Late Archaic zone at the base of Green Hill, as will be discussed below. The Middle Archaic zone is inferred to be at about 12 inches (30.5 cm) below the topsoil-subsoil junction.

2. SOIL STAINS. There were 22 soil stains (Table 5) at the base of the hill. These features have shapes and sizes which correspond to charcoal refuse pits. What is lacking, however, is charcoal. All of these stains had a soil matrix which was occasionally characterized as "greasy", and which always appeared a darker brown, in contrast to the lighter surrounding subsoil. Such stains are inferred to have been refuse pits on the following evidence. Two stains (Feas.31, 80) contained refuse in the form of on artifacts, flakes, and burned rocks. Three stains (Feas. 31, 80, 81) were part of a Late Archaic oval shaped arrangement of mostly charcoal refuse pits in Sec. Z (Fig. 9); presumably the three stains may have served the same refuse function. A parallel example is found in Sec. A (Fig. 8) where a stain (Fea. 12) was also a part of a large Middle Archaic refuse disturbance. It is conjectured that stains may have been filled with organic wastes, a hypothesis which should be tested in the future by careful flotation analysis (not used thus far on stains at Green Hill).

3. A WORKSHOP REFUSE PIT (FEATURE 17). This is not a refuse pit from a major workshop. The refuse probably comes from a single core. Feature 17 (Fig. 9) was densely packed with 640 dark grey felsite flakes and 10 broken bifaces of the same material (DeNatale's RR-F,G,H; see Tables 2 & 3, Fig. 16). Immediately adjacent to Feature 17 were another 184 felsite flakes of other types and seven additional artifacts. No charcoal was found in this pit. Feature 17 is believed to belong to a Late Archaic oval shaped pit group, soon to be described. This inferred relationship is based on the following evidence: (a.) Feature 17 first appeared at junction (as did most pits in the oval shaped group; see Fig. 9); (b.) there was an arc of dark greasy soil (in rows W, X and Y, +0 to +5) which encompassed both Feature 17 and part of the southwest edge of the pit group. Flakes of RR-F,G,H (DeNatale 41(1), Table 2) were recovered within this greasy soil arc; and (c.) two broken felsite bifaces, apparently of RR-F,G,H, were found in Features 32 (G.H. 262) and 64(G.H. 299) of this oval pit group.

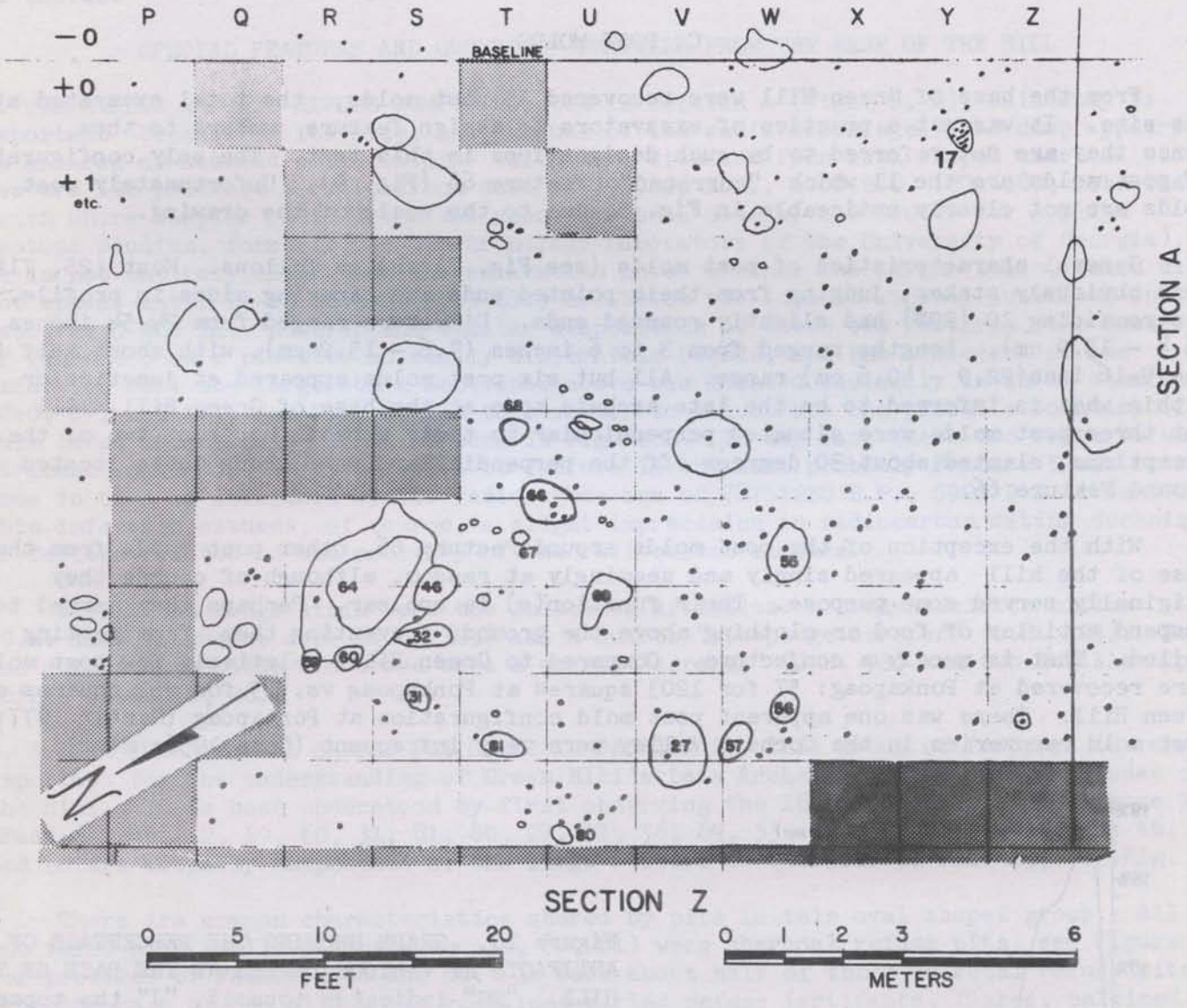


Figure 9. OVAL SHAPED PIT GROUP IN SECTION Z+ AT THE BASE OF GREEN HILL. The components of this group are numbered. Feature 66 yielded a radiocarbon date of 4390±70 B.P. This feature was surrounded by eleven post molds. Nearby Feature 17, a workshop refuse pit (upper right, square Y+0) may have been coeval with the oval shaped pit group.

B. HEARTHS

All four of these presumed hearths (Feas. 15, 26, 34, 104; see Table 5) contained fire-burned rock and charcoal. So did charcoal refuse pits, but the difference is that the fire-burned rocks of these four hearths were in purposeful configurations. Features 15 and 104 consisted of a circular or oval layer of fire-burned rocks with charcoal between the rocks. Feature 26 was a small pit, the sides of which were lined with fire-burned rocks; the pit contained charcoal. Feature 34 was a similar pit, except that fire-burned rocks lined only the upper edge of the pit circumference.

Hearths, and refuse pits for hearth debris,are not always easily distinguished (Robbins 1944;18; Robbins 1967:41). Hearths, however, should show a purposeful arrangement of rocks and evidence of heat in the surrounding soil. This latter characteristic was not reported by excavators at Green Hill, nor was the presence of ash noted in any of these features, hence the earlier reference to them as "presumed hearths".

C. POST MOLDS

From the base of Green Hill were recovered 35 post molds, the total excavated at the site. It was not a practice of excavators to assign feature numbers to them, hence they are not referred to by such designations in this text. The only configuration of post molds are the 11 which "surround" Feature 66 (Fig. 9). Unfortunately post molds are not clearly noticeable in Fig. 3, due to the scale of the drawing.

General characteristics of post molds (see Fig. 7) are as follows. Most (25, 71%) were obviously stakes, judging from their pointed ends and tapering sides in profile. The remaining 10 (29%) had slightly rounded ends. Diameters ranged from 2½-5½ inches (6.4 - 13.9 cm). Lengths ranged from 3 to 6 inches (7.6 - 15.2 cm), with about half in the 9-16 inch(22.9 - 40.6 cm) range. All but six post molds appeared at junction or within what is inferred to be the Late Archaic zone at the base of Green Hill. All but three post molds were situated perpendicular to their subsoil horizon; two of the exceptions, slanted about 30 degrees off the perpendicular, were among those located around Feature 66.

With the exception of the post molds around Feature 66, other post molds from the base of the hill appeared singly and seemingly at random, although of course they originally served some purpose. Their function(s) is unclear. Perhaps they served to suspend articles of food or clothing above the ground, preventing them from getting soiled. That is merely a conjecture. Compared to Green Hill, relatively few post molds were recovered at Ponkapoag: 57 for 1203 squares at Ponkapoag vs. 35 for 262 squares at Green Hill. There was one apparent post mold configuration at Ponkapoag (Martin 1977:58). Post mold recoveries in the Cochato Valley were very infrequent (Cote 1958: 24.27).

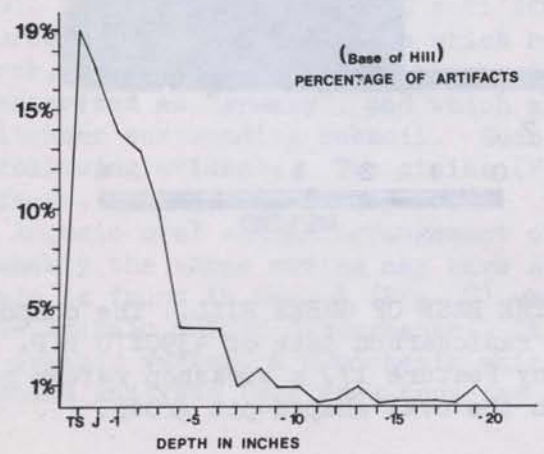


Figure 10. GRAPH SHOWING THE PERCENTAGE OF ARTIFACTS AT VARIOUS DEPTHS AT THE BASE OF THE HILL. "TS" indicates topsoil, "J" the topsoil-subsoil junction. Notice that most artifacts were recovered in and around the junction.

D. SMALL STONE PILES

These are most curious features at Green Hill, the function of which is unknown. One excavator conjectured that they might have been small piles of "pot-boilers". There were three such features (110, 111 and 112), all from the 1966-72 grid (Table 5) and unfortunately not easily discerned in Figure 3. The diameters of these small piles are similar, from 11-16 inches (27.9-40.6 cm). Two were pyramidal stone piles located next to each other, apparently in shallow depressions in the soil. The stones in each were the size of baseballs. The other pile was near the first two and consisted of a bowl shaped pit into which 27 smooth stones, each rounded and about 2-3 inches (5.1-7.6 cm) in diameter, had been placed. Bullen reported two rock piles in northeastern Massachusetts (Bullen 1949:108-109) which he conjectured might have been "potboilers", but the context was different from that of Green Hill. Bullen's rock piles consisted of broken rocks and pebbles over an area 38 x 80 cm (about 15 x 32 inches) in a layer of shells.

SPECIAL FEATURES AND GROUPS OF FEATURES FROM THE BASE OF THE HILL

A. THE MIDDLE ARCHAIC REFUSE DUMP. Located in Section A (Figs. 3, 8), this dump is important because of its size, and because of its radiocarbon age. The dump appeared as an area of stained soil, within which were situated four bowl shaped charcoal pits. Feature 13c produced a radiocarbon date of 7950±95 B.P., 6000 B.C. (UGa-580; note that all South Shore Chapter radiocarbon analyses have been done by the Center for Applied Isotope Studies, formerly the Geochronology Laboratory of the University of Georgia). It is not entirely clear from the excavation notes whether the larger stain, which did not appear until 12-15 inches (30.5-63.5 cm) below the topsoil-subsoil junction, included Features 5 and 12. However the similar disposition of these two features, the description of Feature 5 as a pit with no easily discernible bounds, and the statement of one excavator that the large stain mentioned above was located basically in three squares (C+0, C+1 and D+1; see Fig. 8) led this writer to illustrate the probable boundary of this large encompassing stain as seen in Figure 3. In any case these two features were at least contiguous in disposition to Feature 13 and most probably Feature 5 was coterminous in time as indicated by its radiocarbon age of 7875±230 B.P., 5925 B.C. (UGa-500). This inference assumes, of course, a slight imprecision in radiocarbon dating techniques or factors related to the recovery of the radiocarbon samples.

Within the large stain were the following artifacts: a broken felsite biface (G.H. 124), a quartz core (G.H. 105) and a quartz "steepedge scraper" (G.H. 123). Near the dump and possibly disturbed were a quartz "scraper" (G.H. 93) and two Neville type points (G.H. 10, 36).

B. A LATE ARCHAIC OVAL SHAPED PIT GROUP IN SECTION Z. This group of features is very important for the understanding of Green Hill's Late Archaic occupation at the base of the hill. It is best understood by first observing the 16 component pits in Figure 9 (Feas.64, 46, 32, 59, 60, 31, 81, 80, 27, 57, 56, 69, 55, 66, 67, 68). Features 46, 59 and 60 are actually components of the large Feature 64 (similar to Fea. 13; see Fig. 8).

There are common characteristics shared by pits in this oval shaped group. All but three pits (soil stains: Feas. 31, 80, 81) were charcoal refuse pits; see Figure 7 for profiles of Features 56 and 66. In fact about half of those charcoal refuse pits from the base of the hill which contained varied refuse (artifacts, flakes, calcined bone, etc.) were from this pit group. Two of the three soil stains (Feas. 31, 80) also contained such refuse, unusual for soil stains at Green Hill. Most of the pits appeared at the topsoil-subsoil junction, except for four which appeared 1-2 inches (2.54-5.1 cm) below (see Table 10). All of the pits had an average vertical depth of 12 inches (30.5 cm), as opposed to a 7-8 inch (17.8-20.3 cm) average for charcoal refuse pits elsewhere at the base of the hill. Discounting the workshop refuse pit (Fea. 17)

mentioned earlier, only seven pits at the base of the hill contained artifacts. Six of these seven pits were in the oval shaped group (Table 5).

1. FEATURE 64 is one of two important charcoal refuse pits within this oval shaped group. Situated around peg S+6 in Sec. Z (Fig. 9), Feature 64 was a massive disturbance over four squares. It consisted of an inner core of upchurned kame gravel and sand surrounded by an irregular ring of burned reddish soil, throughout scattered with tiny charcoal fragments. Three charcoal refuse pits (Feas. 46, 59, 60) were located within Feature 64's outer ring. Since these charcoal refuse pits were not disturbed, it is apparent that the larger Feature 64 was created first. In fact it appears that first the outer ring was dug, the soil and finally kame gravel and sand being heaped up in the center of the ring. When completed the outer ring served as a refuse pit for charcoal and other debris.

2. FEATURE 66 is another important charcoal refuse pit from the oval shaped pit group (see Figs. 7, 9). It produced a radiocarbon date of 4390±70 B.P., 2440 B.C. (UGa-1236). Of the 15 post molds within the oval shaped pit group, 11 of them "encircled" Feature 66 (Fig. 9), including two pairs of double post molds (as in Fig. 7). These post molds appeared at junction, as did Feature 66 (Table 5). The post molds indicate "posts" which supported *something*, perhaps a small temporary shelter for one or two people (as the brush shelter in Fowler 1973:16, Fig. 15). Since there is no evidence that Feature 66 contained a fire, some interesting possibilities are eliminated.

It would be easy to associate Feature 66 and with it the entire pit group with the Brewerton tradition. The radiocarbon date for Feature 66 is suggestive of that, since at the Neville site all the Brewerton points lay at or below the level of a 4390±180 B.P. charcoal sample (Dincauze 1976:126). At Hornblower II on Martha's Vineyard, the Brewerton tradition was dated at 4220 B.P. (Ritchie 1969:38). Two Brewerton-eared points (G.H. 353, 411) were found adjacent to Feature 66. On the other hand a Corner-removed #7 point (G.H. 409) was found "on top" of Feature 66. A presumed Corner-removed #7 point (G.H. 454) was also found in Feature 55 of this oval shaped pit group, and other such Corner-removed points (Fowler 1963; Rivard 1976), (G.H. 237, 238, 459) were found near other pits in this group. Certainly a Brewerton tradition for Feature 66, and the entire pit group which it dates, is feasible. What do the other points mean? The associated Corner-removed points need further study, partly because such types are not easily identified morphologically at Green Hill (or Ponkapoag; see Martin 1977:61), also because they do not appear to the author to be Corner-removed points of the Susquehanna tradition. In any case, the radiocarbon date for Feature 66 is too early for that tradition in New England (Dincauze 1974:49). Might not they be displaced Neville-type points?

C. A MODERN (POST-1950 A.D.) REFUSE PIT IN SECTION Z. Feature 72 (see Fig. 9, the large feature in S+3) was a large stain in the subsoil which extended several inches below into the kame gravel. The pit was first observed at 7 inches (17.8 cm) below the topsoil-subsoil junction, but it seems likely to this writer, who admittedly did not excavate the feature, that the pit must have originated in the topsoil. At the bottom of the pit were some plant remains, including some charred twigs. As the pit was excavated it appeared to be the remains of a basket, which caused some excitement. The charred twigs were taken for a radiocarbon sample; other remains were sent to Professor Lawrence Kaplan for analysis. Professor Kaplan reported (1976, personal communication) that the sample sent him contained the following plant components: the root of a coniferous tree, the twigs of a broadleaf tree (possibly birch and probably cut sometime in the growing season), the root of a deciduous tree in shrub and some tufted grass. The radiocarbon sample (UGa-1237), which no doubt had been hastily submitted, prove to be "modern (post 1950 A.D.)."

TABLE 5. PITS AT THE BASE OF GREEN HILL

Feature No.	Grid Loc.	Dim. (in.)	Dim. (cm)	Vert. Loc. of Pit Top (in.)	Vert. Loc. of Pit Top (cm)	Stained Soil	Charcoal	Ash	Burned Rock	Unburned Rock	Flakes	Artifacts	Calcined Bone	Burned Soil	INTERPRETATION
1	Sec. A/D+1	20 X 26 X 18	50.8 X 66 X 45.7	12 below J	30.5 below J	X	X								CP
2	Sec. A/A+0	11 X 11 X 7	27.9 X 27.9 X 17.8	2 below J	5.1 below J	X	X								CP
3	Sec. A/A+2	18 X 18 X 8	45.7 X 45.7 X 20.3	18 below J	45.7 below J	X	X				X				CP
4	Sec. A/B+4	15 X 18 X 11	38.1 X 45.7 X 27.9	11 below J	27.9 below J	X	X	X			X				CP
5	Sec. A/D+1	20 X 24 X 15	50.8 X 61.0 X 38.1	12 below J	30.5 below J	X	X								CP
6	Sec. A/B+2	12 X 12 X 2	30.5 X 30.5 X 5.1	12 below J	30.5 below J	X	X								CP
7	Sec. A/D+3	20 X 33 X 22	50.8 X 83.8 X 55.9	6 below J	15.2 below J	X	X								CP
8	Sec. A/C+3 C+4	36 X 41 X 10	91.4 X 104.1 X 25.4	AT J	AT J	X	X		X						CP
9	Sec. A/B+1	14 X 14 X 8	35.6 X 35.6 X 20.3	20 below J	50.8 below J	X	X								CP
11	Sec. A/D+4	14 X 14 X 7	35.6 X 35.6 X 17.8	8 below J	20.3 below J	X	X								CP
12	Sec. A/C+1	8 X 9 X 6	20.3 X 22.9 X 15.2	18 below J	45.7 below J	X	X								S
13	Sec. A/B+0 C+0	60 X 72? X 20?	152.4 X 182.8 X 50.8	12-25 below J	30.5-63.5 below J	X	X								CP
14	Sec. A/I+0	14 X 27 X 10	35.6 X 68.6 X 25.4	1 below J	2.54 below J	X	X		X						CP
15	Sec. Z/Z+2 A/A+2	22 X 30 X 2	55.9 X 76.2 X 5.1	AT J	AT J	X	X		X						H
16	Sec. A/G+3 G+4	38 X 50 X 22	96.5 X 127. X 55.9	4 below J	10.2 below J	X	X	X						X	CP
17	Sec. Z/Y+0 Y+1	16 X 25 X 15	40.6 X 63.5 X 38.1	AT J	AT J						X	X			W
18	Sec. Z/Y+1 Y+2	35 X 44 X 11	89.0 X 111.8 X 27.9	3 below J	7.6 below J	X	X								CP
19	Sec. A/F+3	19 X 20 X 6	48.3 X 50.8 X 15.2	13 below J	33.0 below J	X	X								S
20	Sec. A/A+3 A+4	60 X 92 X 4	152.4 X 233.7 X 10.2	AT J	AT J	X	X			X		X			CP
21	Sec. A/E+3	20 X 20 X 6	50.8 X 50.8 X 15.2	10 below J	25.4 below J	X	X								CP
23	Sec. A/H+0 H+1	16 X 17 X 8	40.6 X 43.2 X 20.3	9 below J	22.9 Below J	X	X								S
26	Sec. Z/Z+7	11 X 11 X 7	27.9 X 27.9 X 17.8	4 below J	10.2 below J	X	X		X			X			H
27	Sec. Z/V+7 V+8	37 X 48 X 12	94.0 X 121.9 X 30.5	AT J	AT J	X	X		X		X				CP
29	Sec. Z/V+4 W+4	40 X 52 X ?	102.0 X 132.1 X ?	7 below J	17.8 below J	X	X		X		X			X	CP
30	Sec. Z/X-1 A+0	24 X 42 X 24	61.0 X 106.7 X 61.0	3 below J	7.6 below J	X	X		X				X	X	CP
31	Sec. Z/S+7	16 X 19 X 4	40.6 X 48.3 X 10.2	AT J	AT J	X	X					X			S
32	Sec. Z/S+6	20 X 45 X 23	50.8 X 114.3 X 58.4	2 below J	5.1 below J	X	X				X	X			CP
34	Sec. Z/S+0	34 X 34 X 6	86.4 X 86.4 X 15.2	12 below J	30.5 below J	X	X			X					H
35	Sec. Z/U+4	11 X 16 X 6	27.9 X 40.6 X 15.2	12 below J	30.5 below J	X	X						X		CP
36	Sec. Z/R-1	10 X 10 X 8	25.4 X 25.4 X 20.3	AT J	AT J	X	X								CP
38	Sec. Z/V+0	21 X 27 X 16	53.3 X 68.6 X 40.6	3 below J	7.6 below J	X									S

TABLE 5 (continued)

Fea. No.	Grid Loc.	Dim. (in.)	Dim. (cm)	Vert. Loc. of Pit Top (in.)	Vert. Loc. of Pit Top (cm)	Stained Soil	Charcoal	Ash	Burned Rock	Unburned Rock	Flakes	Artifacts	Calcined Bone	Burned Soil	INTERPRETATION
39	Sec. Z/P+3	18 X 36 X 2	45.7 X 91.4 X 5.1	3 below J	7.6 below J	X									S
40	Sec. Z/T+1	9 X 9 X 3	22.9 X 22.9 X 7.6	12 below J	30.5 below J	X	X								CP
41	Sec. Z/U-1 V-1	40 X 44 X 25	101.6 X 111.8 X 63.5	AT J	AT J	X	X	X	X		X				CP
42	Sec. Z/W+1	26 X 26 X 8?	66.0 X 66.0 X 20.3	1 below J	2.5 below J	X									S
43	Sec. Z/S+1	43 X 60 X 19	109.2 X 152.4 X 48.3	5 below J	12.7 below J	X	X							X	CP
44	Sec. Z/Q+2 Q+3	18 X 21 X 3	45.7 X 53.3 X 7.6	19 below J	48.3 below J	X	X			X					CP
45	Sec. Z/W+1	27 X 42 X 7	68.6 X 106.7 X 17.8	15 below J	38.1 below J	X									S
46	Sec. Z/S+5 S+6	18 X 34 X 6	45.7 X 86.4 X 15.2	AT J	AT J	X	X		X		X				CP
47	Sec. Z/U-1 U-2	11 X 11 X 3	27.9 X 27.9 X 7.6	16 below J	40.6 below J	X									S
48	Sec. Z/T+2	7 X 8 X 2	17.8 X 20.3 X 5.1	10 below J	25.4 below J	X									S
49	Sec. Z/T+6	9 X 9 X 3	22.9 X 22.9 X 7.6	5 below J	12.7 below J	X									S
50	Sec. Z/N+4	14 X 20 X 2	35.6 X 50.8 X 5.1	18 below J	45.7 below J	X	X								CP
51	Sec. Z/N+4	12 X 12 X 1	30.5 X 30.5 X 2.5	16 below J	40.6 below J	X									S
55	Sec. Z/W+5	32 X 44 X 14	81.3 X 111.8 X 35.6	AT J	AT J	X	X		X		X	X			CP
56	Sec. Z/W+7	25 X 26 X 10	63.5 X 66.0 X 25.4	1 below J	2.5 below	X	X		X		X	X			CP
57	Sec. Z/W+7	19 X 33 X 6	48.3 X 83.8 X 15.2	AT J	AT J	X	X		X						CP
59	Sec. Z/R+6	16 X 16 X 9	40.6 X 40.6 X 22.9	AT J	AT J	X	X		X		X	X			CP
60	Sec. Z/R+6	22 X 23 X 12	55.9 X 58.4 X 30.5	AT J	AT J	X	X		X						CP
61	Sec. Z/Q+6	20 X 20 X 13	50.8 X 50.8 X 33.0	1 below J	2.5 below	X	X				X				CP
62	Sec. Z/Q+6	18 X 23 X 10	45.7 X 58.4 X 25.4	9 below J	22.9 below J	X	X				X				CP
63	Sec. Z/Q+6	21 X 26 X 10	53.3 X 66.0 X 25.4	10 below J	25.4 below J	X	X				X				CP
64	Sec. Z/R+6 R+7	ca. 96 X 132 X 22	243.8 X 335.3 X 55.9	AT J	AT J	X	X		X		X	X			CP
65	Sec. Z/U+4	11 X 16 X 6	27.9 X 40.6 X 15.2	12 below J	30.5 below J	X	X								CP

TABLE 5 (continued)

Feat. No.	Grid Loc.	Dim. (in.)	Dim. (cm)	Vert. Loc. of Pit Top (in.)	Vert. Loc. of Pit Top (cm)	Stained Soil	Charcoal	Ash	Burned Rock	Unburned Rock	Flakes	Artifacts	Calcined Bone	Burned Soil	INTERPRETATION
66	Sec. Z/T+4, U+4 T+5, U+5	31 X 39 X 18	78.7 X 99.1 X 45.7	AT J	AT J	X	X				X	X	X		CP
67	Sec. Z/T+5	10 X 10 X 15	25.4 X 25.4 X 38.1	2 below J	5.1 below J	X	X								CP
68	Sec. Z/T+4	17 X 20 X 11	43.2 X 50.8 X 27.9	AT J	AT J	X	X								CP
69	Sec. Z/U+5	33 X 53 X 20	83.8 X 134.6 X 50.8	AT J	AT J	X	X						X	X	CP
71	Sec. Z/P+2	10 X 27 X 4	25.4 X 68.6 X 10.2	11 below J	27.9 below J	X	X								CP
72	Sec. Z/S+3	48 X 54 X 24	121.9 X 137.2 X 60.1	7 below J	17.8 below J	X	X								CP
73	Sec. Z/O+2	25 X 33 X 7	63.5 X 83.8 X 17.8	10 below J	25.4 below J	X	X								CP
74	Sec. Z/M+6	45 X 45 X 11	114.3 X 114.3 X 27.9	3 below J	7.6 below J	X									S
75	Sec. Z/O+6	5 X 5 X 5	12.7 X 12.7 X 12.7	10 below J	25.4 below J	X									S
76	Sec. Z/O+6	9 X 20 X 3	22.9 X 50.8 X 7.6	4 below J	10.2 below J	X	X								CP
77	Sec. Z/O+6	7 X 14 X 2	17.8 X 35.6 X .5.1	4 below J	10.2 below J	X	X								CP
78	Sec. Z/M+1	10 X 25 X 10	25.4 X 63.5 X 25.4	8 below J	20.3 below J	X	X				X			X	CP
79	Sec. Z/S+0	12 X 40 X 9	30.5 X 101.6 X 22.9	9 below J	22.9 below J	X									S
80	Sec. Z/U+8	15 X 17 X 6	38.1 X 43.2 X 15.2	1 below J	2.5 below J	X			X		X				S
81	Sec. Z/T+7	20 X 30 X 13	53.3 X 76.2 X 33.0	AT J	AT J	X									S
82	Sec. Z/P+2	38 X 40 X 11	96.5 X 101.6 X 27.9	3 below J	7.6 below J	X	X								CP
83	Sec. Z/M+6	4 X 4 X 6	10.2 X 10.2 X 15.2	8 below J	20.3 below J	X									S
84	Sec. A/A-10	16 X 24 X 10	40.6 X 60.1 X 25.4	11 below J	27.9 below J	X									S
85	Sec. Z/K+3	17 X 23 X 6	43.2 X 58.4 X 15.2	4 below J	10.2 below J	X	X								CP
86	Sec. A/G+1, H+1 G+2, H+2	27 X 35 X 11	68.6 X 89.0 X 27.9	AT J	AT J	X	X		X		X			X	CP
87	Sec. Z/X-2	19 X 19 X 10	48.3 X 48.3 X 25.4	19 below J	48.3 below J	X	X		X		X			X	CP
90	Sec. Z/M-0	16 X ca. 16 X 29	40.6 X ca. 40.6 X 73.7	6 below J	15.2 below J	X									S

TABLE 5 (continued)

Fea No.	Grid Loc.	Dim. (in.)	Dim. (cm)	Vert. Loc. of Pit Top (inc.)	Vert. Loc. of Pit Top (cm)	Stained Soil	Charcoal	Ash	Burned Rock	Unburned Rock	Flakes	Artifacts	Calcined Bone	Burned Soil	INTERPRETATION
91	Sec. Z/M+7	21 X 27 X .9	53.3 X 68.6 X 22.9	1 below J	2.5 below J	X	X							X	CP
99	Sec. Z/Q+2	15 X 27 X 2	38.1 X 68.6 X 5.1	2 below J	5.1 below J	X									S
100	N2E3	9 X 9 X 2	22.9 X 22.9 X 5.1	2 below J	5.1 below J	X	X								CP
101	N4W1	2 X 3 X ?	5.1 X 7.6 X ?	9 below J	22.9 below J	X	X								CP
102	N4W2	2 X 2 X ?	5.1 X 5.1 X ?	6 below J	15.2 below J	X	X								CP
103	N2E3	8 X 8 X 4	20.3 X 20.3 X 10.2	8 below J	20.3 below J	X	X								CP
104	N1E2	22 X 22 X 1	55.9 X 55.9 X 2.5	AT J	AT J	X	X			X					H
105	N7E1	18 X 30 X 7	45.7 X 76.2 X 7.8	5 below J	12.7 below J	X	X								CP
106	N6W1	-- No Dimensional Data Taken----------				X	X								CP
107	S1E3	1 X 1 X ?	2.5 X 2.5 X ?	18 below J	45.7 below J	X	X								CP
108	S1W3	"a small stain"	----------	9 below J	22.9 below J.	X									S
109	N1W3	18 X 21 X 3	45.7 X 53.3 X 7.6	AT J	AT J	X	X								CP
110	N4E3	11 X 16 X ?	27.9 X 40.6 X 2.5?	10 below J	25.4 below J					X					SP
111	N2E4	14 X 14 X ?	35.6 X 35.6 X ?	9 below J	22.9 below J					X					SP
112	N2E4/N1E4	14 X 14 X ?	35.6 X 35.6 X ?	9 below J	22.9 below J					X					SP

ABBREVIATIONS USED.

CP = Charcoal refuse pit
S = Soil stain
H = Hearth
W = Workshop refuse pit
SP = Stone pile

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FEATURES FROM OTHER AREAS OF THE SITE

From 1974-1976 ten features were excavated on the top of Green Hill and in the lower field. The number and widely spaced locations of these features do not permit any serious comparison with the more numerous features from the base of the hill. However on the basis of very limited data it can be inferred that there was a significant Late Archaic occupation at the top of Green Hill and in the lower field.

Altogether 16 squares were excavated at the top of Green Hill. In Sec. A, A-28, a hearth (Fea. 88) was excavated. It was composed of rocks, about a third of which were fire-burned, lining a shallow pit. The hearth gave the appearance of having been disturbed after its use. Since there is no evidence of plowing at the top of Green Hill, it is possible that those who made the hearth disturbed it while putting the fire out. A small quantity of charcoal, less than 10 grams, was recovered along with two Side-notched felsite projectile points (G.H. 444, 445). Three other broken artifacts (G.H. 441, 442, 443), perhaps scrapers, were found adjacent to the hearth.

From the "northern" end of the hilltop in Sec. Y, a soil stain (Fea. 93) and two small charcoal refuse pits (Feas. 89, 92) were excavated. Most interesting, however, is Feature 70, a large refuse dump of diverse contents. Feature 70 was a disturbed area over two feet (61 cm) in diameter, containing smaller pockets of charcoal and intermixed burned rocks, flakes and artifacts. As with Features 13 and 64 at the base of the hill, this was a large pit into which various refuse was placed. Among the 14 artifacts associated with Feature 70 were some Late Archaic Small-triangular points (G.H. 520, 521, 523) and the Corner-removed #8 (Stark-type) point (G.H. 517), the latter presumably an intrusion. Several hundred quartz flakes were recovered from Feature 70 and examined by Michael Roberts (see below).

In 1975 five features were excavated from eight squares in the lower field (Sec. B; Fig. 2). Two of the features (95, 96) were charcoal refuse pits which do not merit further comment. In E+80 (originally called test square 9) was a bowl-shaped soil stain (Fea. 94). In 0+70, a shallow oval hearth was excavated, consisting of a dozen fire-burned rocks which had been placed on the ground without benefit of a pit. In square 0+80, a large refuse pit 30 inches (76.2 cm) in diameter and 2 feet (61 cm) deep, the largest found at Green Hill, also produced the most diverse collection of refuse: three clamshells, 153 red felsite flakes, three argillite flakes, 12 quartz flakes and two quartz Small-triangular #4 (Squibnocket) points.

Thus the lower field, like the top of Green Hill, was occupied in Late Archaic times. The only excavated evidence of a Middle Archaic occupation away from the base of Green Hill is the single intrusive Stark-type point, just referred to, from Feature 70 at the top of the hill.

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ARTIFACT STRATIGRAPHY AT THE BASE OF GREEN HILL

John Rosser, Andrew Rapoza and Paula Zannieri

A total of 1098 prehistoric artifacts were recovered from Green Hill from 1966-76. Surface collection accounted for 330. Excavated artifacts include 59 from the top of Green Hill (from 16 squares), 680 from the base of Green Hill (from 264 squares) and 29 from the lower field (from 8 squares). Figures 11-16 illustrate the artifact categories represented at Green Hill.

The presumed multiple occupancy of the base of Green Hill during Middle and Late Archaic times resulted in significant cultural intermixing, especially in Sec. Z (Figs. 2-3, 9) with its large number of Late Archaic pits. The following discussion is an attempt to make reasonable inferences about the vertical distribution in the soil of Middle and Late Archaic occupation zones, also the association of some artifact categories with those zones.

Figure 10 illustrates how artifact recovery at the base of the hill fell off dramatically at 6 inches (15.2 cm) below the topsoil-subsoil junction. The first 6 inches of subsoil is in fact inferred to be the Late Archaic zone on the basis of the following evidence. Most important is the oval shaped group of pits in Section Z (Fig. 9); Feature 66 of that group yielded a radiocarbon date of 4390±70 B.P., 2440 B.C. (UGa-1236), which effectively dates the entire pit group. Features and artifacts within this group appeared at junction or within 1-2 inches (2.5-5.1 cm) below. So at least for this particular group the "Late Archaic zone" was within the first 2 inches (5.1 cm) of the subsoil. Moreover this suggests that the great number of bifaces (50% of all excavated recoveries) should be associated with the Late Archaic period. Of the 32 bifaces found within the squares of this pit group, 21 were recovered in the first 2 inches (5.1 cm) of the subsoil, another 6 were found 3 inches (7.6 cm) below junction and below 6 inches (15.2 cm) only 3 bifaces were excavated.

This pit group demonstrates that the Late Archaic presence should be associated with the upper regions of the subsoil. Yet why should the first 6 inches (15.2 cm) be considered the Late Archaic occupation zone, and not the first 2 inches (5.1 cm)? A 6-inch (15.2 cm) zone for Late Archaic occupation seems more reasonable for several reasons. Late Archaic projectile points are rarely found (only 3 of 36) below this six-inch (15.2 cm) demarcation. Middle Archaic Stark-type and Neville-type points have often been disturbed. About half of them were recovered above the 6-inch (15.2 cm) depth, but half were *below* that point in the less disturbed 1966-72 grid (only 0.2 features per square in contrast to 0.5 per square in the 1972-76 grid). Furthermore, several deep Middle Archaic projectile points were found within the 10-16 inch (25.4-40.6 cm) range in the 1966-72 grid. In this less disturbed area all but two (of 22) Late Archaic point recoveries were within the first 6 inches (15.2 cm) of the subsoil. If one accepts the first 6 inches (15.2 cm) of subsoil at the base of the hill as the Late Archaic occupation zone, then it seems apparent that the great majority of artifact recoveries (see Fig. 10) are probably of Late Archaic manufacture. From within the first 6 inches (15.2 cm) of the subsoil were recovered 84% of all bifaces, 90% of all rubbing stones, 90% of all perforators, 84% of all hammerstones, and 84% of all presumed gouges (and about the same percentage for other heavy tools as well).

The Middle Archaic artifact inventory is more difficult to reconstruct in its entirety because it has been disturbed by occasional deep Late Archaic pits. Certainly it included Stark- and Neville-type projectile points. If one assumes that 12 inches (30.5 cm) below junction, which is where the Middle Archaic dump in Section A (Figs. 3,8) first appeared, is the beginning of the Middle Archaic occupation zone, then the following observations can be made. Below this 12-inch (30.5 cm) boundary there are mostly chipped stone bifaces and unifaces, including Stark and Neville points. Other artifacts include only a possible hammerstone (G.H. 400), and 2 heavy tool fragments (one in S1W1; also G.H. 315).

The following comments are offered on other aspects of lithic artifacts. The inference that stone tool manufacturing was important at the base of the hill, and indeed throughout the site, is suggested by recovered cores (G.H. 103, 105, 390, 493), blanks (G.H. 69, 94, 121) and utilized flakes (C-83-NG, one in N4W3, and G.H. 67, 96, 218, 286, 317, 323, 403, 424). Flaking debris was found in almost all excavated squares, although excavators did not tabulate it with regularity. There were flaking concentrations

Figure 11. BIFACES FROM THE BASE OF THE GREEN HILL. Nos. 1 and 2 ("ulu" preforms?) are of a dense, heavy "basaltic" felsite, used mostly for heavy tools. No. 3 is of sandstone. No. 4 is of chert, which is rare at Green Hill. The remainder are all of felsite and represent the most common artifact category at the base of the hill.

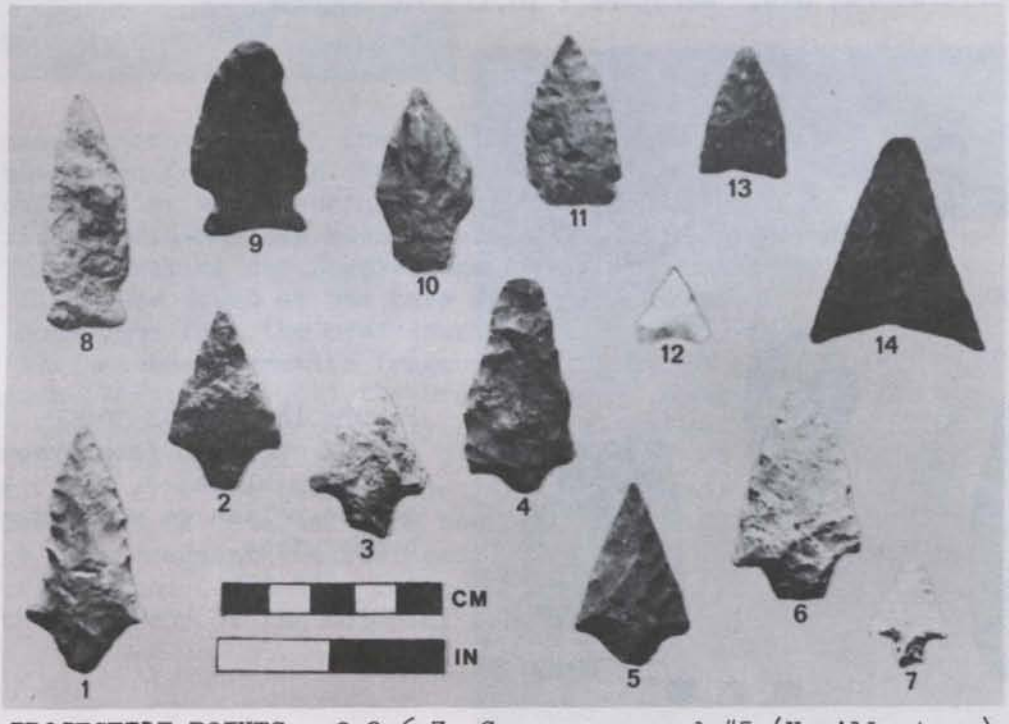

Figure 12. PROJECTILE POINTS. 2,3,6,7, Corner-removed #5 (Neville type); 1,4,5, Corner-removed #9 (Stark or Neville Variant types); 10, Tapered Stem ("Small Stem"); 12, Small Triangular #4; 13, Small Triangular #6; 8,11, Side-Notched; 9, Eared #1, of chert; 14, Large Triangular (Levanna-like). Morphological classification, which is what the above is based upon, is not always easy. This is especially true with the Corner-removed points from Green Hill, also from nearby Ponkapoag (M-35-7; see Martin 1977:61).

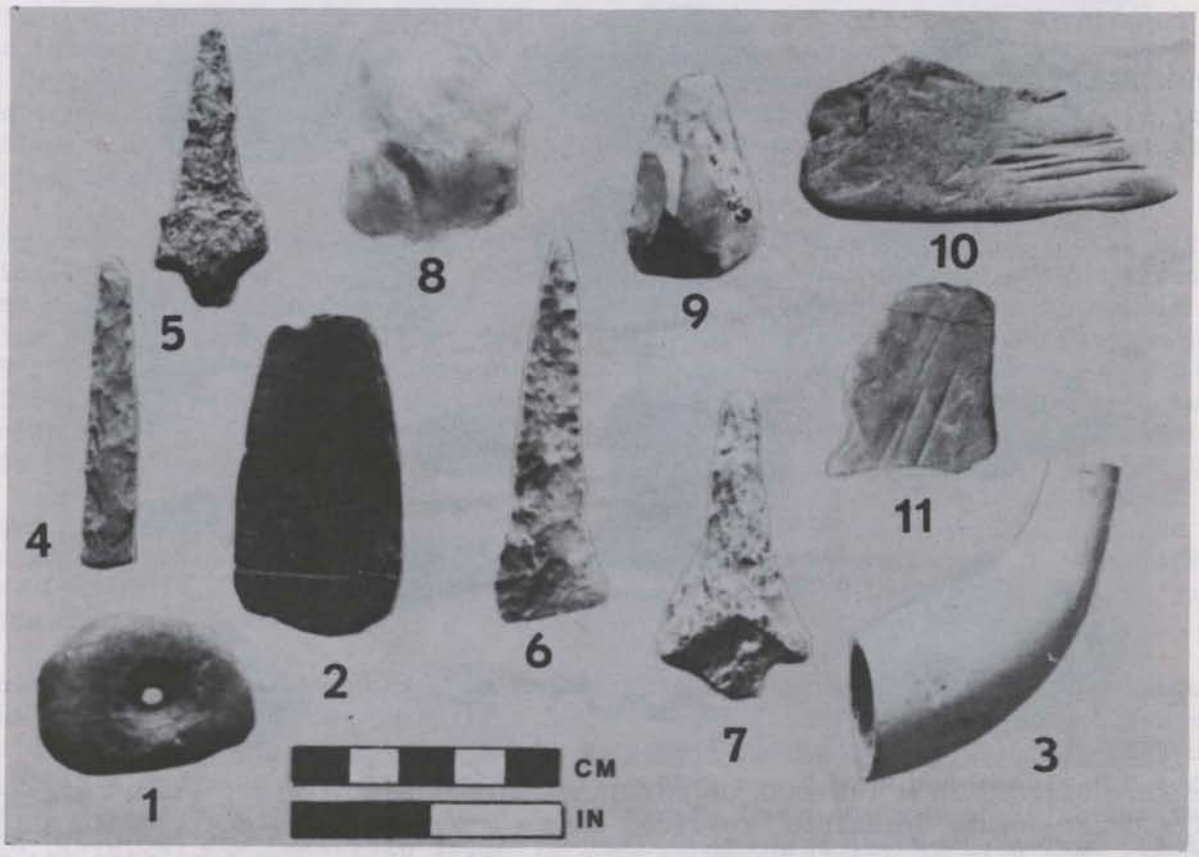

Figure 13. VARIOUS ARTIFACTS. 1, perforated weight; 2, pendant; 3, Colonial pipe bowl; 4-7, perforators; 8-9, "scrapers"; 10,11, rubbing stones.

Figure 14. HEAVY TOOLS. 1, pestle, one of only two from Green Hill; 2, gouge blank; 3, adze; 4, 5, celts, notice polish on worn edge; 6, hammerstone.

noted occasionally for some squares at the base of the hill and elsewhere. The few squares for which evidence is available indicate that the range of flakes per square is great, from less than 10 to several hundred. In Section B, 0+80 in the lower field, for example, there was a concentration of 172 red felsite flakes from a large refuse pit (Fea. 98). Other refuse pits with flake concentrations are Features 17 and 70, already described. The Blue Hills locale is well known, of course, for its aboriginal lithic sources (Dincauze 1974:56; Bowman and Zeoli 1977; DeNatale Vol. 41(1)).

There are some additional interesting data about bifaces at the base of the hill. Biface blanks there accounted for 50% of the total excavated artifacts, the second largest category being projectile points (18%). Eighty percent of all blanks were of felsite. The ratio of broken to unbroken blanks was 4:1. The broken felsite biface blank was in fact the most common recovery from the base of the hill

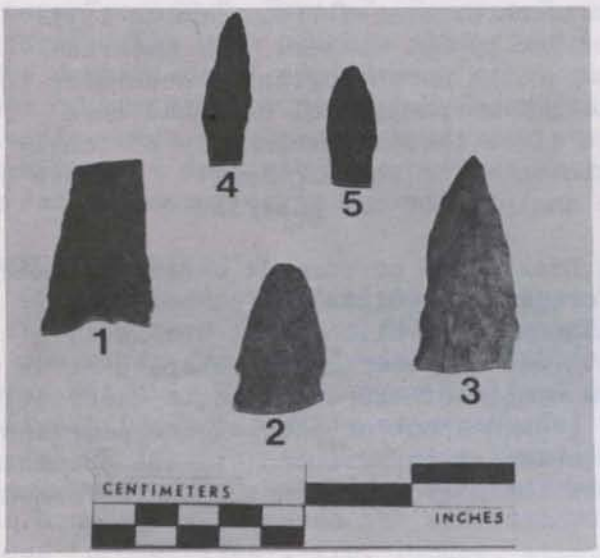

Figure 15. PROJECTILE POINTS. 1, Eared #2 (Brewerton Eared); 2,3, Side-notched; 4,5, Small Stem.

Some unusual recoveries at the site deserve special mention. Only three presumed "pendants" have been found (G.H. 504, one from S1W1, another from N3W3). A green slate projectile point was a surface recovery (C-259-NG). Only one atlatl weight (a surface find, C-216-NG) has been found at the site. A piece of worked graphite (G.H. 113; for a parallel see Staples and Athearn 1969, Fig. 2) and a piece of worked coal (G.H. 117) were found at the base of the hill. Not nuch hematite was found at Green Hill; some came from the oval shaped pit group in Section Z (Fig.9; G.H. 406, 469, 470, 471). Another hematite fragment was found in the lower field (G.H. 491). As at Ponkapoag (Martin 1977:67) the Green Hill hematite fragments consist of fine-grained thin slabs which were possibly baked, resulting in a deep reddish-brown color. Chert imports were rare (Fig. 12, no. 9; Fig. 11, no. 4; and unworked chert flake from N3W3) and all came from the base of the hill. Colonial period artifacts are few and presently unstudied. A Colonial pipe bowl surface recovery (Fig. 13, no. 3), a Colonial pipe stem fragment (uncataloged) from Sec. Z, X+7, a pewter spoon (presumed Colonial surface find C-209-NG), and a copper projectile point (uncataloged) constitute the entirety of the Colonial period artifacts from the site.

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A PRELIMINARY FUNCTIONAL ANALYSIS OF STONE TOOLS

Michael E. Roberts

INTRODUCTION

Historically, stone tool analysis has evolved through many stages. This present analysis has combined the full range of approaches (morphological, metric, and microscopic) in a manner similar to other studies completed by the author and others (Tringham et al. 1974; Roberts 1975, etc.). The analysis depends heavily on the use of experimental data to aid in the identification of microscopic wear patterns that might be representative of specific functions.

About 80% of the 768 excavated artifacts from the site were examined. About 260 of these were provided by Mr. Dana Seaverns, and were excavated from 1966 to 1971. The remainder, excavated from 1972-75, were provided by Dr. Rosser. The material arrived in boxes, with their contents usually separated morphologically according to Fowler's 1963 classification. No metric or detailed morphological data had been analyzed from the material, which is unfortunate since this assemblage is obviously important to the construction of a body of lithic data for the Northeast. Because of these limitations, compromises were made in the analysis of the material.

Given the above limitations, the following tasks were performed: a detailed metric and microscopic description of the identified "projectile points", a comparison of statistical and analytic data from "points" found at Green Hill and at the Neville site, a description of the microscopically identified use wear on the chipped stone artifacts, a microscopic description of a random sample of the debitage, a description of unusual micro-features in the assemblage of ground stone artifacts, and a series of use wear experiments on several types of raw material represented in the assemblage. In summary this analysis was heavily dependent on the microscopic analysis performed by the author.

THE EXPERIMENTAL PROGRAM

The experimental program focused on raw materials that were readily available and were also represented in the assemblage. These included a black rhyolite/porphyry from a nearby outcrop described by Douglas DeNatale , and a type of quartz represented in many artifacts from sites in the area. Table 6 summarizes the results of the rhyolite experiments.

Experimentation with quartz was carried out only until it was realized that the material fractures along the micro-crack boundaries in direct proportion to the application of force on the piece's edge (see Roberts 1975 for the mechanics of fracture

A review of Table 6 seems to indicate that there is very little variation in use wear morphology between the two different types of non-lithic material tested. However, there is a clear wear distribution variation when the stone is used in a different manner on the same material. This may mean that the general type of wear (e.g. scraping, cutting, etc.) may be identified, but not the precise type of material worked.

Perhaps the most exciting aspect of this study has been the discovery of significant differences between use wear on the fine-grained felsites of this assemblage and use wear on the flints and cherts examined in other studies (Tringham et al. 1974; Roberts n.d.).

Wear on these fine-grained felsites takes the form of edge polish rather than of edge chipping such as has been noted on flint and chert (Tringham et al. 1974; etc.).

Once it was determined that finer detail could not be achieved without a much more extensive experimental program, it was decided to proceed with the analysis of the assemblage by describing only scraping, cutting and chopping wear on tool edges.

The quartz experiments indicated that heavy step fracturing results from use (Tringham et al. 1974) and that it is the distribution of wear which is a function of the way the tool was used, similar to that observed on the rhyolite.

ANALYSIS OF THE ASSEMBLAGE

CHIPPED STONE MATERIALS.

In discussing the chipped stone portion of the assemblage, the term "projectile point" will be kept within quotation marks, as there is no evidence solely on the basis of morphology that these artifacts were in fact thrown or propelled. Similarly, the term "scraper", "knife", "chopper", etc. are avoided in favor of "biface" and "uniface". The goal of this study is to identify the *functions* of Green Hill artifacts by the comparison of edge damage on those artifacts to edge damage on experimental pieces of the same stone type. Description strictly by means of morphology can be misleading when it comes to analyzing the various activities carried on at the site. In reality, it does not seem correct to call an artifact a scraper unless one has observed its maker scraping with it.

"PROJECTILE POINTS".

Of the "projectile points" received, 83 had been previously identified as such, and it is to them that the following analysis is addressed. A wide range of metric data was taken from the "points". Table 7 describes the dimensional relationships between not only all the types analyzed but in three cases with similar dimensional relationships from Neville site material (Dincauze 1976). Included in this table is a so-called "coefficient" of stem shape (base width:stem minimum). This additional category may afford some idea of stem shape and its uniformity - characteristics which, it is hoped, may increase the understanding of point-to-shaft ratios required for various "projectiles", i.e. lances, atlatl darts, and arrows. The following is a

TABLE 6: Summary of lithic experiments

ACTIVITY	MATERIAL	
	BONE	WOOD
Unidirectional cutting	Edges rounded Faint striations in direction of use Even distribution of wear	Evenly distributed edge polish on both sides of edge
Scraping	Edges rounded Material removed from side away from direction of action	Evenly distributed edge polish on side toward direction of action
Sawing		Edges rounded Very little material removed but damage evenly distributed on both sides of edge
Chopping (large edge angle)	Rounded and crushed evenly on both sides	Crushed edge with some polish
Chopping (small edge angle)	Rounded and crushed evenly on both sides	

TABLE 7: Dimensional Relationships among Projectile Points

NEVILLE	$\bar{x}$	n	Neville Site $\bar{x}$	Variants $\bar{x}$
L/W	2.1	2	1.6	1.8
W/Th.	5.6	20	3.8	4
W/Sh. Ht.	3.9	18	2.8	1.7
Coeff. of Stem Shape	1.8	21		
STARK				
L/W	2.2	12	2	
W/Th.	4.13	16	3	
W/Sh.Ht.	2.1	16	1.4	
Coeff. of Stem Shape	1.98	16		
SMALL STEMMED II				
L/W	2.65	5	2.2	
W/Th.	2.47	6	2	
W/Sh. Ht.	1.3	6	0.95	
Coeff. of Stem Shape	1.07	5		
TAPERED STEM POINTS				
L/W	2.43	5		
W/Th.	3.94	5		
W/Sh. Ht.	1.63	4		
Coeff. of Stem Shape	2.85	4		
Fowler's SMALL TRIANGLES #6				
L/W	1.70	8		
W/Th.	5.0	7		
EARED (Vosburg, etc.)				
L/W	2.06	5		
W/Th.	4.2	12		
W/Sh. Ht.	2.0	13		
Coeff. of Stem shape	0.88	10		

KEY

$\bar{x}$ = average (ratio, coefficient)
n = sample size

description of the analysis of the "projectile points".

1) Neville Points and Variants: Twenty-two artifacts identified as Neville points or Neville variants were compared to the Neville points and variants of Dincauze (1976).

a. Technology: The general shape and method of manufacture of these points conform somewhat to those described by Dincauze. As at the Neville site, sharp tips were noted, but no serrated edges were found. Fourteen members of the assemblage had bases thinned by percussion and/or pressure. Another deviation from the Dincauze data is that in 16 cases "points" are finely made without step fracture (Dincauze 1976:26), while only 2 have the step fracture as described.

b. Function: The function of this group of artifacts is defined here by microscopic observations, coupled with an attempt to understand the reason for breakage of artifacts. Eleven of the 22 pieces examined show microscopic evidence of wear. Of these 11, 5 have wear which may be attributed to hafting-smoothing or the fine crushing that is found on or near the stem of the artifact. Four of the other "points" had microscopic wear patterning similar to that generated in experimentation involving cutting, while one had wear similar to that found experimentally in scraping. Additionally, the amount of wear corresponds to that observed in the experimental scrapers after 25-50 strokes. Two of the "points" had both hafting and cutting wear. It seems that the Neville "points" at Green Hill can be classified as projectile points; however, some of the "points" played a dual role as projectile tips and tools. A review of the ethnographic literature would seem to indicate that in hunter-gatherer societies "projectile points" had multiple functions, precisely as suggested here. Breakage patterns of the Green Hill Neville points indicate that the vast majority of breakages (85%) occur between the tip and the artifact's midline. However, two of the cases involve broken stems. This finding is in general agreement with Dincauze (1976:27), and could be the basis for a fascinating series of experiments concerning breakage patterns as a function of hafting method.

Figure 17 shows a comparison of Neville site data with those from Green Hill. In general, the Green Hill data nest comfortably within the extremes of the Neville data--a result compatible with derivation from a sample similar in type but smaller in number. The exception is minimum stem width, where the range is much greater for the 21 examples from Green Hill than for the 79 examples from the Neville site. The reason why stem width at Green Hill should be greater than those at the Neville site is as yet unclear.

2) Stark Points: Sixteen Stark points were measured and examined.

a. Technology: Like the Neville points, the Starks compare well with those in the New Hampshire collection (Fig. 7). An exception is the consistently wider base at Green Hill. Stem shapes of the Starks fall into two categories: straight or snapped stems (5), and tapered and thinned stems (11). Stems in general tend to be asymetric (13).

Figure 16. BROKEN FELSITE BIFACES FROM FEATURE 17 IN SECTION A. See Figure 9 for context. Rock type RR-F, G, H of DeNatale (in Part I, vol. 41(1), from the quarry site near the Broken Hills.

b. Function: All but one Stark point have observable wear. Five of these exhibit only "hafting wear", which appears above and below the shoulder and might, in the framework of an experimental hafting program, provide some insight into hafting methods. Two of the "points" have both hafting and cutting wear, while five have cutting wear alone, and two have signs of scraping alone. In contrast to the Neville points, there is considerably more wear of other types of use than hafting on these artifacts. Interestingly, the greater part of the wear occurs along the shorter edge of the points with asymmetrical stems. One might ask whether this results from the fact that the shoulder of the longer edge was the part grasped when the artifact was being used as a hand tool rather than as a "point". One might also wonder why there is more use wear on Starks than on Nevilles. Does this manifest a technological evolution, Starks being later than Nevilles (Dincauze 1976:90)? And was such an evolution precipitated by economic factors? For example, a single stone artifact used for many purposes is much more economical of material and manufacturing time. Only four of the Starks have broken tips, and one appears to have use wear overlapping the breakage, indicating it was used as a tool after it was broken. Figure 17 also compares Stark points from Green Hill and the Neville sites.

3) Small Stemmed II: Six points identified as Small Stemmed II were examined and compared to the Neville site data (Fig.17).

a. Technology: These "points" also exhibit strong similarities to those of the same type from the Neville site. The major variation is in stem characteristics. As with the Green Hill Neville and Green Hill Stark points, stems of the Green Hill Small Stemmed II's seem to be consistently larger than those at Neville. As noted by Dincauze (1976:53), the consistency of the below-shoulder dimensions is remarkable. Stem length is approximately 1 cm, and so is the full width.

b. Function: Of the 6 Small Stemmed II points, 5 showed evidence of wear. In four cases this wear was only in the hafting area. One remaining "point" had heavy wear over the whole surface, a wear which could not be identified as to type. These data seem to support Dincauze's conclusion (1976:53) regarding the function of these "points", namely that they were dart tips capable of being inter-changed on socketed hafts. This conclusion clearly calls for a series of experiments aimed at understanting the technical requirements of socket hafting.

4) Tapered Stem Points: Six "Tapered Stem" points were examined. Several of these could possibly be classified as Merrimacks. Three showed wear, of which two showed heavy wear unidentifiable as to type. The other worn "point" had wear in the hafting area and wear of the cutting type along one edge.

5) Eared Points (Vosburg, etc.)

a. Technology: In general, these "points" are significantly wider relative to stem length than are the other "points" analyzed. Table 7 summarizes the metric relationships for all the examples measured.

b. Function: Of the 10 Eared Points with use wear, 8 had wear in the hafting area only. The remaining 2 had light wear of the cutting type on one blade edge.

6) Small Triangular #6 Points: Eight "points" of this type were examined (Fowler 1963). There is a possibility that two of these could be classified as Levannas. The use wear reflects a relatively equal emphasis on hafting and cutting.

7) Remaining Small Triangular Points: The remaining "points" examined were small, triangular, and generally made of quartz. All the Small Traingular #4 Points had wear only in the hafting area. The #1's also showed hafting wear but in addition there was wear of the cutting type on one.

8) General Discussion: The above description of microscopic wear patterns implies that these so-called "projectile points" were used for much more than mere weapon tips, being also important parts of the general tool kit. This being so, any lithic analysis that seeks to identify the number and kind of tools used for preparation of resources must also take into consideration the "projectile points".

OTHER CHIPPED STONE TOOLS

The chipped stone artifacts not previously identified as "points" have been separated here into bifaces and unifaces, as previously described. The data have been displayed in a matrix that identifies specimens according to the identifications on the containers provided to me and reflect, in many cases, a strictly morphological approach to identification.

The only analysis presented in this paper is based on microscopic description of use wear. It must be left to future work to provide metric and morphological data to flesh out the analysis to a poiint where it is possible to address tool technology and its evolution at Green Hill, along with the whole range of cultural questions that arise from proper lithic analysis.

1) Bifaces (Table 8: Four (4) bifaces exhibited "bag wear" (i.e. fracture randomly distributed about the edge and probably incurred after collection). Improved packing and handling methods can eliminate this type of wear, which obscures true use wear. The remaining 201 bifaces displayed 232 separate tools and were in some cases worn at the base in a manner suggesting hafting. The tool utilization factor for the bifaces is 1:15 (i.e. the number of tools divided by the number of pieces, 232/201).

2) Unifaces (Table 9): There were 90 unifaces in the assemblage, of which 11 had no obvious wear, 3 showed only bag wear, and 3 had possible hafting wear. Three (3) appeared to be abraded. The remaining 21 displayed 92 separate tools, giving a tool-utilization factor 1:30. Use wear on the unifaces occurred with the frequencies illustrated in Table 9.

GROUND STONE TOOLS

The description of the ground stone portion of the assemblage will emphasize unusual features discovered under microscopic examination. No catalog references for the materials are available.

A ground stone axe blade from the Dana Seaverns material showed fusing along the working edge, but no clear inference could be drawn as to the direction of striking.

A "gouge" (in the bag marked "Recent/Winter-Spring '76) showed clear evidence of chopping wear along the tip, but no abrasion such as might be expected from a tool used for gouging. On several unfinished "gouges" (from the bag marked "Large Blades") clear evidence of the pecking technique used in manufacture may be seen (Fig. 14, 2).

Several artifacts showed linear abrading and two others had small cups pecked into their surfaces. A detailed examination of the ground stone assemblage should be made once the whole has been properly catalogued.

FLAKES

A 25% random sample of the quartz flakes recovered from Feature 70 was examined microscopically. Of a total of 90 flakes examined, 6 showed cutting wear, 12 showed

TABLE 8: Bifaces

CONTAINER	A	B	C	D	E	F	G	H	I	J	K	L	M
"Green Hill Scrapers"						1	6	11	1				
"Dana Seavern's Material"	4	4	8	4	3	4	5	12	6	3	8		
"Recent Spring-Winter '76"			1		1	1	6	3			1	3	
"Leaf Knives"							3	5	1		1		1
"Stem Knives"			1				10	7	5		12		7
"Bag of Unidentified Material"						4	1	3			1		
"Rosser's 1974/75 Recently Classified"		1	1				3	8	1		1		
"Bag of Unmarked Tools"	1		1		1		2	5			1	2	
"Stemless Knives"													

TYPE OF WEAR

A. "Points" with hafting wear only

B. "Points" with cutting wear

C. "Points" with no wear

D. Broken "Point" with cutting wear

E. Broken "Point" with no wear

F. Tool with chopping wear

G. Tool with scraping wear

H. Tool with cutting wear

I. Tool with hafting wear

J. Tool with drilling wear

K. Tool with no obvious wear

L. Broken "Point" with hafting wear

M. Tool with unidentified wear

scraping wear, and 1 was a small complete tool with cutting wear.

SUMMARY OF ANALYSIS

Using the experimental data derived from the rhyolite and applying it to the examined portion of the lithic assemblage from Green Hill, the total tool complement may be summarized as follows:

1. "Points" - hafting wear only (41), unidentifiable wear (3), "point"/tool combinations (29), "point"/tool combinations with cutting wear (27) and no obvious wear (34).

2. Tools - cutting wear(172), scraping wear (112), chopping wear (13), unidentifiable wear (13), drilling wear (3), engraving (1), possible hafting wear (18), and abrading wear (3).

3. Other chipped artifacts with no obvious wear (44).

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TABLE 9: Unifaces

CONTAINER	A	B	C	D	E	F	G
"Green Hill Scrapers"	18	9			1		
"Dana Seavern's Material"	3	5			5		
"Recent Spring-Winter '76"	1		1				
"Leaf Knives"		2			1		
"Stem Knives"	3			2	2	3	
"Bag of Unidentified Material"	1	1					
"Large Blades"	1	5			1		1
"Rosser's 1974/75 Recently Classified"	5	5					
"Unmarked Tools"	1	3	2	1			
"Stemless Knives"	14	8					
"Small Unmarked Bag"	1	4			1		

TYPE OF WEAR

A. Scraping
B. Cutting
C. Abrading
D. Hafting
E. No wear
F. Bag wear
G. Chopping

Further detailed discussion of the relationship of the lithic materials from Green Hill to the use and growth of the site must await the completion of necessary laboratory work, as described earlier.

Peabody Museum
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SUMMARY AND INTERPRETATION

John Rosser

Prehistoric site occupation at Green Hill was predominantly Middle and Late Archaic. No Early Archaic Bifurcate-base points have been found, although since they occur in very small numbers at most major multi-component site in the Boston area (Dincauze 1974:44),

it is possible that eventually some will be recovered at Green Hill. Six have been excavated at Ponkapoag (Martin 1977:62). Woodland artifact density for the Boston area increases during the Late Woodland period (Dincauze 1974:53) and Woodland use of aboriginal quarries in and around the Blue Hills has been reported (Bowman and Zeoli 1977: 36-41). Woodland recoveries at Ponkapoag are in small but significant numbers (Martin 1977:Fig. 16). At Green Hill, however, Woodland artifact recoveries are relatively few in number, the most important being two Levanna-like points and perhaps several Side-notched points (Figs. 12, 15). Since 1978 (and thus not included in this report) several scraps of Woodland pottery are reported from further excavations at Green Hill.

During Archaic times Green Hill probably looked much the same as it does now, covered with a mixed deciduous-coniferous tree growth (Kaplan, Vol. 41(1)). The topography of the site is probably the same today at it was then, despite some downslope thickening of the subsoil (Roy, Vol. 41(1)). It is possible that prehistoric Green Hill was an attractive place to hunt wild turkey and deer, both of which flourished in great numbers in the Late Archaic period (Dincauze 1974:47). Certainly in recent times Green Hill and its immediate environs have supported an abundance of wild fauna, including large game (Stanhope, Vol. 41(1)).

In the 8th millennium B.P. the Green Hill site was part of an ancient stemmed point cultural tradition which Dincauze has termed the "Atlantic Slope macrotradition" (Dincauze 1976:139-142). This tradition was distributed from North Carolina to New Hampshire, perhaps as far north as Labrador (Tuck and McGhee 1975). In southern New England the Neville site is the best known example of this macrotradition for the Middle Archaic period. The earliest Green Hill radiocarbon dates (UGa-500: 7875 ±230 B.P., 5925 B.C., and UGa-580: 7950 ±95 B.P., 6000 B.C.) are from a refuse dump in Section A (Fig. 8). These dates are roughly contemporary with the earliest Neville site radiocarbon dates (Dincauze 1976:103, Table 8). It thus seems reasonable to attempt some comparisons between Green Hill and Neville, and in this respect Roberts' study of Green Hill's Neville and Stark type points is important. However it is disappointing that more comparisons are not yet possible. Green Hill, as mentioned previously, has some distinction at present in being the third oldest dated site in Massachusetts, after Bull Brook and the Saugus Quarry site. It promises to illuminate further the "Atlantic Slope macrotradition" in southern New England, but as of this publication that promise is unfulfilled.

By comparison, Late Archaic occupation at Green Hill is clearly defined. The oval shaped group of sixteen pits in Section Z (Figs. 7,9) is of Late Archaic date, since Feature 66 at its center produced a radiocarbon date of 4390 ± 70 B.P., 2440 B.C. (UGa-1236). Feature 66 was surrounded by eleven post molds, which indicate that eleven "posts" supported something around the feature, perhaps a small temporary shelter for one or two people (as the brush shelter in Fowler 1973:16, Fig. 15). Feature 17 (Fig. 9), a workshop refuse pit, is no doubt related to the pit group. The stratigraphical placement of these pits clearly demonstrates that they all belong together, including the large ring-shaped refuse pit (Fea. 64; Fig. 9). How long it took for this group of pits to be deposited obviously depends on the number of occupants. Every indication points to an occupancy small in numbers, and in the absence of any evidence for permanent or semi-permanent dwellings in an area already fully excavated, one must presume a temporary occupancy of perhaps several days. The occupants obviously manufactured stone tools (hence Fea. 17) and the remains of calcined bone in some pits could be evidence for hunting as a site activity.

What can be inferred about seasonality of occupation and site utilization at Green Hill? At Green Hill there is no evidence for a permanent base camp, as one would expect had the site been occupied during the winter. The only evidence for a spring occupation is a single oak twig from Feature 24, which may have been cut in the spring of its third year of growth (Kaplan, Vol. 41(1)). Fish traps or weirs (as discussed by Dincauze 1973) might have been used but certainly the very small number of possible plummet/sinker

recoveries (G.H. 426,465, and one from N7E1) do not indicate net fishing to any significant extent. There is certainly no evidence that the site was used to procure anadromous fish from the Neponset River, presumably a spring and early summer activity. Greens such as *Chenopodium album*, which would have been available from mid-summer to mid-fall, do not seem to have been collected (Kaplan, Vol. 41(1)). The absence of nuts and of stone mortars and the recovery of only two pestles (G.H. 425 and one from N6W4) may indicate that Green Hill was not significantly occupied in the early to mid-autumn. It could also mean that hickory nuts and acorns, present in the vegetation, were not heavily exploited as a food resource (Kaplan, Vol. 41(1)).

The single site activity for which there is reasonable evidence is tool manufacturing. The Blue Hills locale was in fact a major source of aboriginal lithic materials. This has long been known (Dincauze 1974:56), but was recently affirmed by the discovery of a major quarry site (Bowman and Zeoli 1977). The model offered for the use of this quarry site is that of brief aboriginal visits (at most overnight), after which preform cores and blanks were taken away to open air sites which offered comfortable living areas for tool manufacture (Bowman and Zeoli 1977:43-45). Certainly there is much evidence for sites in the Blue Hills locale having been used for tool manufacture. In the Cochato Valley, several miles southwest of Green Hill, South Shore Chapter members excavated three sites which yielded "overwhelming numbers of chips, flakes, cores, rejects, hammerstones and incompleted implements," from which it was concluded that tool manufacture was an important site activity (Cote 1958:24). A similarly used site is described by Bowman and Zeoli (1977:43).

What is interesting about the Cochato Valley sites, and perhaps the Blue Hill River Workshop (Rowe 1941) is the great number of bifaces in the artifact inventory. At the Cochato Valley sites there were "unbelievable numbers of broken and unfinished blades or knives..." (Cote 1958:24, and Pl. 2). One is immediately reminded of the Green Hill site, with its great number of broken and unbroken bifaces (50% of all excavated artifacts). The similarity is further confirmed by mention that the Cochato Valley sites included projectile points as another significant category, as well as drills, scrapers, hammerstones and heavy tools. Only one net sinker is reported on these sites (Cote 1958:23-24, Plates 1-3; Ayres et al. 1955:51, Fig. 17). This description of the artifact inventory seems generally similar to that of Green Hill.

However it probably would be incorrect to suggest that lithic manufacture was the sole function served by Green Hill and other riverside and pondside sites in the Blue Hills locale. Sites usually served more than one function, but moreover there are important differences suggested even between Green Hill and nearby Ponkapoag (Martin 1977). At Ponkapoag the percentage of projectile points among the total artifact recoveries is 29% compared to 18% for Green Hill. Only about half the Green Hill percentage of bifaces were recovered at Ponkapoag. The percentage of heavy tools at Green Hill is higher. Cultural distinctions among sites within a six mile radius of Ponkapoag might be inferred due to the significant morphological variation in common point types (Martin 1977:70). At Green Hill it now seems apparent that the full tool inventory was being *used* at the site (Roberts, above). Green Hill was not merely a "transit camp" where lithic cores and preforms were hastily worked, then taken away to base camps elsewhere.

Multiple occupancy and cultural mixing at Green Hill make it difficult to estimate group size and frequency of visit. Certainly nothing suggests more than intermittent small groups. Such evidence as there is suggests the same for other known sites in the Blue Hills locale. Post mold recovery is sparse and configurations rare and no hard lenses or packed surfaces which might suggest shelter remains have been substantiated for the locale (Cote 1958:24, 27; Martin 1977:58). The evidence from Green Hill, as well as that gathered by Martin at Ponkapoag (Martin 1977) and Bowman and Zeoli elsewhere in the Blue Hills (Bowman and Zeoli 1977) confirms the earlier opinion of South Shore members who investigated the Cochato Valley: "These hunters came, occupied se-

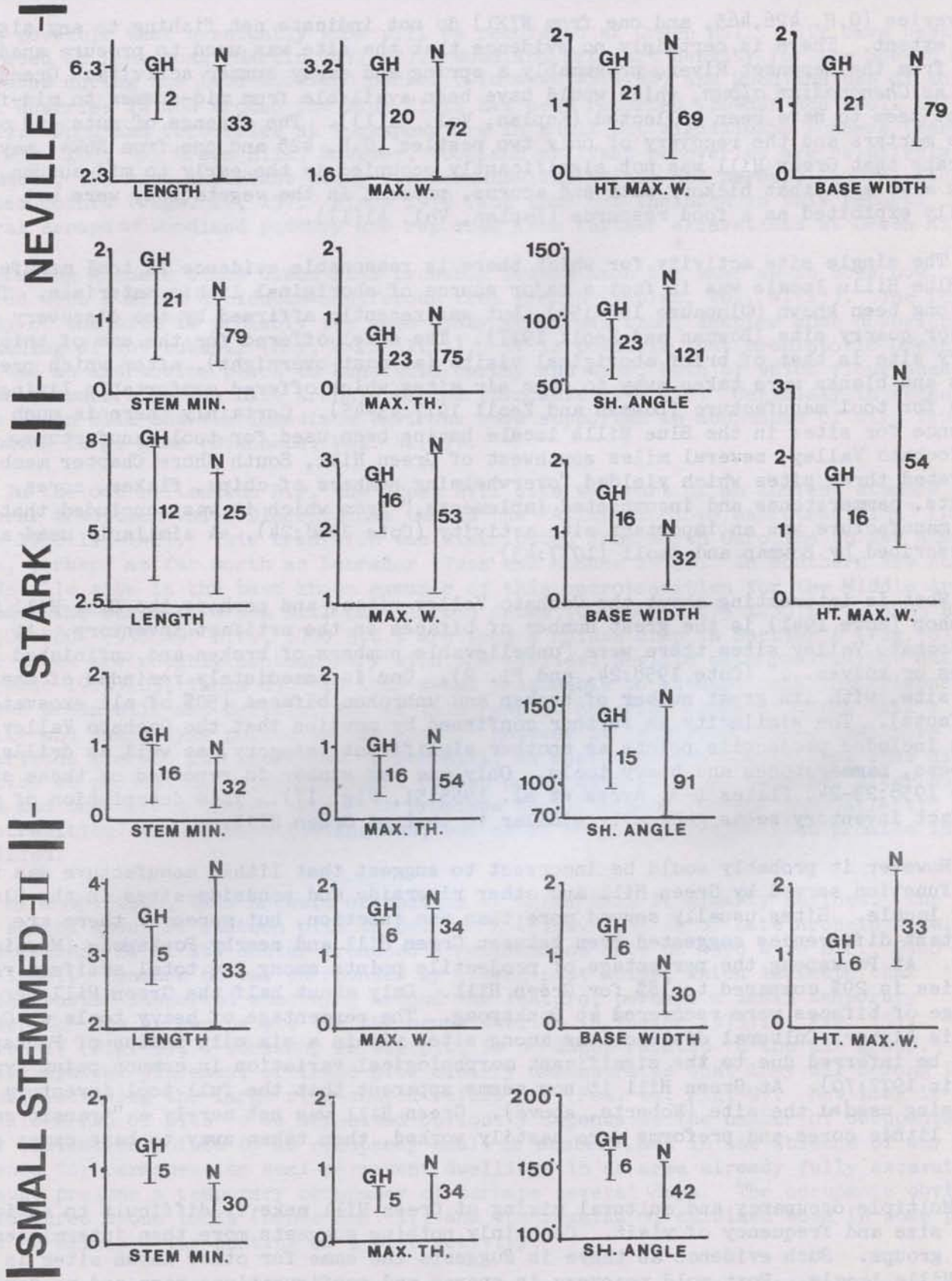

Figure 17. COMPARISON OF PROJECTILE POINT TYPES FROM THE GREEN HILL (GH) AND NEVILLE (N) SITES. This is a graphic presentation of Green Hill data compared with data from Table 2 of Dincauze 1976. These abbreviations are used: MAX. W. = Maximum Width; HT. MAX. W. = Height of Maximum Width; STEM MIN. = Stem Minimum Width; MAX. TH. = Maximum Thickness; SH. ANGLE = Shoulder Angle. With the exception of Shoulder Angle, in degrees, the other graphs are scaled in centimeters.

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lected locations for very short periods of time, and then departed. This series of visits probably covered a great expanse of time..." (Cote 1958:25).

Were they in fact "hunters"? The lithic evidence at Green Hill suggests that they might have been. The great number of projectile points and cutting and scraping tools in the artifact inventory led Robers (above) to conclude that Green Hill was a specialized site for the extraction of one or more biotic resources from the Neponset area. Considering the large numbers and variety of wild fauna which the Green Hill area supported in recent times (Stanhope, Vol. 41(1)), and the known presence of large turkey and deer populations in Late Archaic southern New England, it does not seem unreasonable to suppose that the projectile points, knives and scrapers were used for the procurement and processing of game. Calcined bone from several refuse pits (Table 5) may support this hypothesis, although much evidence of this sort has doubtless been destroyed. The destructive action of New England soils on organic remains is notorious (Jordan 1975:72).

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In general, the various contributors to this report are responsible for the figures and tables referred to in their texts. There are, however, important exceptions, Figures 1-3 and 7-9, which were created by Paul Ryll, to whom the compiler owes special gratitude for his many hours spent at the site and over the drafting board. The South Shore Chapter members who contributed significantly to the data base from Green Hill are Curtiss Hoffman, Joseph Marshall (who produced excellent notes on Features 17 and 66), Robert Martin, Ross McCurdy, John McGarvey (site recorder), Richard Parker (site recorder; composed a summary of the first 50 features), and Dana Seaverns (who loaned important notes and artifacts from the 1966-72 excavation). Many other South Shore Chapter members excavated at the site; while it is not possible to mention them all, their contributions are acknowledged with gratitude.

The residents of Green Street have always demonstrated a friendly interest in Green Hill, especially the John T. Hemenway family, whose estate once embraced Green Hill. The Blue Hills Trailside Museum has traditionally been the home of the South Shore Chapter. The former museum director, Garret F. VanWart, and now Robert Stanhope, provided encouragement for the Green Hill Project, in addition to artifact storage and display space.

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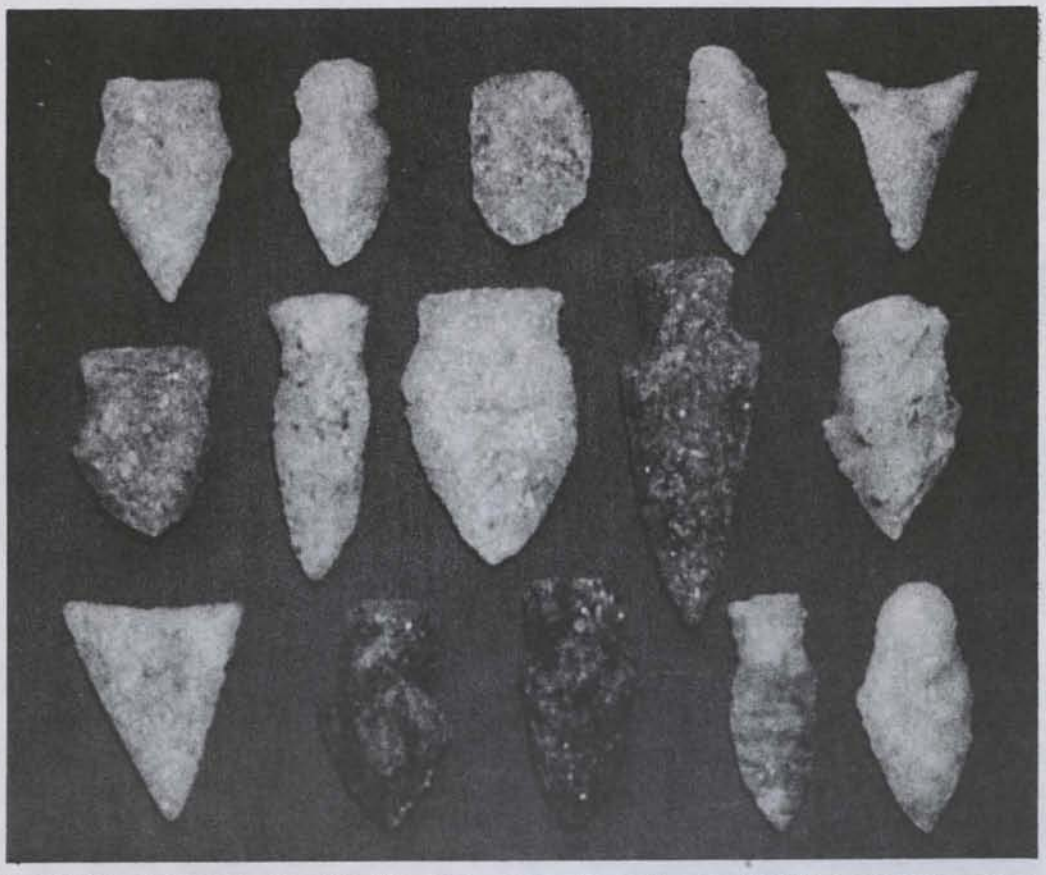

Figure 18. Fifteen large quartz knives, spears and projectile points from Plymouth and Bristol Counties in Massachusetts. Longest spearhead is four inches in length.

From the collection of WILLIAM B. TAYLOR, Middleboro, Mass.

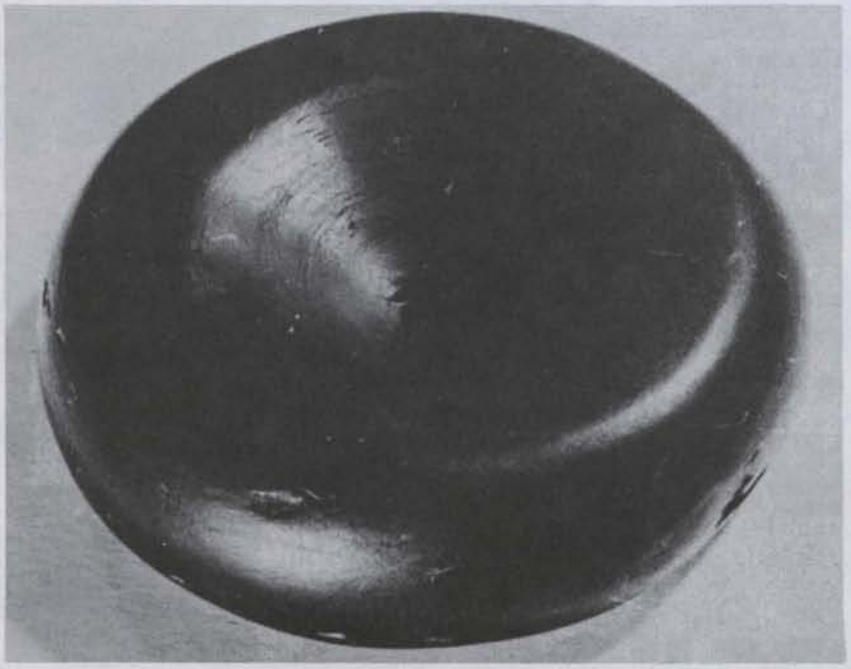

Figure 19. This beautiful black slate discoidal was found in Grave No. 2 (adult male), Taylor Farm, North Middleboro, Mass. in 1947. It measures 4 inches in diameter and 1¼ inches thick, Center is concave with a 2-inch diameter dish, tapering to a ¼-inch hole at the center.

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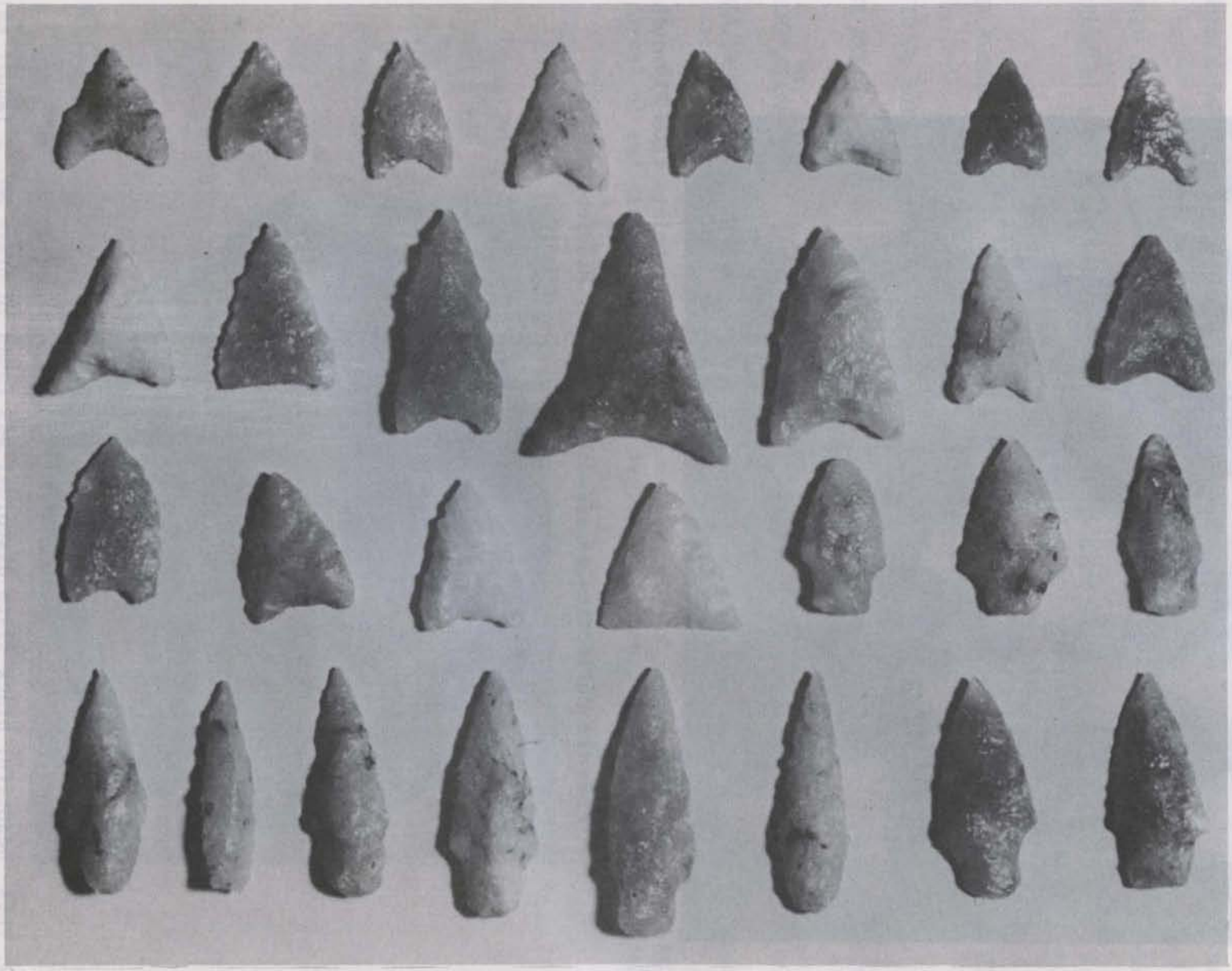

Figure 20. Thirty quartz projectile points showing the Small Stem, Corner-Removed, Small and Large Triangular forms. All from a section of North Middleboro and Bridgewater, Massachusetts known as Titicut. Longest in two inches.

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Manuscripts must be typed as originals with two carbons (or photocopies). Margins must be 1½ inches (38mm) on both sides. Corrasable paper should NOT be used. Originals and copies are to be sent to the Editor for evaluation and comment.

Typing is to be on one side of paper only with at least double spacing. Proper heading and bibliographic material must be included.

Manuscript headings should be prepared as follows:

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Robert A. Martin

Bibliographic references are to be presented as follows:

GOOKIN, D.
1970 Historical Collections of the Indians of New England (1674)
Jeffrey H. Fiske, annotator. Towtaid. Worcester.

They should be listed alphabetically by author; several references by the same author should be listed chronologically by year.

Intratextual reference citations are to include the author's name, date of publication, and the page, plate, or figure number, all enclosed in parentheses. as follows:

(Bowman & Zeoli 1973:27) or (Ritchie 1965: Fig 12)

Illustrations must be submitted to the Editor as originals and must conform to the following set of standards:

1. All illustrations must be planned with the page size in mind, either full page, half page or quarter page. Allowance must be made for caption. Special cases must be discussed with the Editor before illustrations are made.

Drawings should be made for same size reproduction, and must be sent as originals executed in India ink. NO WASH DRAWINGS OR PENCIL RENDERINGS ARE ACCEPTABLE.

Photographs must be glossy prints with HIGH CONTRAST. Standard 5"x 7" or 7"x 9" work out very well. Special problems, as with the drawings, must be referred to the Editor before preparation.

2. All illustrations are called Figures (including maps). They are to be numbered on the back in order of reference from the text. Every item in drawings or photographs must be properly identified either by number or letter. All lettering must be clear print and legible. All persons in photogrpahs must be identified. Captions should not be considered part of the illustration.

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Dimensions and distances should be given in English and metric units, or metric alone. The two systems should not be mixed within a text. If feet and inches are used, they are to be spelled out (no ' for feet nor " for inches).

THE EDITOR is receptive to archaeologically serious contributions of any reasonable length. Long pieces can usually be condensed effectively if they exceed the limits of our publication. The Editor welcomes short pieces and encourages contributors to write them.

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