Period and was the oldest diagnostic artifact found at the Pollack Site during the Phase II testing. The six remaining diagnostic artifacts in Areas D, E, F, and G were stemmed and corner-notched varieties of Woodland I, and possibly Archaic Period projectile points. No prehistoric ceramics or other temporally diagnostic prehistoric artifacts were found in Areas D, E, F, and G. The most common artifacts recovered were flakes, fire-cracked rock, and utilized flakes from local jaspers, cherts, and quartzes. A small number of cobble cores and a hammerstone indicating primary lithic reduction were also found.

An eighth area, Area H (Figure 13, Plate 7), was also identified during Phase II testing. This area contained mainly historical artifacts and will not be discussed in this report.

In sum, Phase II testing at the Pollack Site identified eight discrete areas of historical and prehistoric occupation. The limits of each of these eight areas were determined on the basis of artifact density, site integrity, and the presence of intact cultural features. Additional excavations were recommended for all areas. Based on the large numbers of artifacts and features recovered, the Pollack Site is most likely a series of prehistoric base camps. The large size of some of the prehistoric features found at the Pollack Site suggests that they are house pits or storage pits. These features were found in discrete concentrations indicating that "household clusters," or residential locales, were probably present at the site during Woodland I and Woodland II times. Artifacts dating to the Archaic Period were also recovered, but no evidence of features from this time period was identified. Phase II excavations clearly confirmed that the Pollack Site is eligible for listing on the National Register of Historic Places under Criterion "D".

Phase III Research Design and Research Methods

Research Design. At the time of the beginning of Phase III excavations at the Pollack Site, comparable large-scale excavations of prehistoric base camp sites had not been previously undertaken in the central Middle Atlantic region. Consequently, data description was an important component of the

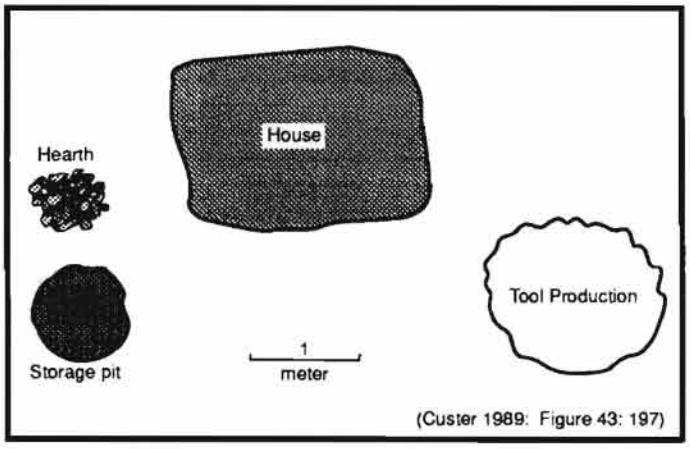
initial research design. Over the course of the excavations and subsequent data analysis, two other large sites, the Snapp Site (7NC-G-101 - Custer and Silber 1994) and the Leipsic Site (7K-C-194A - Custer, Riley, and Mellin 1994), were excavated and reported upon. The data from these sites raised additional issues which were addressed in the later stages of research on the Pollack Site. This section of the report will describe both the initial research questions and those which arose later.

As was noted above, data description was a major goal of the initial Phase III archaeological research design for the Pollack Site. Although small sections of other base camps had been excavated (e.g., Clyde Farm Site - Custer, Watson and DeSantis 1985), only one other base camp in northern Delaware, the Delaware Park Site (Thomas 1981), has been subjected to large-scale intensive excavations. However, the scale of the Delaware Park Site excavations was still quite a bit smaller than that of the Pollack Site. In fact, Areas A, B, and C of the Pollack Site are each considerably larger than the entire Delaware Park Site.

Current models of Woodland I Period settlement in the Delaware Coastal Plain (Custer 1984, 1986a, 1989; Custer and Bachman 1986; Custer, Bachman, and Grettler 1986, 1987) note that base camps, such as those found in the varied areas of the Pollack Site, provided the residential focus for regional settlement of numerous social groups. From these base camps, prehistoric groups would have made a series of forays to outlying procurement sites to hunt and gather resources needed to support populations residing at the base camps. The presence of subsurface storage features is considered to indicate that the occupations of the sites spanned more than one season of the year. One of the major initial research goals of this project was to determine the intensity and duration of settlement in the various areas of the Pollack Site.

FIGURE 21

Illustration of Household Cluster, Clyde Farm Site



In order to understand the duration of the prehistoric occupations of the Pollack Site, and its role in regional settlement patterns, considerable emphasis was placed on understanding the structure and contents of the features at the site. Research at other base camp sites in northern Delaware (Clyde Farm Site - Custer, Watson and DeSantis 1985) and in central Delaware (Leipsic Site - 7K-C-194A - Custer, Riley and Mellin 1994), have discovered the presence of "household clusters" or residential locales at these sites during Woodland I times. "Household clusters" consist of a house structure with associated storage, refuse, and other features (Winter 1976). At the Clyde Farm Site (7NC-E-6A), extensive excavations of a 35 square meter area identified a household cluster (Figure 21) containing a platform hearth, numerous storage pits and a pit house (Custer, Watson and DeSantis 1985; Custer 1989). Analysis of physical characteristics of subsurface features at the Pollack Site enabled understanding of variability of these household clusters and their components at both the site and in regional settlement patterns.

Many of the dramatic cultural changes characteristic of the Woodland I Period have been related to climatic changes during the Middle Holocene (3000 B.C. - 800 B.C.) (Custer 1989). The drier conditions with cyclical changes in temperature and moisture produced shifts in both the nature and distribution of resources during this time span. Therefore, another major initial research goal of this research was to determine the subsistence strategies practiced by the inhabitants of the site during the time period of this climatic shift.

The contents of the subsurface feature soils at the site provide valuable information on prehistoric subsistence patterns. Ecofacts recovered from the site offer a means to determine floral and faunal resource availability and seasonal occupation of the site. Ecofact analysis also potentially allow the determination of dietary patterns of the prehistoric inhabitants of the site. Other artifacts provide information on subsistence-related activities performed at the site. Study of stone tools and their attributes help to identify food preparation activities as well as tool manufacturing and maintenance activities at the site. Variations in lithic materials used to manufacture stone tools allow the study of lithic raw material procurement. Ceramic industries are also well represented at the site and provide further information on food cooking and storage strategies. Ceramic analyses also allow for study of ceramic manufacturing technologies at the Pollack Site.

The final goal of the initial research was to apply the information gained from excavations of the Pollack Site to enhance current models of settlement patterns, subsistence strategies, and technologies of prehistoric cultures of Delaware. Management plans for the prehistoric cultural resources in Delaware have defined geographical Study Units to predict probability areas for varied types of archaeological sites (Custer 1986a). Models of settlement patterns have served as a basis for defining the boundaries of these areas. The location of the Pollack Site falls within many of these Study Units which have high site potential.

The Pollack Site area falls within a Paleo-Indian Period Study Unit which has little known information for predicting Paleo-Indian site locations (Figure 22). The Phase I and Phase II test excavations did recover one diagnostic artifact that dated to the Paleo-Indian Period. Given the environmental setting of the site, it is possible that it may contain additional Paleo-Indian occupations. The Pollack Site also falls within an Archaic Period Study Unit which has little known information (Custer 1986a) (Figure 23). Few diagnostic artifacts dating to the Archaic Period were recovered during Phase I or Phase II excavations of the Pollack Site. However, the location of the site along the banks of the Leipsic River resembles many of the kinds of environmental settings predicted to contain Archaic base camp and procurement sites of the Archaic Major Drainage Study Unit (Custer 1986a) (Figure 23). Therefore, it is possible that additional Archaic Period occupations may be discovered during the Phase III excavations.

Management plans for prehistoric cultural resources in Delaware (Custer 1986) indicate that the Pollack Site is located within a Study Unit, the Mid-Drainage Zone, which has a high potential for containing Woodland I archaeological sites (Figure 24). In the Mid-Drainage Zone, Woodland I base camps are expected to be located on major terraces of drainages or at well-drained headlands adjacent to swamps/marshes (Custer 1986a) as are Woodland II base camps (Figure 25). The findings of the Phase II research confirms these predictions and the Phase III excavations provided data on the duration and intensity of these occupations.

The potential for sites dating to the Contact Period in the Pollack Site area is difficult to discern. Site types and site locations for this period are probably very much like the Woodland I and Woodland II Period predictions. However, the number of potential site locations decrease through time after the first contacts until the mid-eighteenth century (Custer 1986a). The Pollack Site is located in the Delaware Ethnic Study Unit (Figure 26). Phase I and Phase II test excavations did not reveal any information which suggested a Contact Period occupation of the site. However, the high probability of the site area for Woodland I and Woodland II occupations does not eliminate the possibility of the discovery of a Contact Period occupation of the site during the Phase III excavations.

A final research issue that was recognized prior to the Phase III excavations related to the two bay/basin features in the southern section of Area C (Figure 17). As was noted previously, these natural features were often the focus of prehistoric settlement (Custer 1989:107). Although these features were utilized by prehistoric peoples during all time periods of Delaware prehistory beginning with the later portions of the Paleo-Indian Period, the intensity of settlement at these features varied through time. The role that sites associated with bay/basin sites played in regional settlement patterns also changed.

During the later part of the Paleo-Indian Period and the Archaic Period, bay/basin features were rather intensively utilized. Particularly during the Archaic Period, there are more known sites associated with these features than there are in other topographic settings (Custer 1989:107-109). Although the data are sparse, these early sites associated with bay/basins seem to be small transient camps and procurement sites. The small number of Archaic sites known from other topographic settings are not generally any larger. Based on this observation it has been suggested that Archaic groups were small and rather mobile (Custer 1989:119-121). In this scenario, bay/basin locales would have been preferred settlement sites for small groups traveling across the landscape of ancient Delaware.

FIGURE 24

Woodland I Period Study Units and Settlement Model

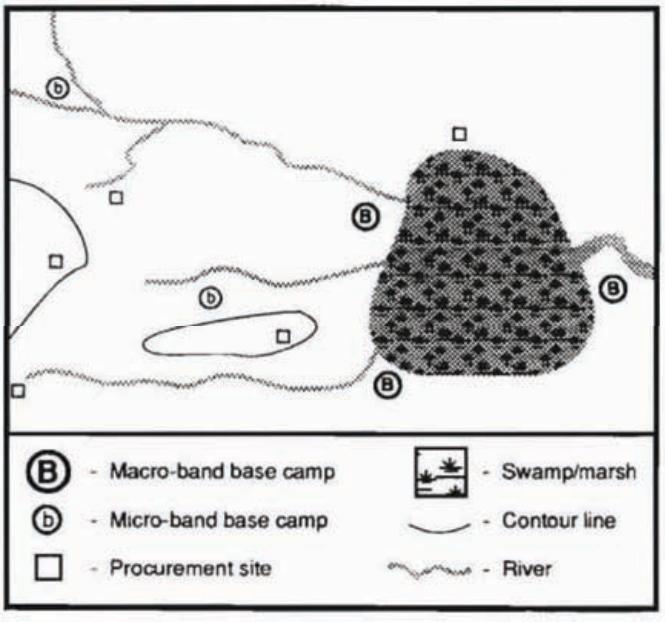
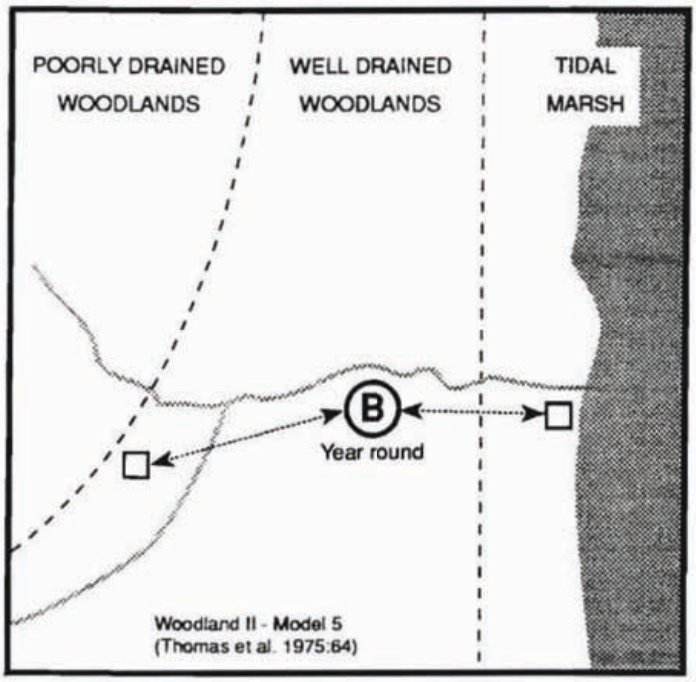
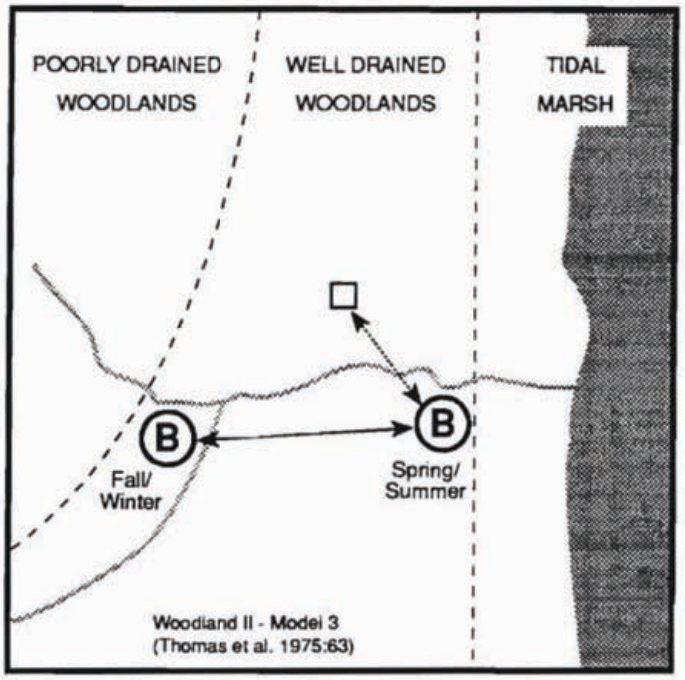
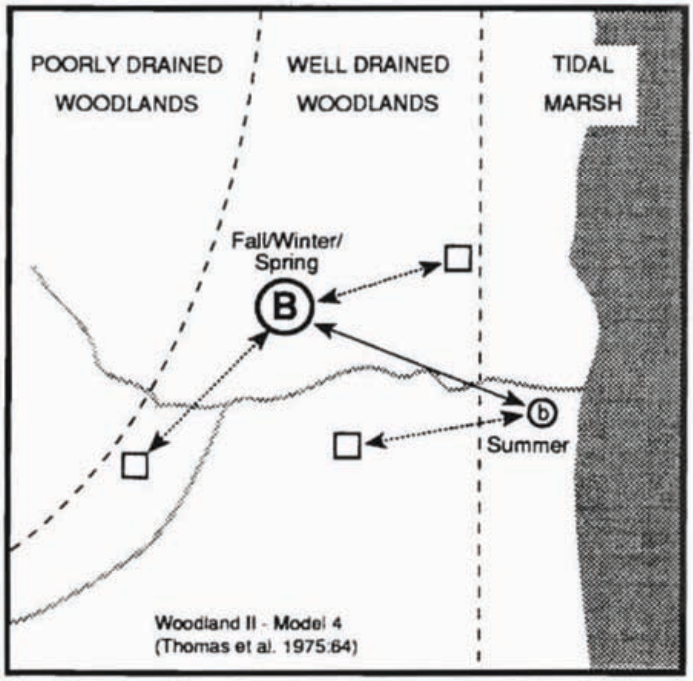


FIGURE 25

Woodland II Period Study Units and Settlement Models







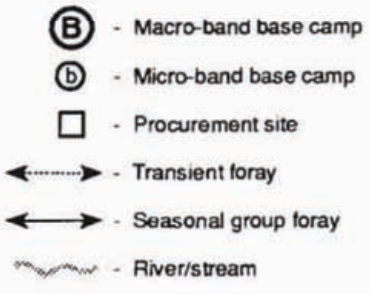


FIGURE 26
Contact Period Study Units

Woodland I and II Period sites associated with bay/basin sites are also rather small (Custer 1989:210-212) and do not seem to differ greatly from Archaic sites in the same locales. If anything, the Woodland I and II sites seem to be even more ephemeral. However, large Woodland I and II sites, such as the Pollack Site, do exist in other locales. The Woodland Period site distribution seems to suggest that bay/basins were used as procurement locales to support people living at base camps in other locations.

Based on the site distribution data noted above it could be hypothesized that pre-Woodland I settlement at the Pollack Site would be focused on the bay/basin features, rather than other parts of the field. Similarly, it could also be hypothesized that Woodland I and II settlement, as reflected in base camp sites, would be more intensive in areas away from the bay/basins. The close proximity of the bay/basins and confluence of the Leipsic River and Alston Branch may make these hypotheses meaningless because the two environmental settings are so close together that it would be difficult to ascertain their effects on prehistoric settlement within the site. Nonetheless, a tightly focused pre-Woodland I settlement within Area C would provide data relevant to the hypothesized patterns of land use and Phase III research sought to gather such distributional data.

As was noted earlier, more recent research issues were developed during the course of analysis of the data from the Pollack Site. These additional research issues were a direct outgrowth of research at the Snapp Site (Custer and Silber 1994) and the Leipsic Site (Custer, Riley, and Mellin 1994). Both of these sites were very similar to the Pollack Site and the Leipsic Site (7K-C-194A) is located directly across the Leipsic River from the Pollack Site (Figure 3). The two major research topics developed after the completion of the field research to be discussed here are related to site and community settlement patterns.

Research at the Snapp and Leipsic sites revealed an especially interesting aspect of household settlement patterning in northern and central Delaware. Both of these sites produced large numbers of features, most of which were houses, and initial inspection of the feature distribution maps gave an impression of dense prehistoric settlement. However, more careful analysis revealed that many of the houses, and associated features, would have overlapped and could not have been occupied contemporaneously. Furthermore, when chronological data were available, the occupations of the sites were seen to span the entire time range of the Woodland I and II periods (ca. 3000 B.C. to A.D. 1600). Based on these observations, the large number of features at the sites was interpreted as representing

repeated occupations by small groups over long periods of time rather than a limited number of occupations of the site by large numbers of people for short periods of time. This interpretation implied that the most common social organizations for prehistoric groups of the Woodland Period in Delaware were small family bands who moved across the landscape on an individual basis.

Both the Snapp and Leipsic sites also included areas where some house features appeared to be occupied contemporaneously, and five or six houses were to be the largest number occupied at a single time. These multi-family settlements probably occurred only on an occasional basis, however, and individual family occupations were much more common. Large communal resource processing areas were associated with the multiple-family occupations and these occupations may have been focused on the procurement of rich seasonally-available resources, such as anadromous fish, that required communal labor for their efficient exploitation. The important point to note is that these multi-family occupations occurred on only an occasional basis.

Based on these findings from the Snapp and Leipsic sites, it was hypothesized that the distribution of features at the Pollack Site would be similar. Special attempts were made to ascertain if individual houses, or household clusters of houses and associated features, overlapped, or if areas of contemporaneously occupied houses could be identified. Exposure of large numbers of features in wide spatial areas was required to address this research question as was the recovery of artifacts and radiocarbon samples to document the time range of occupations within each of the site's separate areas. As will be noted below, these types of data had been gathered during the Phase III excavations.

The excavations at the Snapp and Leipsic sites also revealed that even though a wide time range was represented by the varied occupations, use of the sites was more intensive during certain time intervals. For example, the Snapp Site showed especially intensive use during the later portions of the Clyde Farm Complex of the Woodland I Period (ca. 1200 - 700 B.C.), while the Leipsic Site's major occupations occurred during the time period of the Woodland I/Woodland II transition (ca. 800-1100 A.D.). In the case of the Leipsic Site, it was also especially clear that the excavated section was only a small part of a much larger site (Figure 3), just as each of the separate sections of the Pollack Site is a portion of a much larger site (Figure 13).

Previous studies along various major drainages in Delaware (Custer 1984:143-145) had indicated that through time, prehistoric peoples had selected different sections of a drainage for intensive settlement in base camps. In general, the oldest settlements were located closest to the mouths of the drainages while older settlements were located further upstream. This shift in settlement locations was seen as related to changes in local estuarine environments. The freshwater/saltwater interface, or oligohaline, was the preferred location for settlement because it contained a wide range of resources in a small area. However, as sea-level rise progressed through the Woodland Period, this ecotone moved further and further inland. It is hypothesized that the shift in settlement locations up the drainages through time is related to this environmental change. Using this model as a guide, the intensive settlement of the Leipsic Site during the Woodland I/Woodland II transition was seen as an indication that the oligohaline zone was located nearby at that time. This interpretation was also partly corroborated by geomorphological and paleoenvironmental research in the area (Kellogg and Custer 1994; Custer, Riley, and Mellin 1994: Appendix I).

If the above-noted interpretation is correct, then two related predictions of chronological variation in settlement within the adjacent Pollack Site can be made. First, it is possible that the east/west extent of the site is small enough that all parts of the site would have equal access to the local oligohaline zone at any given point in time. In this case, the majority of settlement within the Pollack Site should date to the Woodland I/Woodland II transition, as was the case for the adjacent Leipsic Site.

The second possibility is that the east-west extent of the Pollack Site is great enough that not all parts of the site had equal access to the oligohaline zone at any given point in time, and that prehistoric groups shifted their settlement across the site over time. If this scenario is accurate, then the eastern, downstream, section of the site (Areas C, D, and E, and the eastern end of Area B) should have more extensive settlement pre-dating the Woodland I/Woodland II transition that occurred ca. A.D. 1000. Similarly, the western, upstream, sections of the site (Areas A and G, and the western end of Area B), which are at approximately the same location on the drainage as the Leipsic Site, should have settlements dating to the same time period (ca. A.D. 1000). Figure 27 summarizes the expected settlement patterns through time in the different areas of the site, given the assumption that the site is large enough to show such variations, and also shows the previously noted settlement expectations related to the use of the bay/basin features.

TABLE 3
Phase II Testing By Site Areas

AREA	SIZE (ACRES)	# OF PHASE II UNITS	PHASE II ARTIFACTS	PHASE II ARTIFACTS PER UNIT	# ADDITIONAL PHASE III UNITS	TOTAL UNITS
A	2.3	125	279	2.2	80	205
B	3.3	141	807	5.7	70	211
C	7.2	256	680	2.6	90	346
D	.7	54	94	1.7	0	54
E	.9	36	62	1.7	0	36
F	.3	18	31	1.7	0	18
G	1.6	113	109	1.0	0	113
TOTALS	16.3	743	2062		240	983

Field Research Methods. In order to gather data relevant to the research questions noted above, it was necessary to excavate large contiguous areas within the various sections of the Pollack Site. Phase II excavations had shown that prehistoric artifacts were present in the plow zone soils, but these artifacts were very sparse in some parts of the site. Nevertheless, even in the areas with few artifacts in the plow zone, there were prehistoric features present in undisturbed contexts beneath the plow zone. The proposed excavation of the gravel pit and wetland replacement areas would destroy all of the site areas noted in Figure 13, except for the wooded area. Therefore, the major goal of Phase III excavations was to remove plow zone soils to expose prehistoric features over the large areas to be disturbed by construction, and then excavate the exposed features.

Phase II testing had involved the excavation of 1,585 1- x 1-meter test units (Plates 5 and 6) in all areas of the site and 743 of these were located within the site boundaries as eventually defined in Figure 13. Table 3 shows the distribution of the test units within the site areas, the number of artifacts recovered from Phase II testing in each area, and the average number of artifacts per unit. Areas D, E, F, and G had the lowest numbers of artifacts per unit, less than two artifacts per unit, and based on the low artifact counts it was decided that there was no need to excavate additional plow zone units before stripping the plow soils to expose features in these areas.

Areas A, B, and C had higher artifact yields per unit and it was decided to excavate additional plow zone test units in these areas (Table 3). Furthermore, Areas A, B, and C were not as heavily eroded as the other areas, and there were some indications from the Phase II testing of Areas A, B, and C that intact artifact-bearing soils may be present beneath the plow zone in these areas. Table 3 shows the number of additional test units excavated in Areas A, B, and C. These units were intended to collect a larger sample of artifacts from the plow zone soils and identify areas where artifact-bearing soils may have been intact beneath the plow zone.

PLATE 9

Excavating One-Meter Test Units in Area C

The initial Phase II plow zone test units had been placed at 10-meter intervals across the site (Plates 5 and 6). The additional Phase III test units were concentrated in those parts of Areas A, B, and C which had the highest artifact densities, generally the areas adjacent to the wooded edges of the drainages adjacent to the cultivated field (Figure 13). These units were also placed on the 10-meter grid lines, and were evenly distributed across the individual site areas to augment the existing systematic aligned sample derived from the Phase II testing (Plate 9). Table 3 shows the total numbers of test units that were excavated in each area when the Phase II and Phase III units were combined.

It should be noted that in the course of Phase III excavations, it became clear that many of the pit features in the cultivated field had been badly truncated by erosion and plowing. In order to better understand the truncated features, limited test excavations were undertaken in the unplowed woodlot on the south side of the Leipsic River north of Areas B and C (Figure 13, Plate 2) in hope of finding intact features that would shed light on the truncated features. This testing also served to identify the cultural resources that will be preserved in this area. The results of the woodlot excavations are described in this report after the results of the excavations in the cultivated fields.

After the plow zone sample excavations had been completed, the plow zone soils were mechanically removed to expose cultural features. A Caterpillar #225 treaded backhoe excavator fitted with a 72-inch toothless grading bucket and a standard ten-wheel dump body truck were used. Field

PLATE 10

Mechanical Removal of Plow Zone Soils

crew using flat shovels followed the excavator's progress (Plate 10) and a smooth clear surface of reddish-yellow subsoil was exposed. Plate 11 shows Area D after stripping and the excavations in progress in Area E. Also visible in Plate 11 are the dark, moist soil stains that indicate the presence of a prehistoric soil pit feature. At some archaeological sites in the Middle Atlantic region, prehistoric pit features are visible due to the inclusion of dark organic soils in the feature matrix. However, at the Pollack Site, and at most sites in the Delaware Coastal Plain, organic soils are not present. Instead, features are defined because their excavation in ancient times interrupted the natural development of soil profiles causing a discoloration of varied hues in the soils (Plate 12).

Soil stains were outlined with a trowel, sequentially numbered, photographed, drawn in plan view, and covered with tightly stretched black polyethylene film to prevent exposure to the adverse effects of sunlight, oxygen and evaporation (Plate 13). The black polyethylene cut into pieces about three times the size of the feature held down with spikes became laminated to the subsoil after the first rainfall. At a later date, when the black polyethylene was peeled off to expose features for hand excavation

PLATE 11

Phase III Excavations in Areas D, E, and F

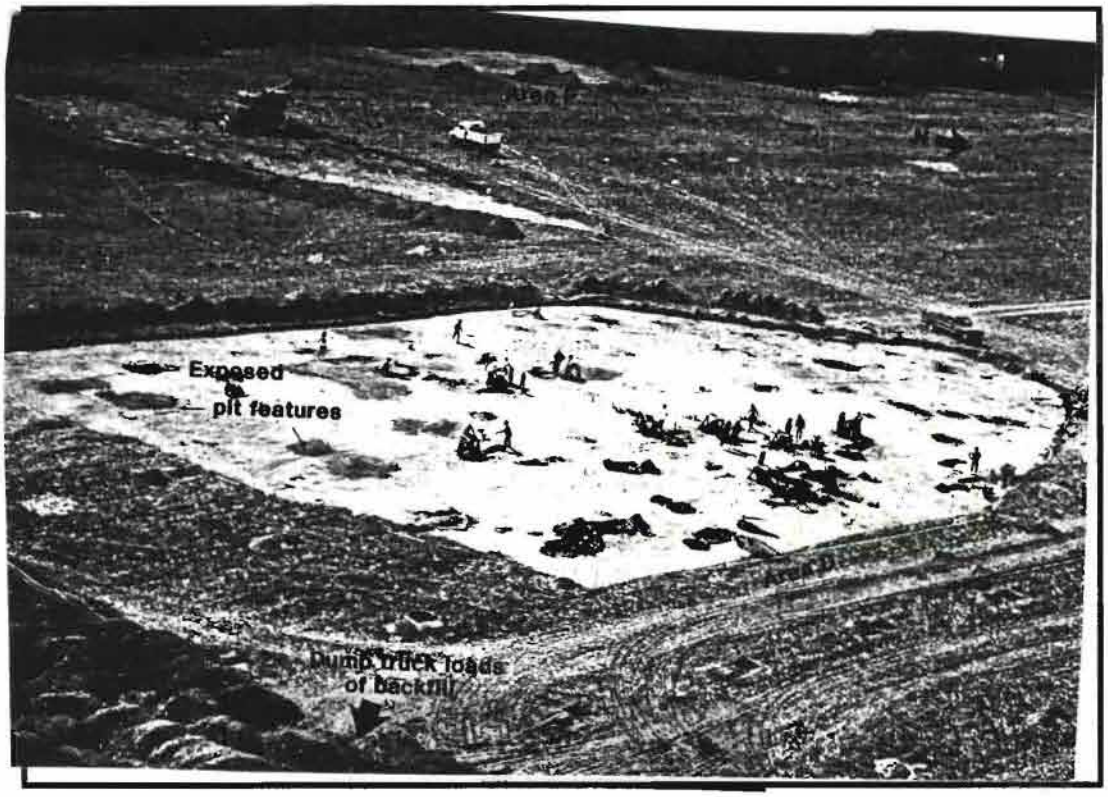


PLATE 12

Profile of Soils in Typical Pit Feature

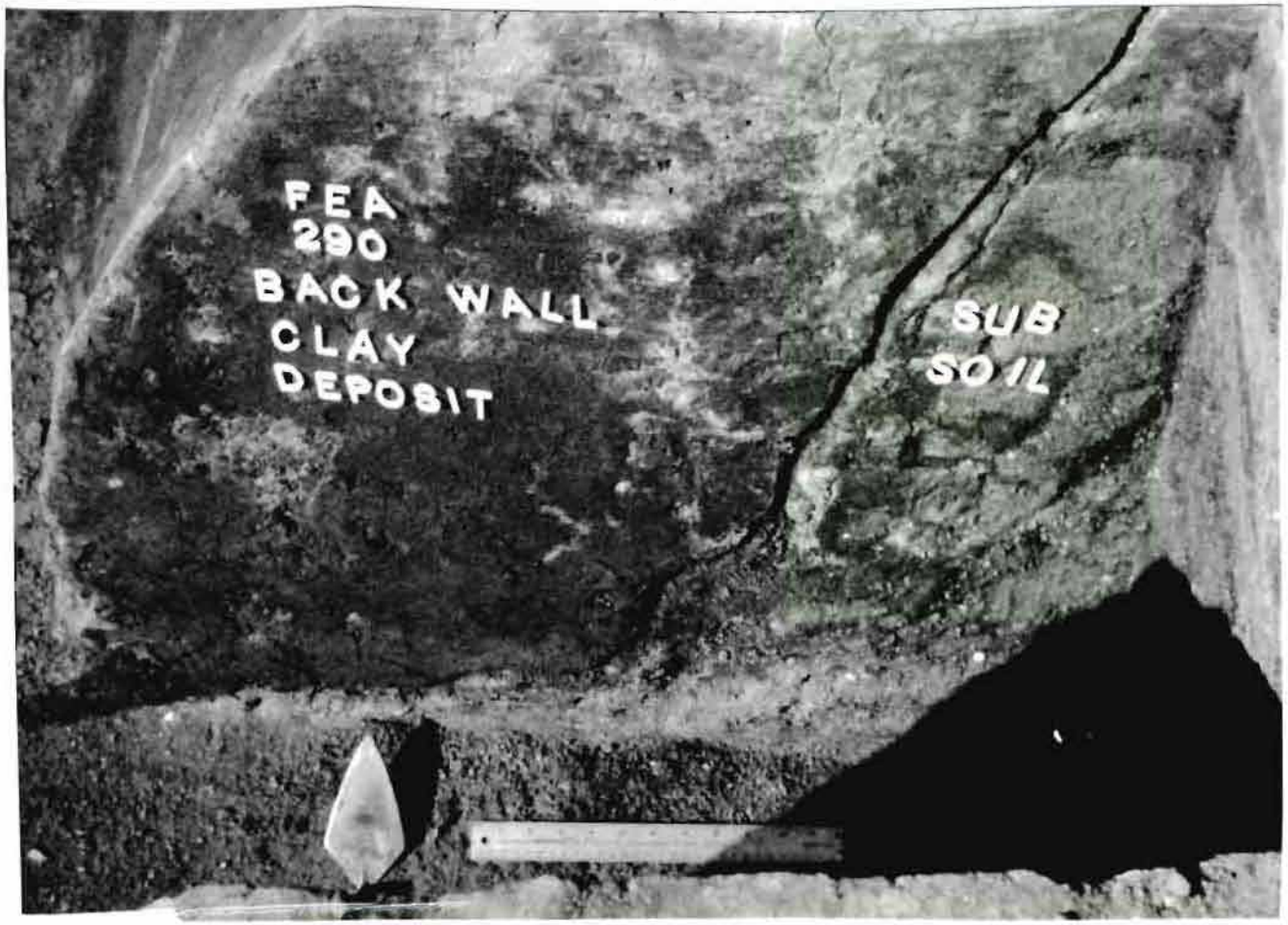
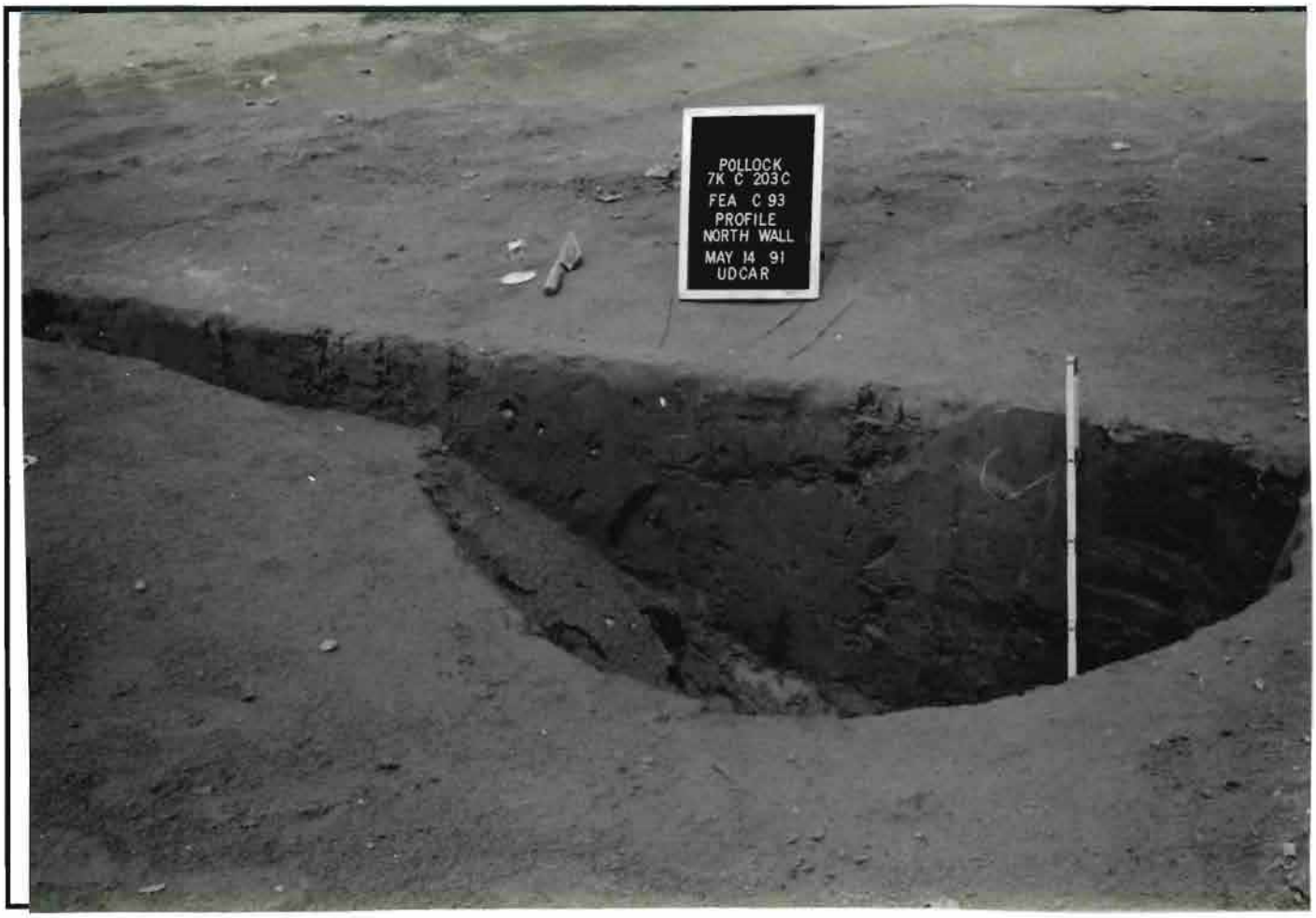


PLATE 14

Profile of Feature C93 (Type 2)



the surface was moist, fresh, and largely free of bacteria. It should be noted that the best results were to have one piece of polyethylene per feature. Short of applying herbicides, the application of black polyethylene sheets was a resounding success.

All soil from each of the features was dry-screen sifted through 1/4-inch mesh. Features were excavated in halves along their long axes so that profiles could be recorded (Plate 14). If interesting artifacts were encountered, they were mapped in situ (Plates 15 and 16). Standard column soil samples for flotation analysis were taken.

Some sections of Areas B and C contained intact soils beneath the plow zone soils. These soils were excavated in 1- x 1-meter squares and in all cases a single 10-centimeter level was sufficient to completely excavate the vertical extent of these soils. As was the case with features, these soils were screened through 1/4-inch mesh. Soils from excavated squares in the wooded area of the site were also screened through 1/4-inch mesh.

PLATE 15

Excavating and Recording Features

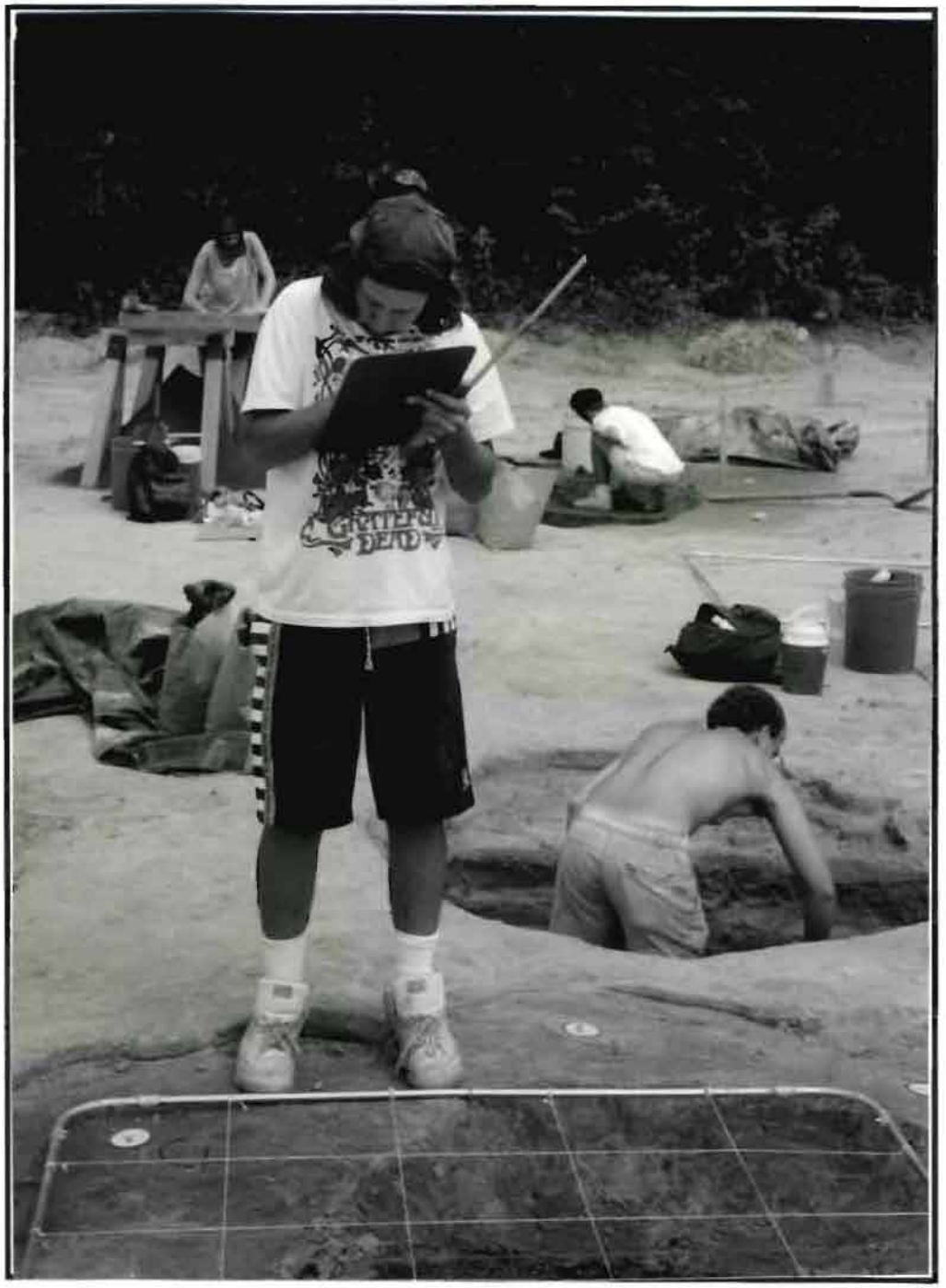


PLATE 16

Fire-Cracked Rock in Feature

Laboratory Research and Analysis Methods. All artifacts were washed and marked in accordance with the procedures developed by the Delaware Bureau of Archaeology and Historic Preservation. Lithic artifacts were cataloged by raw material and functional types. Tools, samples of debitage, and soil samples were processed for potential blood and bone collagen residues (Plate 17) following protocols developed by UDCAR (Custer, Ilgenfritz, and Doms 1988). Edge-wear analyses using high- and low-power magnification were attempted to help clarify activities undertaken at the site. To better understand stone tool manufacturing, bifaces were sorted following Callahan's (1979) categories of biface reduction. The presence or absence of cortex on lithic artifacts was noted in order to study use of cobbles for tool manufacturing.

Ceramics were cataloged by the major cultural types noted for Delaware (Custer 1989). To analyze form variability of ceramics, identifications of surface treatments and tempering components were noted. Latex molds of cordage impressions were created where possible to study textile industries. Remending of ceramic sherds was conducted where possible to better determine dimensions of the original vessels. Selected soil samples were floated through water driven tanks to recover artifacts and ecofacts smaller than 1/4 inch in size. Artifacts from these samples were cataloged in similar manners to the

PLATE 17

Blood Residue Analysis

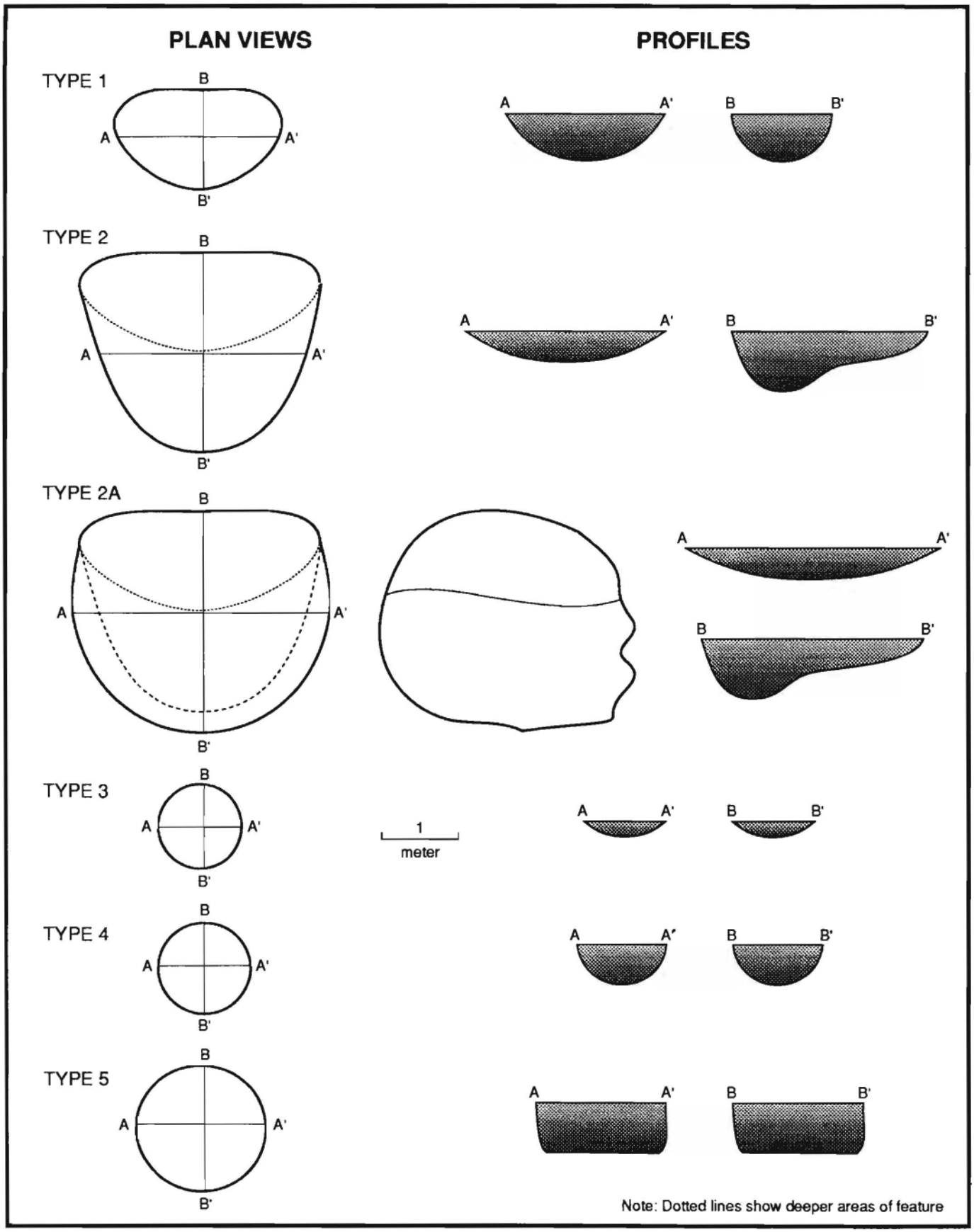
artifacts mentioned above. All seeds were identified using low- and high-power magnification. All charred seeds were also recorded. All faunal remains were identified. Carbon from field and floated soil samples was weighed and selected for radiocarbon dating. Plotted distributions of selected artifacts and ecofacts from the assemblage were generated to better assess varied occupations of the site.

Before leaving the discussion of laboratory analysis methods, it is necessary to briefly describe the sampling methods applied during the analysis of the flotation samples. The large number of features excavated at the Pollack Site generated a volume of flotation samples that exceeded anything yet encountered by archaeologists working in Delaware. Consequently, it was necessary to "sample the samples" for analysis.

In addition to the overwhelming volume of samples, other issues played a role in the development of a sampling scheme for the flotation analysis. One of these additional issues was the recognition of a need to develop a series of "archived" flotation samples that could be analyzed by archaeologists in the future. The rapid changes in archaeological analytical methods guarantee that there are probably classes of data in the flotation samples of which current archaeologists are not aware. In order to make sure that future archaeologists have samples from the Pollack Site to consider, a series of flotation samples from each area was not picked and these samples were packed away and curated for future analysis.

FIGURE 28

Feature Type Plan Views and Profiles



Some of the features excavated at the Pollack Site had been disturbed by post-depositional processes and the flotation samples from these features were not picked. Likewise, some of the features had very poor organic preservation and it was possible to recognize the poor preservation from a visual examination of heavy and light flotation samples without extensive analysis. In general, a visual examination of all heavy and light flotation fractions was made, and those sample fractions without organic materials were not subjected to extensive analysis. As a result, not all of the flotation samples were analyzed for this report. However, the unanalyzed "archived samples" are currently curated at the University of Delaware Center for Archaeological Research.

Feature Typology. The final topic to be discussed is the typological system used to analyze the prehistoric archaeological pit features. Earlier excavations at the Snapp and Leipsic sites had shown that a limited number of pit feature shapes had been encountered at archaeological sites on the Delmarva Peninsula. Figure 28 shows the varied feature types recognized at the Pollack Site and each of these feature types is described below. A complete discussion of the feature types and their functions can be found in Custer and Silber (1994:41-52).

In general, feature Types 1, 2, and 2A are the remains of prehistoric pit houses (Custer and Silber 1994:41-52). Figure 29 shows a typical pit house feature which consists of an excavated "basement" and "sub-basement" storage pit. At the Snapp Site, sets of post molds surrounded the pits, and the posts that once sat in these holes would have constituted a wooden framework (Plate 18) which was covered with bark or hides (Plate 19). Feature Types 2 and 2A are the remains of houses where erosion and cultivation have destroyed the post molds, but where the "basement" and "sub-basement" are still intact (Figure 29). Plate 20 shows an especially good example of a Type 2A feature from the Leipsic Site where the "basement" and "sub-basement" are still intact. When erosion and ground disturbance from cultivation are especially severe, only the "sub-basement" is preserved, and a Type 1 feature results (Figure 29).

FIGURE 29

Taphonomy of Pit House Features

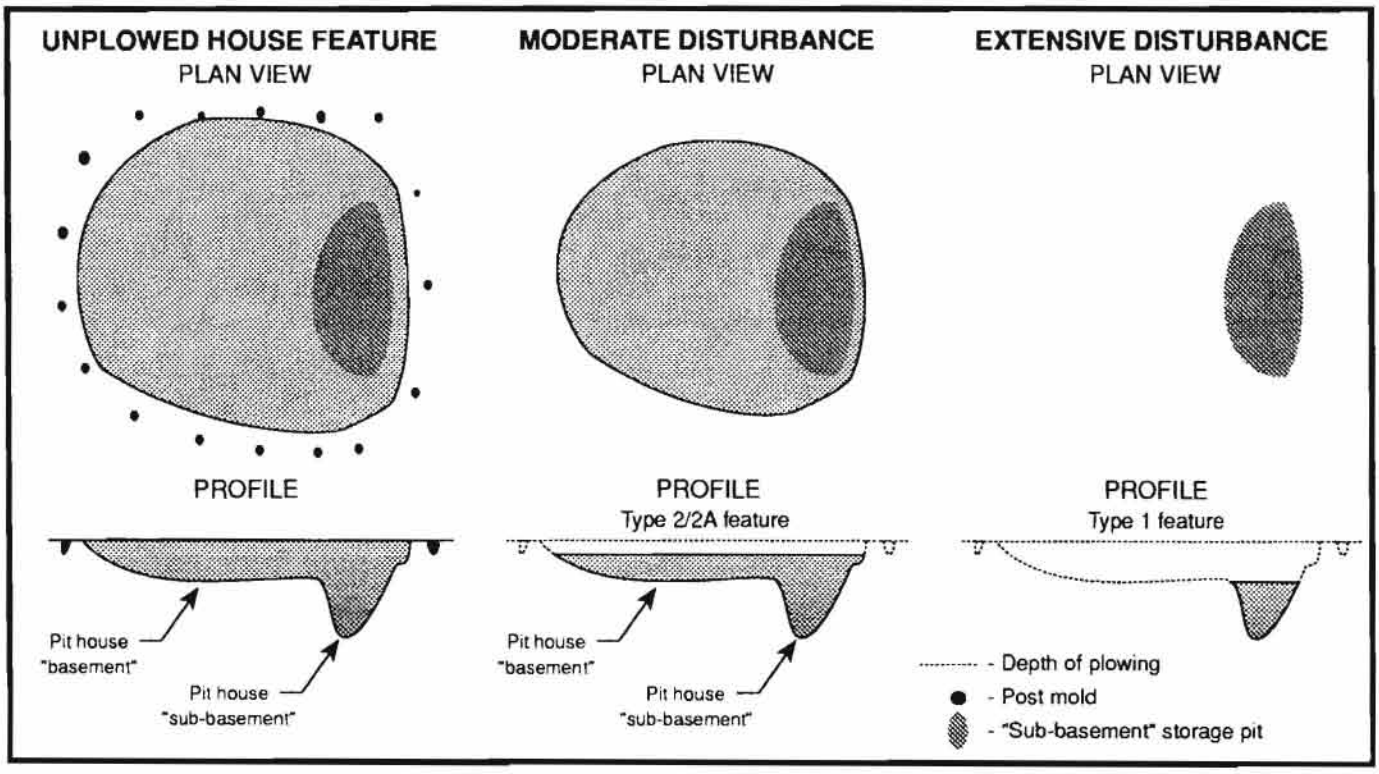


PLATE 18

Wooden Framework of House Reconstruction

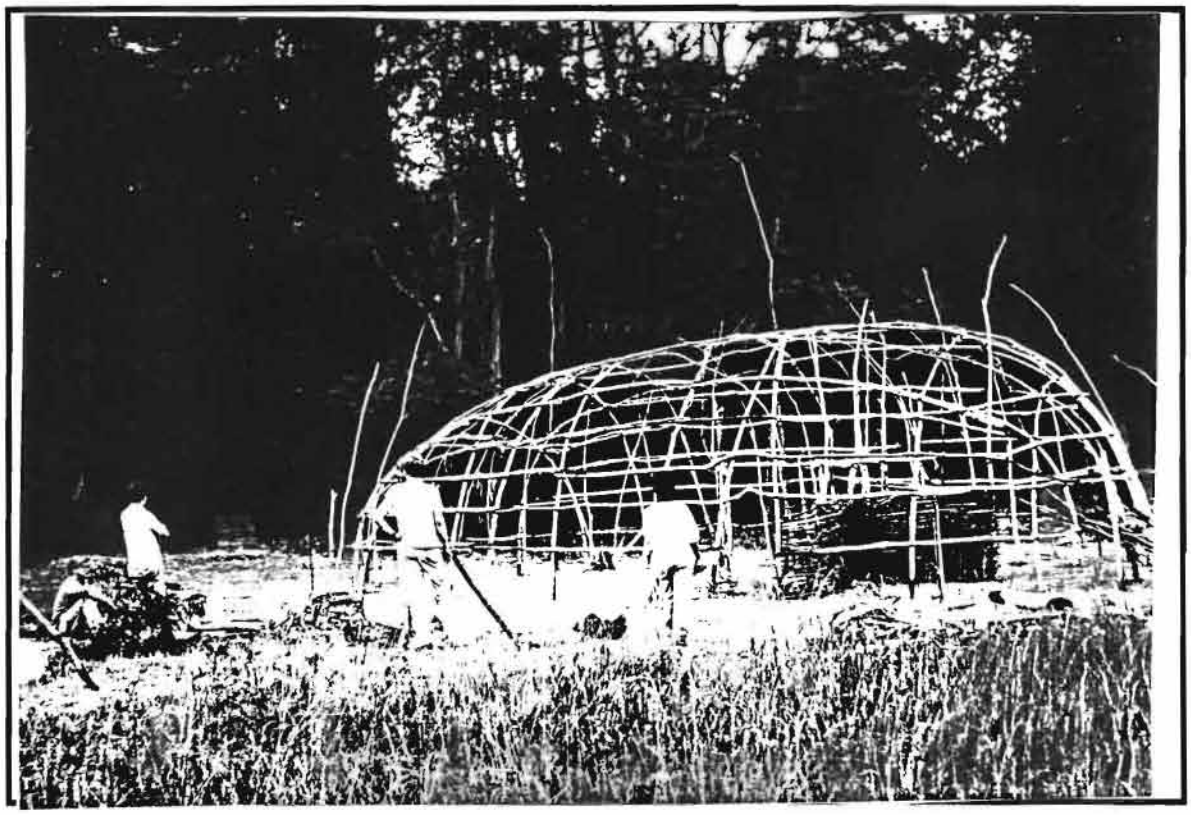


PLATE 19

House Reconstruction with Bark Covering

PLATE 20

Type 2A House Feature from the Leipsic Site

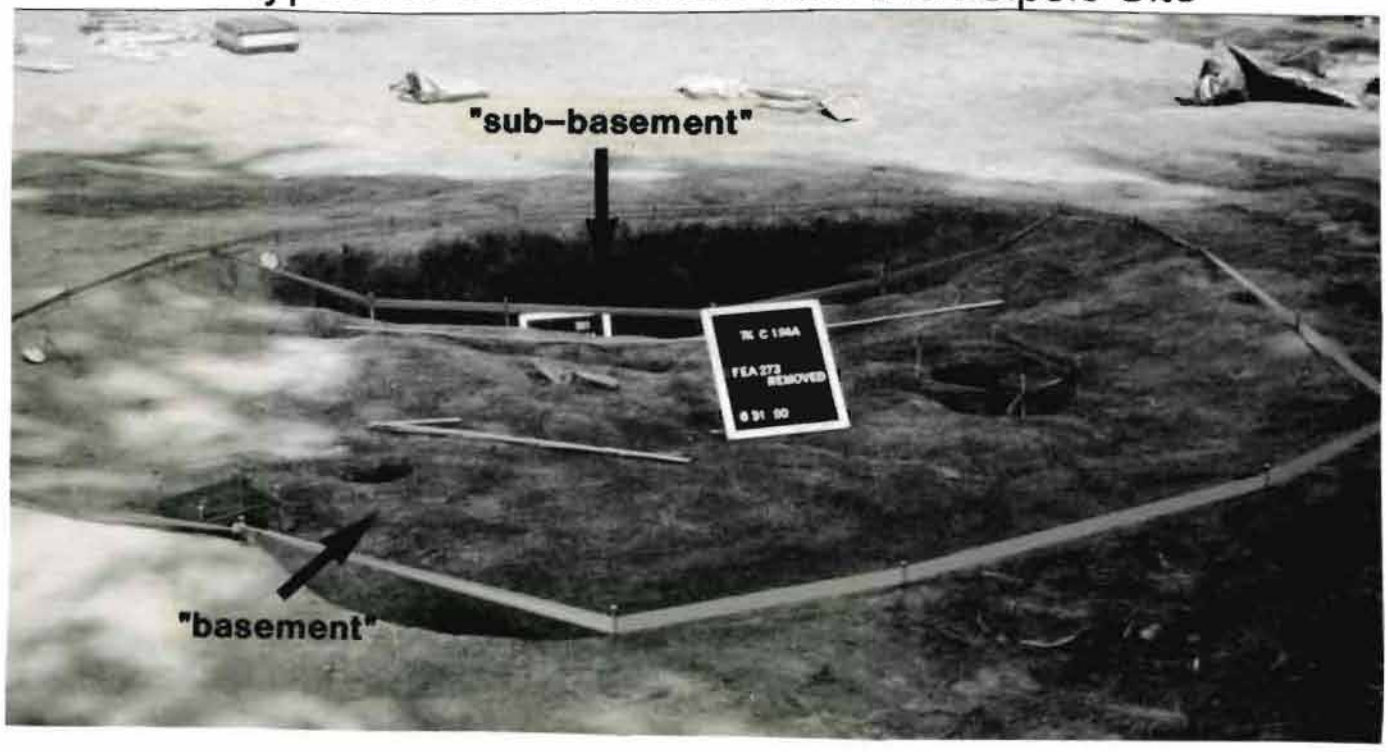


PLATE 21

Opening Plan View of Feature C462 (Type 1)

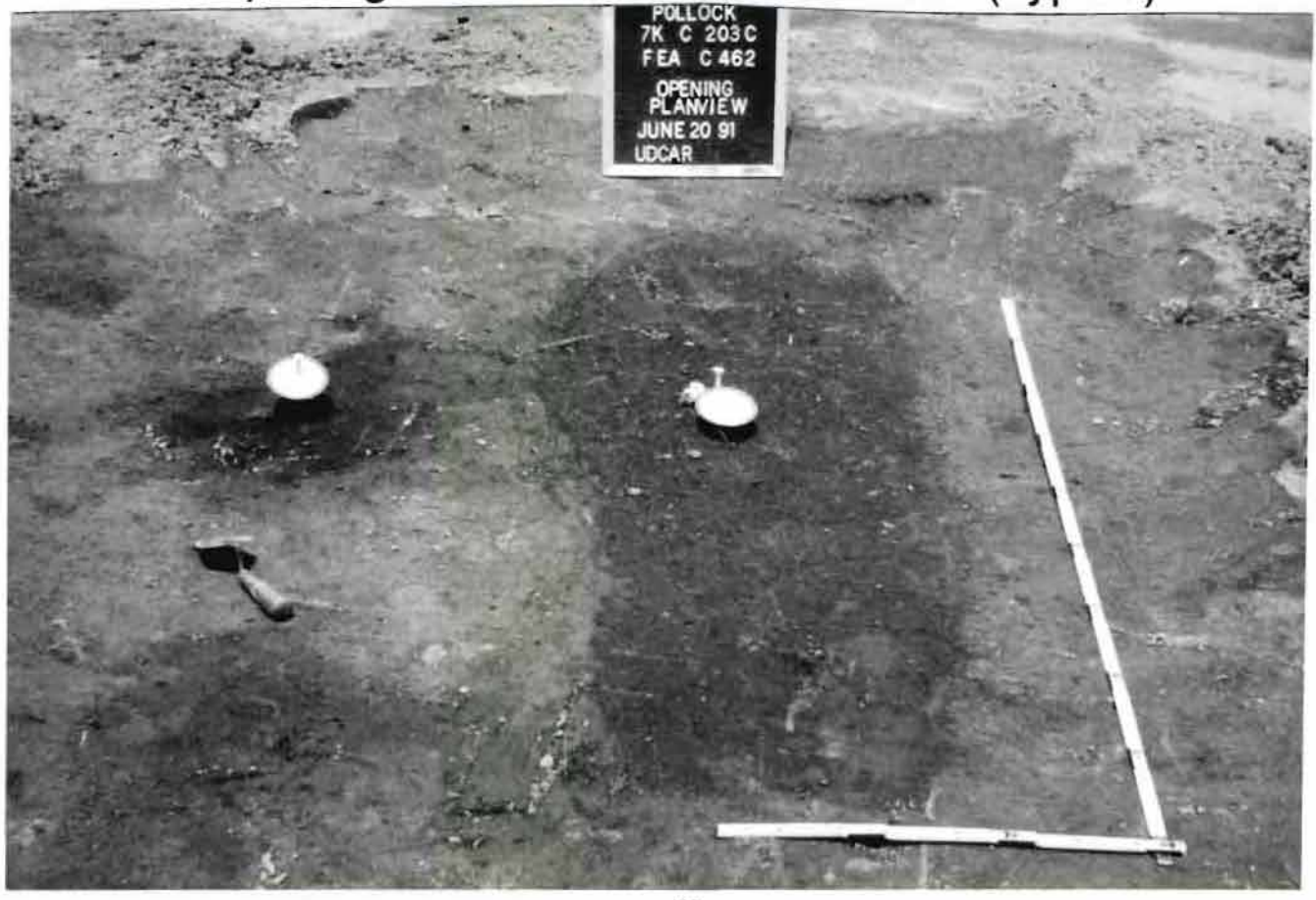


FIGURE 30

Typical Type 1 Feature Plan View and Profile

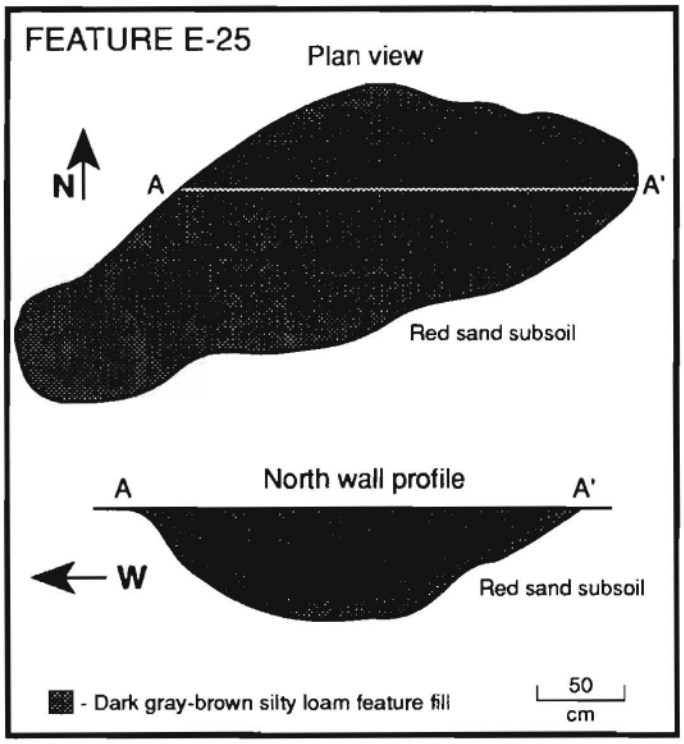
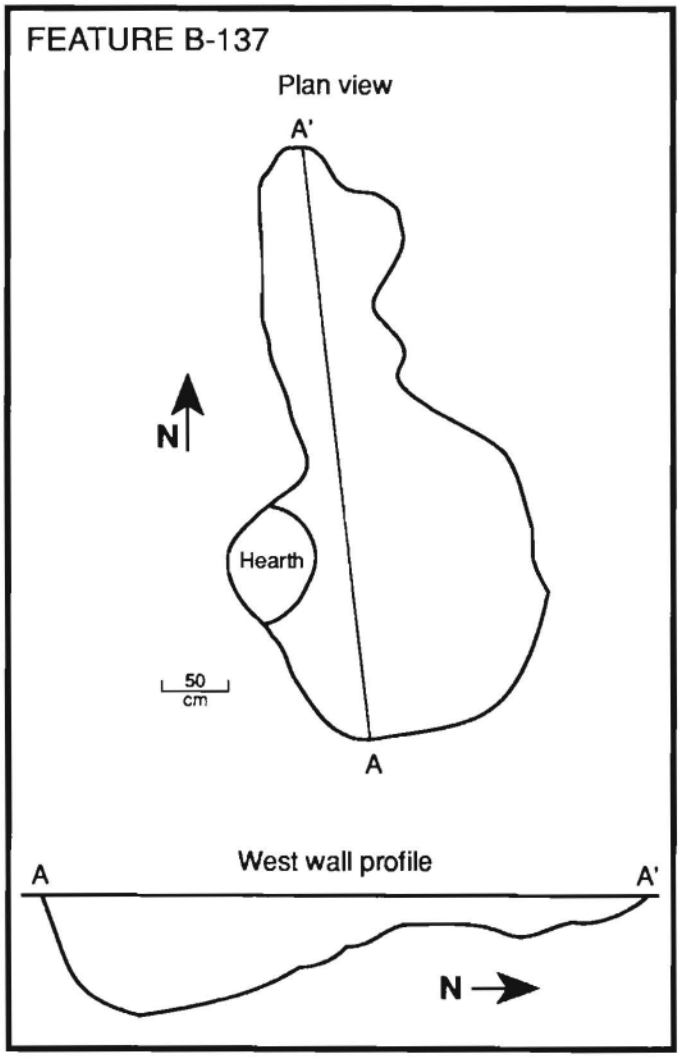


FIGURE 31

Typical Type 2 Feature Plan View and Profile



Feature Type 1 is the most common feature type found at sites in Delaware. Figure 30 and Plate 21 show the plan view and profile of a typical Type 1 feature from the Pollack Site. The surface area of these features usually ranges in size from one square meter to nine square meters, and the average depth is approximately one meter. This feature type typically appears as a kidney-shaped soil stain generally twice as long as wide and slightly asymmetrical along its long axis in plan view. The cross-section profile along the long axis of Type 1 features is symmetrical and is characterized by gently sloping sides. The short axis profile is less symmetrical and is characterized by steeper sides which join off center to form a rounded bottom. Type 1 features appear to have lost a significant amount of their original volume, perhaps as much as 30 to 50 percent, due to soil deflation. Type 1 features are found within Type 2 or 2A house features, generally along their back walls (Figure 29). Since the remains of the cellar holes observed in Type 1, 2, and 2A features have a long axis and a short axis, the compass orientation of the dwellings may be hypothesized.

Type 2 features are not as common as Type 1 features. Figure 31 shows a typical Type 2 feature plan view and profile. In general, these features appear triangular in plan view with surface areas ranging in size from two square meters to 16 square meters. Type 2 depressions have gently sloping

PLATE 22

Opening Plan View of Feature B19 (Type 2A)

walls and the floors slope downward to join an internal cellar hole (Type 1 pit feature) at one end of the Type 2 feature area (Plate 10). The average depth of Type 2 features is approximately one meter. Type 2A features are similar to Type 2 features, appear roughly circular in shape (Plate 22), and have a shallow profile with gently sloping walls that grade into Type 2 and Type 1 features (Figure 28).

Feature Type 3 is generally characterized as a shallow saucer-shaped pit feature that is relatively symmetrical in cross section. Figure 32 and Plate 23 show the plan view and profile of a typical Type 3 feature. The average surface area of these features is 1.0-1.5 square meters, and the average depth is 20-40 centimeters. These features probably served as storage or refuse areas.

FIGURE 32

Typical Type 3 Feature Plan View and Profile

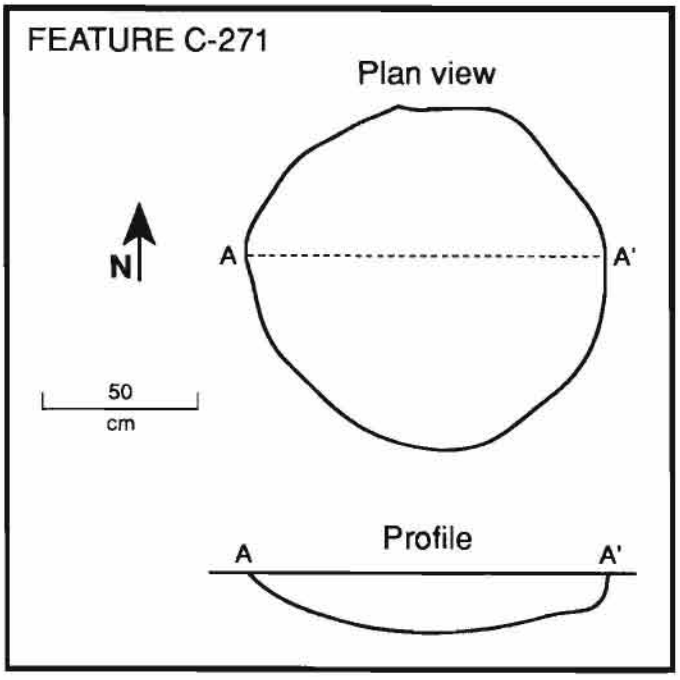


PLATE 23

Opening Plan View of Feature B50 (Type 3)

In general, Type 4 features are characterized as bowl-shaped pit features that are similar to Type 3 features, only deeper. The average surface area of Type 4 features is 1.5 square meters and the average depth is 50 centimeters. The greater depth of Type 4 features may indicate that they are a unique type and served a unique function or they may simply be a less deflated version of the Type 3 pit feature. Both Type 3 and Type 4 pit features usually contain relatively few artifacts. Figure 33 shows a typical plan view and profile of a Type 4 feature from the Pollack Site.

FIGURE 33

Typical Type 4 Feature Plan View and Profile

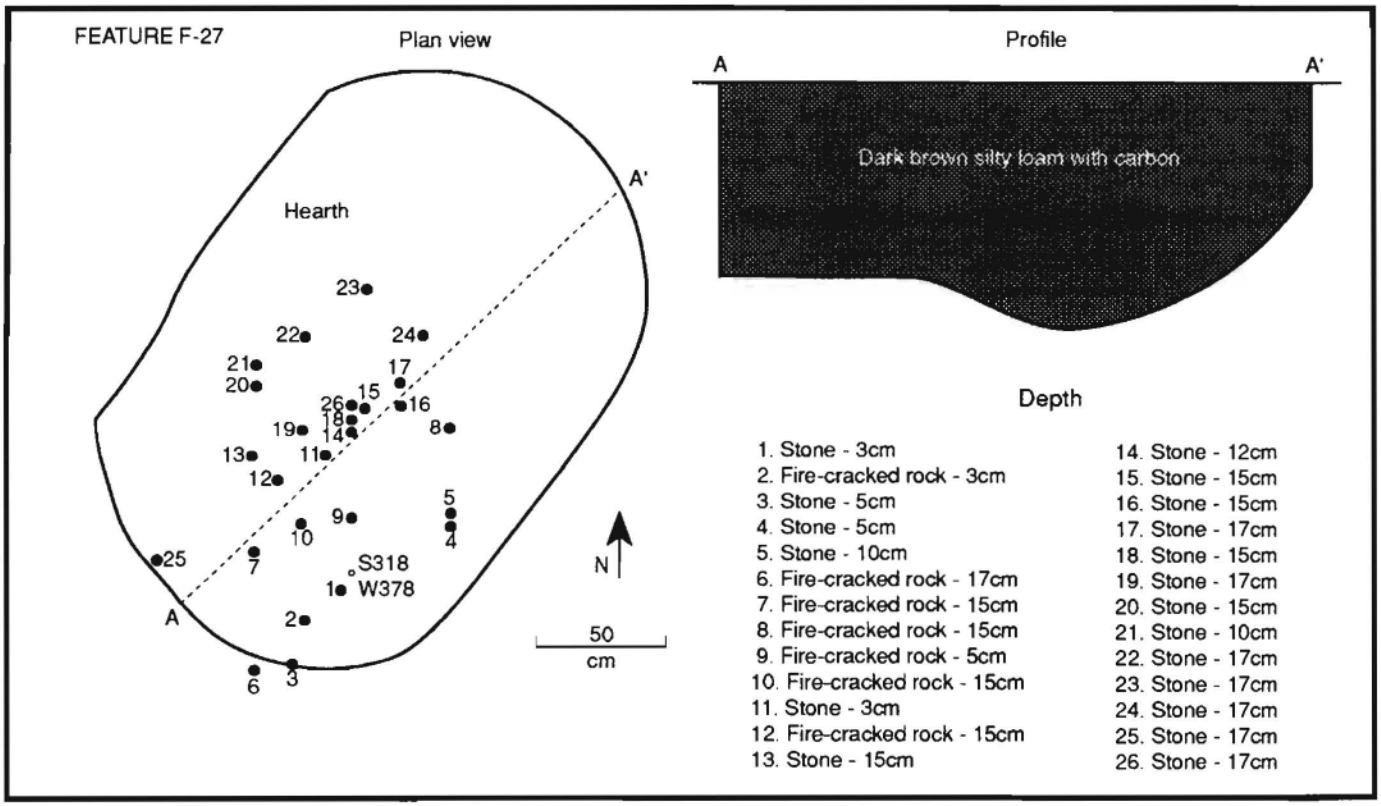
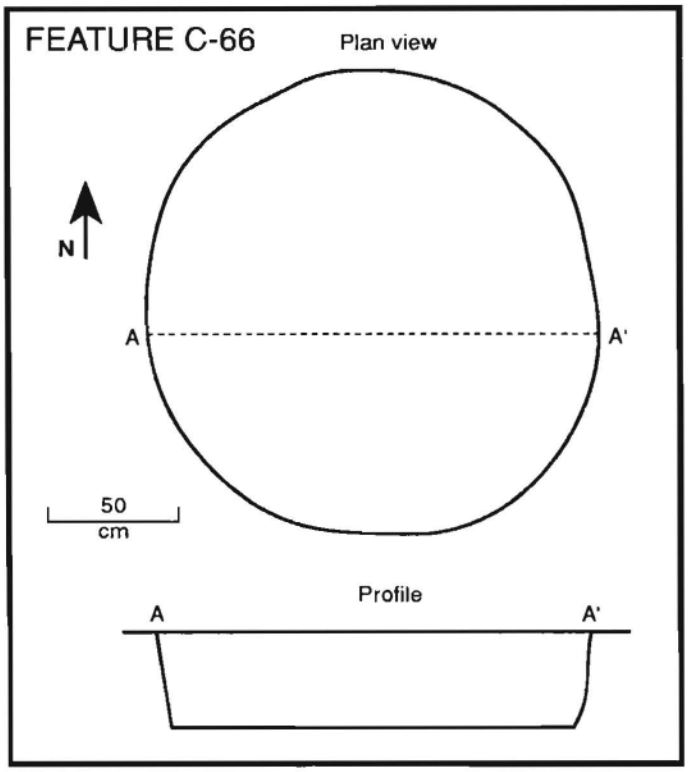


FIGURE 34

Typical Type 5 Feature Plan View and Profile



Type 5 features, like Type 3 and 4, are circular in plan view. The average surface area of Type 5 features is 1.5 square meters. Type 5 features differ from Type 3 and 4, however, in profile. On average, Type 5 features are deeper and have straight walls that are nearly perpendicular to a flat pit floor. The average depth of Type 5 features is 70 centimeters. These features probably functioned as storage or refuse pits, and the plan view and profile of a typical example from the Pollack Site is shown in Figure 34.