TABLE 7

Summary Catalog of All Artifacts

ARTIFACT TYPE	PLOW ZONE AND SURFACE		FEATURES		TOTAL	
Flakes	23,868	(9991)	18,860	(7680)	42,728	(17,671)
Utilized flakes	1148	(581)	625	(319)	1773	(900)
Flake tools	234	(145)	125	(98)	359	(243)
Projectile points	163	(3)	139	(27)	302	(30)
Early stage biface rejects	125	(78)	133	(53)	258	(131)
Late stage biface rejects	41	(12)	20	(5)	61	(17)
Biface fragments	237	(39)	124	(19)	361	(58)
Miscellaneous stone tools	121	(86)	60	(48)	181	(134)
Cores	215	(183)	164	(136)	379	(319)
Ground stone tools	1		7		8	
Hammerstones	20		20		40	
Ceramic sherds	1141		4188		5329	
Fire-cracked rock count	3043		3743		6786	
Fire-cracked rock weight (g)	102,101		194,602		296,703	
Total Artifact Count *	30,357		28,208		58,565	

* Does not include fire-cracked rock weight
( ) Artifacts with cortex present

Artifacts

Table 7 shows a summary catalog of all artifacts recovered from 1/4-inch screening of excavation unit and feature soils at the Carey Farm and Island Farm sites. Individual catalogs for each site area are presented later in this report.

Blood Residue Analysis

A total of 727 blood residue tests were undertaken on artifacts from the Carey Farm and Island Farm sites. Only three positive reactions occurred, and these were so slight that they were questionable. The negative results do not indicate that blood was never present on the stone tools from the sites. Rather, the negative results indicate that no blood is now present on the tools.

SOUTH AREA EXCAVATION RESULTS

This section of the report describes the specific results of excavations in the South Area of the Carey Farm Site (Figure 36, Attachment I). Table 8 shows the summary catalog of artifacts from this area. A total of 132 features were excavated in this area including 75 Type 1 features, 14 Type 2 features, 14 Type 3 features, 11 Type 4 features, 10 Type 5 features, and eight features that did not fit within any specific categories. An access road divides this area into two sections, east and west, and Figures 42 and 43 show a map of the features from the South Area. Interpretation of these data are presented in the following pages.

TABLE 8

Summary Catalog - Carey Farm Site, South Area

ARTIFACT TYPE	PLOW ZONE AND SURFACE		FEATURES		TOTAL	
Flakes	3505	(1415)	3322	(1419)	6827	(2834)
Utilized flakes	244	(135)	176	(92)	420	(227)
Flake tools	23	(16)	62	(54)	85	(70)
Projectile points	13	(0)	27	(2)	40	(2)
Early stage biface rejects	12	(5)	23	(15)	35	(20)
Late stage biface rejects	7	(1)	4	(0)	11	(1)
Biface fragments	38	(4)	38	(6)	76	(10)
Miscellaneous stone tools	18	(11)	14	(12)	32	(23)
Cores	26	(11)	19	(16)	45	(27)
Ground stone tools	0		0		0	
Hammerstones	4		3		7	
Ceramic sherds	101		454		555	
Fire-cracked rock count	1014		1324		2338	
Fire-cracked rock weight (g)	25,896		91,973		117,869	
Total Artifact Count *	5005		5466		10,471	

* Does not include fire-cracked rock weight

( ) Artifacts with cortex present

TABLE 9

Diagnostic Projectile Points from Plow Zone Soils - Carey Farm Site, South Area

POINT TYPE	NUMBER OF POINTS
Type I Stem	1
Type D Stem	5
Type B Stem	1
Fox Creek	1
Jack's Reef	1
Triangles	2

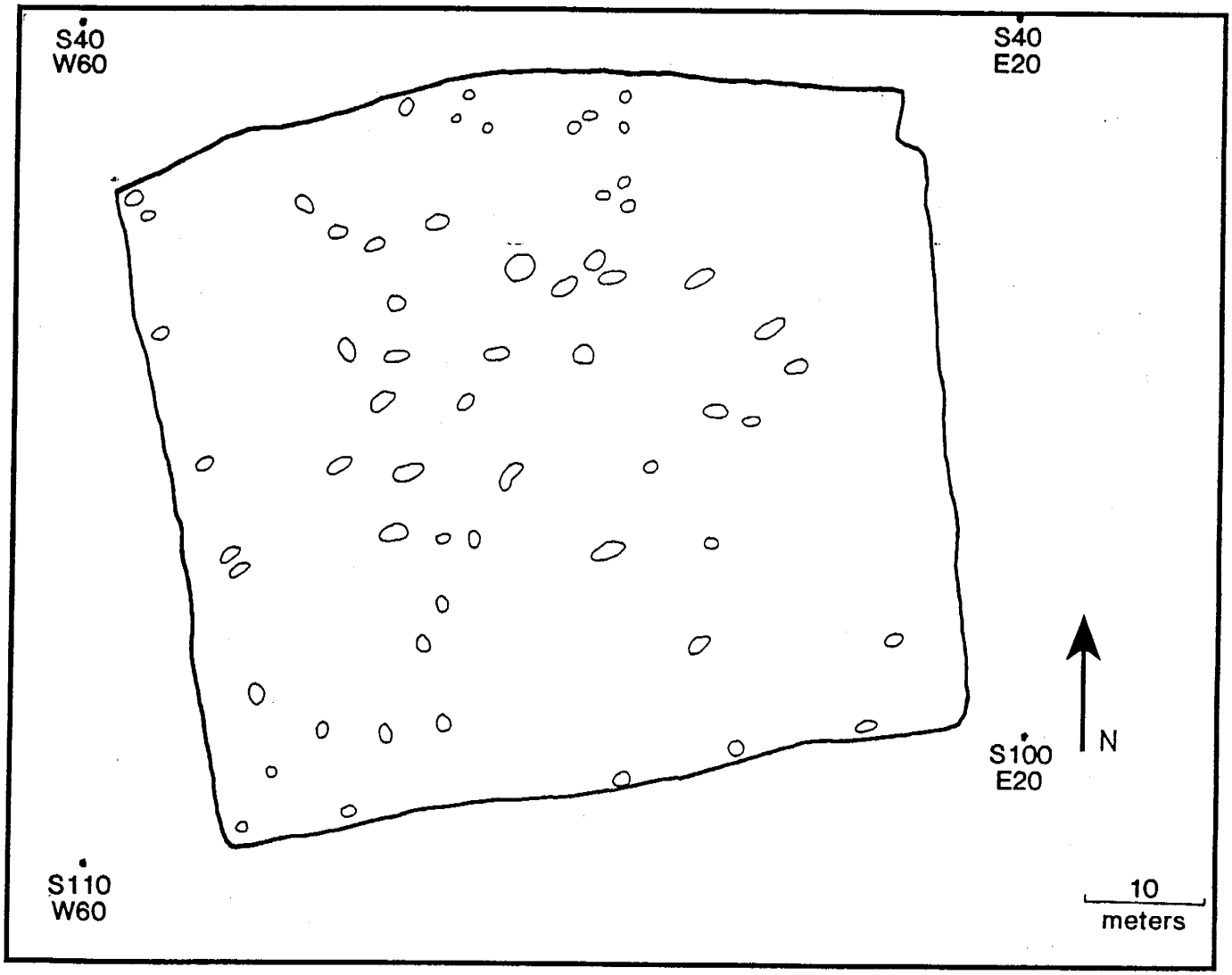
TABLE 10

Diagnostic Projectile Point Types from the Carey Farm and Island Farm Sites

POINT TYPE	DATE RANGE
Dalton-Hardaway	ca. 8500 B.C.
Kirk/Palmer	8000 B.C. - 7000 B.C.
MacCorkle	7000 B.C. - 6000 B.C.
Bifurcate	6500 B.C. - 6000 B.C.
Neville/Stanly	6000 B.C. - 5000 B.C.
Type B Stemmed	2500 B.C. - A.D. 500
Type D Stemmed	4000 B.C. - 1000 B.C.
Type E Stemmed	4000 B.C. - 1000 B.C.
Type I Stemmed	5000 B.C. - 2000 B.C.
Generalized Side-Notched	3000 B.C. - A.D. 1000
Lehigh Koens/Crispin	2500 B.C. - 1500 B.C.
Perkiomen Broadspear	1500 B.C. - 1000 B.C.
Fishtail	1200 B.C. - 500 B.C.
Teardrop	1000 B.C. - 500 B.C.
Fox Creek	A.D. 200 - A.D. 700
Jack's Reef	A.D. 400 - A.D. 1000
Triangle	A.D. 1000 - A.D. 1600

FIGURE 42

Feature Locations - Carey Farm Site, South Area, West Section



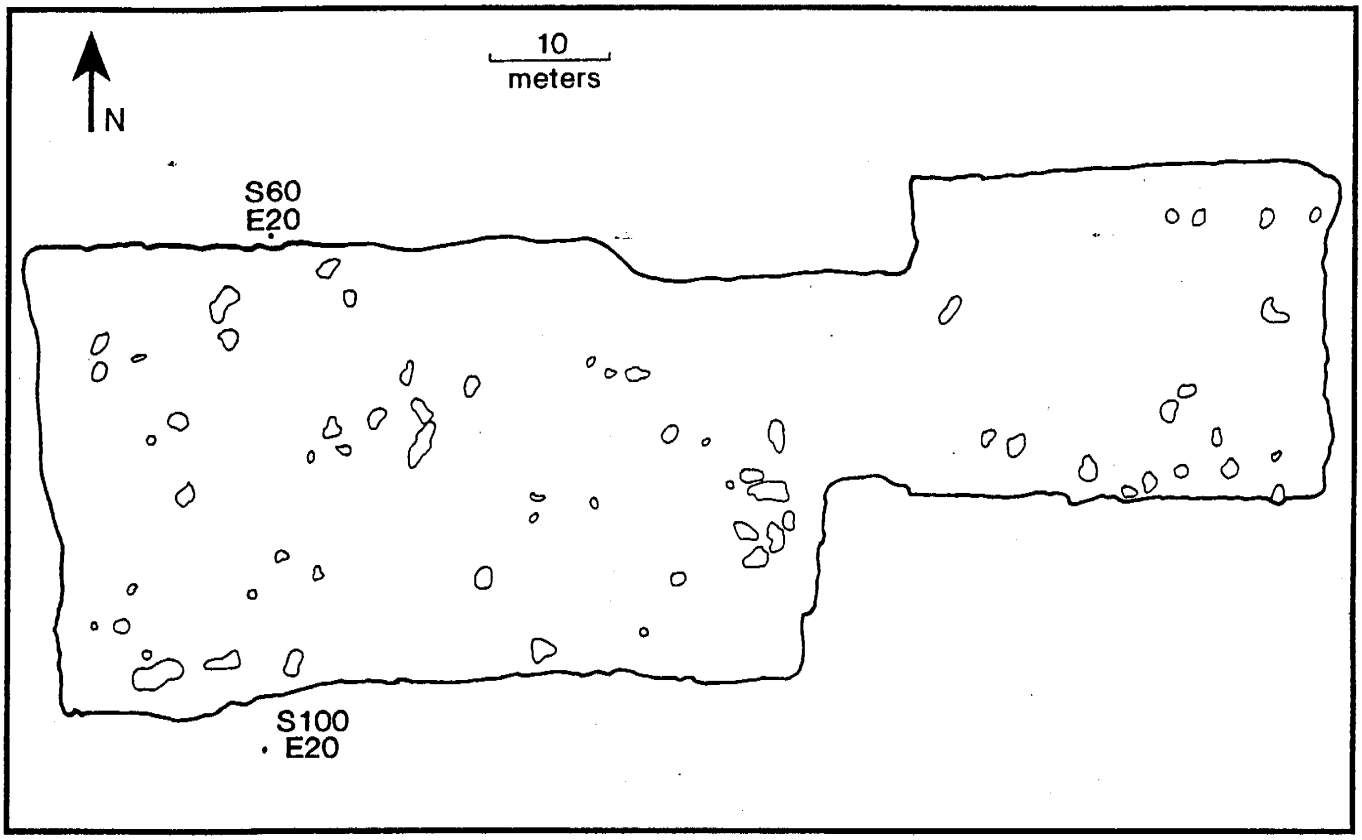
Chronology

Chronological interpretations for the South Area of Carey Farm can be drawn from diagnostic projectile points, ceramics, and radiocarbon dates. The distribution of features with diagnostic artifacts and radiocarbon dates across the South Area is also discussed with reference to the history of the South Area's occupation.

Plow Zone Diagnostic Artifacts. Plates 31 and 32 show samples of projectile points found in plow zone soils in various areas of the Carey Farm and Island Farm sites. Diagnostic projectile points from the plow zone of the South Area illustrated in Plate 31 include a Fox Creek notched point (Plate 31I), a Jack's Reef point (Plate 31J), and a triangular point (Plate 31U). Stemmed points from the plow zone illustrated in Plate 32 include a Type I stemmed point (Plate 32C), three Type D stemmed points (Plate 32 I, J, and L), and a Type B stemmed point (Plate 32S). Table 9 lists the numbers of diagnostic points found in the South Area, and Table 10 lists the dates associated with all diagnostic projectile point types found at the Carey Farm and Island Farm sites based on recent reviews of the archaeological chronology of the central Middle Atlantic region (Custer 1989; 1995).

FIGURE 43

Feature Locations - Carey Farm Site, South Area, East Section



Key to Plate 31

A - Jasper Dalton/Hardaway	- 89/9/924	L - Quartz Lehigh/Koens-Crispin Broadspear	- 89/9/129
B - Jasper Kirk/Palmer	- 92/175/463	M - Jasper Perkiomen Broadspear	- 92/175/29
C - Jasper Kirk/Palmer	- 89/9/122	N - Jasper Fishtail	- 92/175/125
D - Quartzite Kirk Stem	- 92/175/206	O - Jasper Triangle	- 92/175/222
E - Rhyolite Side-Notched	- 92/175/35	P - Chert Triangle	- 92/175/249
F - Jasper Side-Notched	- 89/9/81	Q - Jasper Triangle	- 92/175/236
G - Jasper Side-Notched	- 92/175/24	R - Jasper Triangle	- 92/175/212
H - Chert Teardrop	- 89/9/58	S - Jasper Triangle	- 92/175/193
I - Rhyolite Fox Creek	- 91/4/K16	T - Jasper Triangle	- 92/175/355
J - Jasper Jack's Reef Pentagonal	- 91/4/K3	U - Jasper Triangle	- 91/4/K21
K - Argillite Lehigh/Koens-Crispin Broadspear	- 89/9/116	V - Chert Triangle	- 89/9/1

PLATE 31

Miscellaneous Projectile Points from Plow Zone Soils

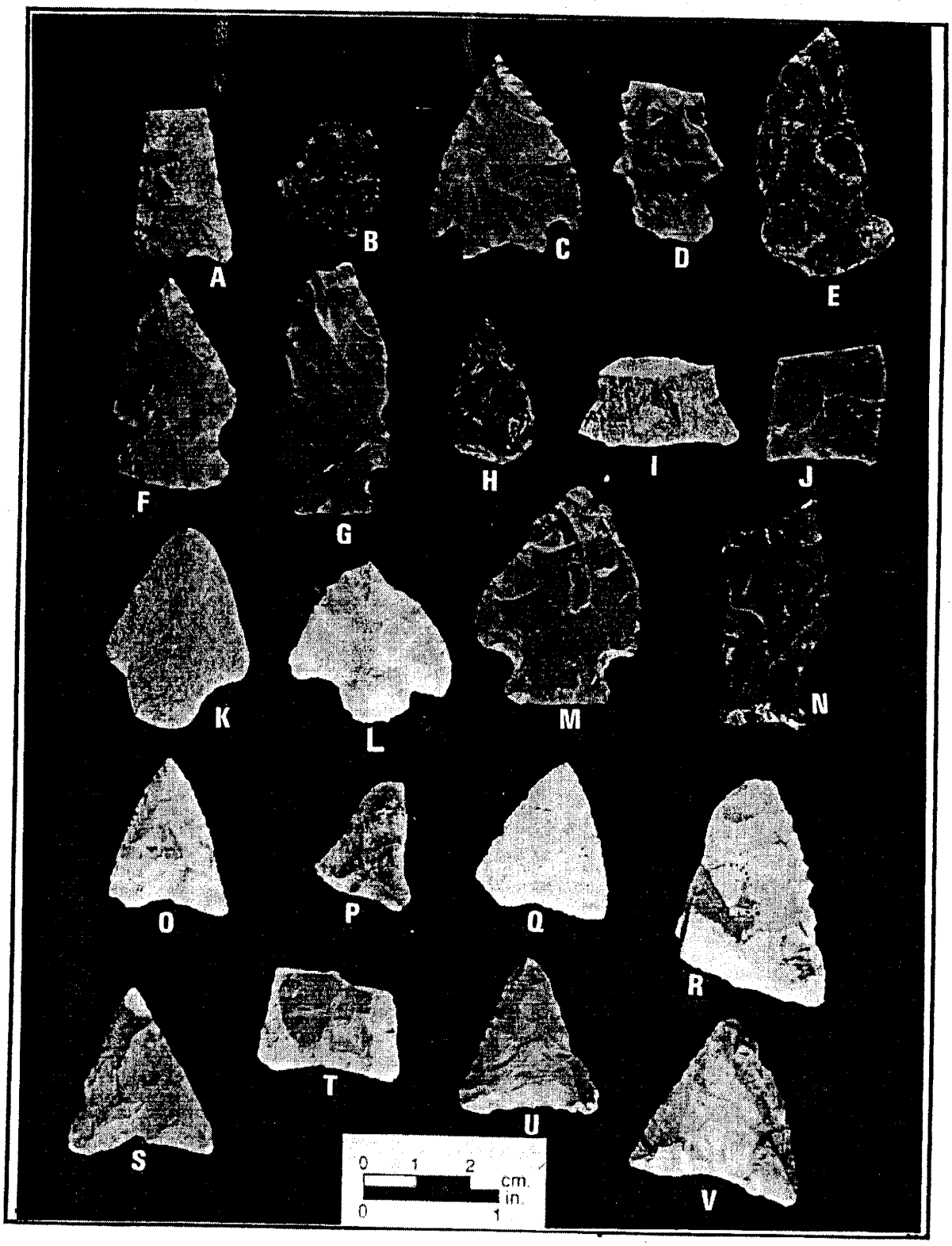
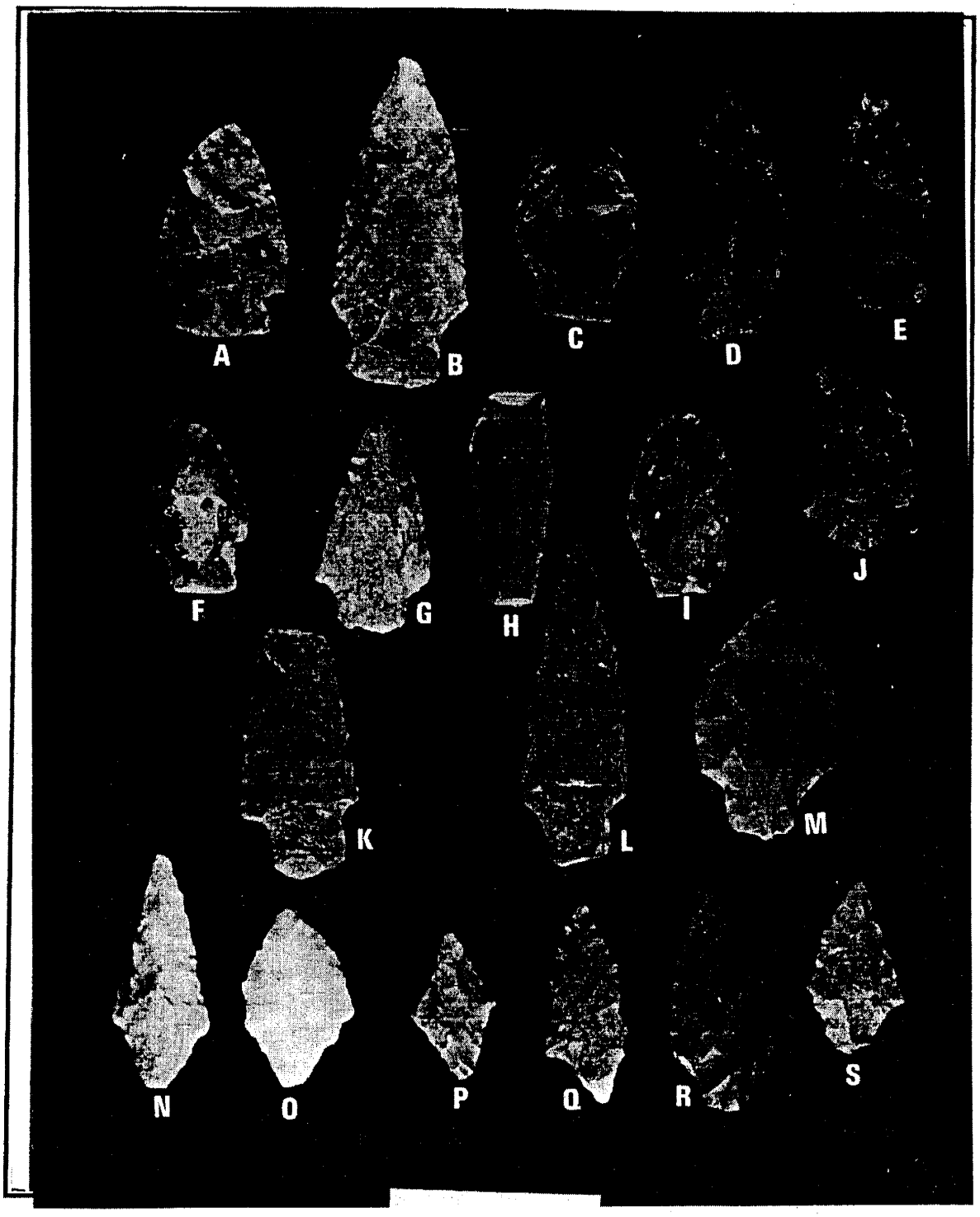


PLATE 32

Stemmed Projectile Points from Plow Zone Soils



Key to Plate 32

A - Chert Type I Stem	- 89/9/1
B - Quartz Type I Stem	- 89/9/150
C - Jasper Type I Stem	- 91/4/K6
D - Jasper Type I Stem	- 92/175/165
E - Jasper Type E Stem	- 89/9/31
F - Jasper Type D Stem	- 92/175/407
G - Chert Type D Stem	- 92/175/29
H - Jasper Type D Stem	- 92/175/354
I - Jasper Type D Stem	- 92/175/440
J - Jasper Type D Stem	- 92/175/432
K - Jasper Type D Stem	- 92/175/6
L - Argillite Type D Stem	- 92/175/434
M - Chert Type D Stem	- 92/175/296
N - Quartz Type B Stem	- 89/9/1
O - Quartz Type B Stem	- 92/175/6
P - Jasper Type B Stem	- 92/175/407
Q - Jasper Type B Stem	- 91/39/266
R - Jasper Type B Stem	- 92/175/50
S - Jasper Type B Stem	- 91/4/K2

TABLE 11
Diagnostic Ceramics from Plow Zone Soils - Carey Farm Site, South Area

CERAMIC TYPE	NUMBER OF UNITS
Marcey Creek	1
Wolfe Neck Cord-Marked	1
Nassawango Cord-Marked	3
Coulbourn Cord-Marked	1
Mockley Cord-Marked	7
Mockley (uncertain surface treatment)	3
Hell Island Cord-Marked	7
Hell Island Smoothed	1
Townsend Cord-Marked	2
Killens Cord-Marked	1
Minguannan Cord-Marked	1

TABLE 12
Diagnostic Ceramic Types from the Carey Farm and Island Farm Sites

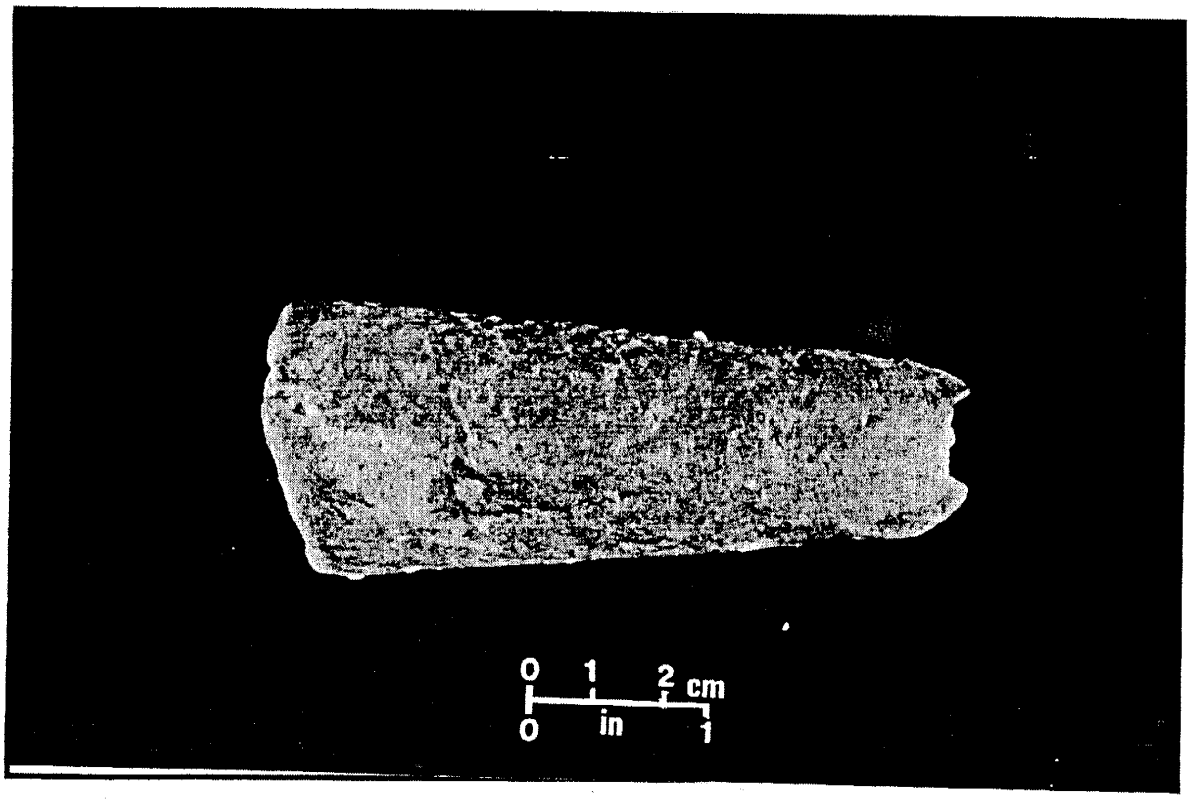
CERAMIC TYPE	DATES *
Soapstone Bowl	1700 B.C. - 1200 B.C.
Marcey Creek	1200 B.C. - 900 B.C.
Dames Quarter	1000 B.C. - 700 B.C.
Wolfe Neck	700 B.C. - 400 B.C.
Accokeek	700 B.C. - 400 B.C.
Nassawango	800 B.C. - A.D. 200
Coulbourn	800 B.C. - A.D. 200
Wilgus	500 B.C. - A.D. 500
Mockley	A.D. 100 - A.D. 600
Hell Island	A.D. 600 - A.D. 1000
Townsend	A.D. 1000 - A.D. 1600
Killens	A.D. 1000 - A.D. 1600
Minguannan	A.D. 1000 - A.D. 1600

* Source: Custer 1989:166-176

Diagnostic ceramics were also found in the plow zone soils of the South Area, and the varied types are listed in Table 11. The counts shown in Table 11 represent the number of plow zone units that contained ceramics of the various types listed. Unit counts are used to convey a sense of relative abundance of ceramics rather than sherd counts, because sherd counts can provide skewed data (Rice 1987). In most cases, there were only a few sherds of any ceramic type in any of the plow zone excavation units in the South Area, and in the other excavation areas as well. The only exception is the Marcey Creek sample which contained approximately 50 sherds from a single vessel (Plate 34). Table 12 lists the dates associated with all ceramic types found at the Carey Farm and Island Farm sites based on the same reviews noted above. Plate 33 shows a

PLATE 33

Hell Island Ceramic Pipe Stem - Carey Farm Site, South Area



ceramic pipe stem fragment found in the plow zone. The ceramic paste of the pipe stem is similar to that of Hell Island ceramics and the pipe probably dates to the same time period (Table 12). Plate 34 shows a sample of Marcey Creek ceramics that was found at the plow zone/subsoil interface in the South Area.

Feature Diagnostic Artifacts. Individual diagnostic artifacts and assemblages of diagnostic artifacts were found in the features excavated in the South Area. Plates 35 - 38 show some of these diagnostic artifact assemblages and Table 13 lists all of the assemblages. The diagnostic artifact associations from the South Area provide interesting information on the kinds of projectile points associated with various types of Early and Middle Woodland ceramics. For example, Early Woodland Wolfe Neck, Nassawango, and Accokeek ceramics are associated with Type D and B stemmed points (Feature 2035 - Plate 36A-H, Feature 2002 - Plate 36I-S, Feature 137 - Plate 37A-C). These stemmed point types are often considered to be primarily "pre-ceramic" Late Archaic types (Kent 1970); however, recent excavations (see review in Custer and Silber 1994) have shown that Types B, D, and E are found in later Early Woodland contexts and the associations in the Carey Farm South Area features support these recent findings. A generalized

PLATE 34

Marcey Creek Ceramics - Carey Farm Site, South Area

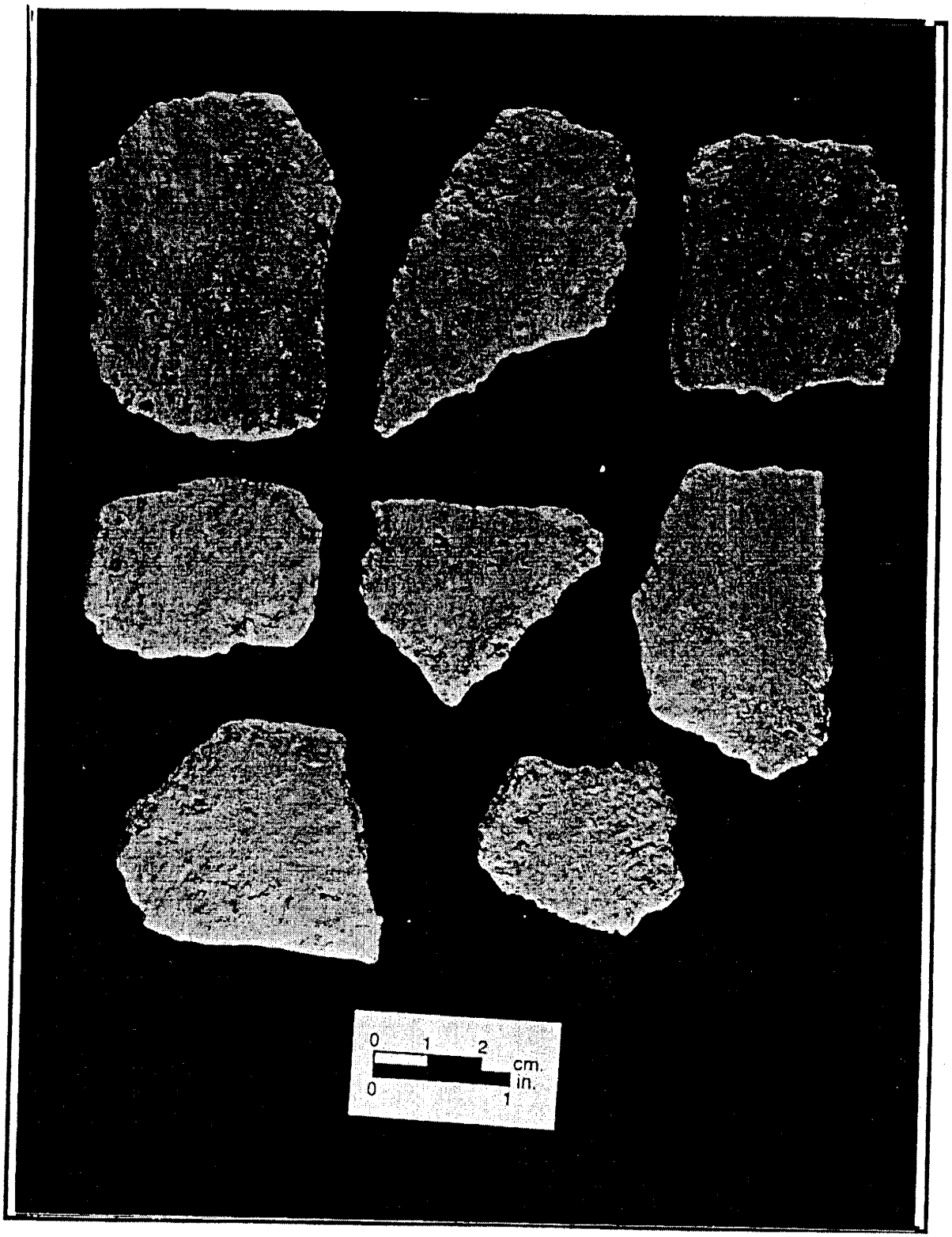


TABLE 13

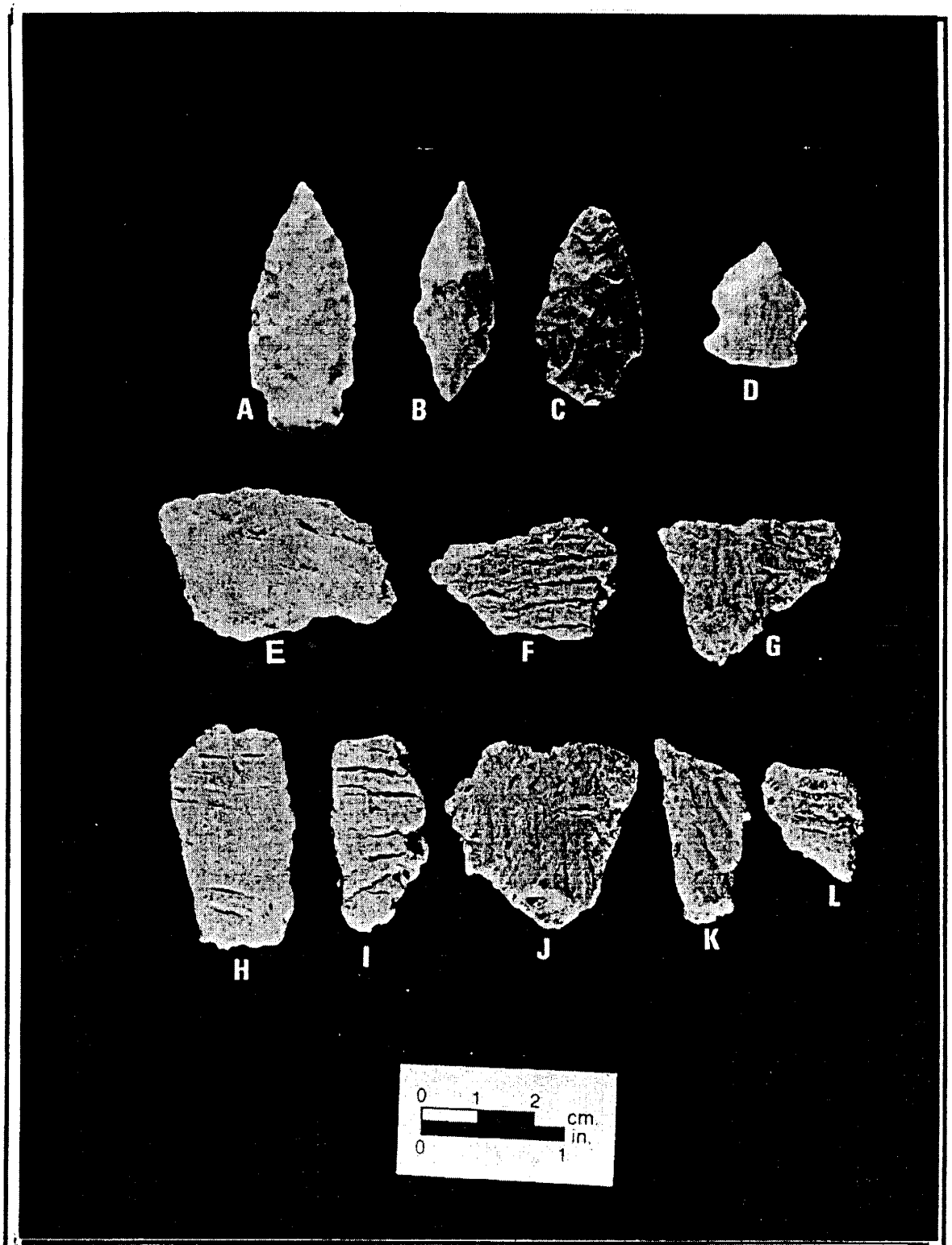
Diagnostic Artifact Assemblages - Carey Farm Site, South Area

FEATURE NUMBER	ASSOCIATION
2031	1 Type E Stem, 1 Type D Stem, 1 Type B Stem, 1 Side-Notched, Hell Island Ceramics (Plate 35), Radiocarbon Date 1010 +/- 60 B.P. (Beta - 76843)
2035	1 Type B Stem, 1 Corner-Notched, 1 Type D Stem, Wolfe Neck Cord-Marked Ceramics (Plate 36 A - H)
2002	1 Type B Stem, Accokeek Smoothed and Coulbourn Net-Marked Ceramics (Plate 36 I - S)
137	1 Type D Stem, Nassawango Cord-Marked Ceramics (Plate 37 A - C)
2021	1 "Eared" Point, Wolfe Neck Cord-Marked Ceramics (Plate 37 D - K)
2039	1 Teardrop Point, Wolfe Neck Net-Marked Ceramics (Plate 37 L - N)
2037	1 Type E Stem, Hell Island Net-Marked Ceramics (Plate 38 A - D)
1998	1 Type E Stem, Hell Island Cord-Marked Ceramics (Plate 38 E - G)
346	1 Side-Notched Point, 1 Type D Stem (Plate 38 H - I)
2017	1 Teardrop Point, 2 Type D Stem, Mockley Cord-Marked Ceramics (Plate 38 J - L)
2030	1 Side-Notched Point, 1 Type E Stem, Mockley Cord-Marked Ceramics (Plate 38 M - N)
2029	1 Type I Stem, Mockley Cord-Marked Ceramics (Plate 38 O)
2006	1 Type I Stem, Mockley Cord-Marked Ceramics (Plate 38 P)
2012	1 Type B Stem, Hell Island Smoothed Ceramics (Plate 38 Q)

corner-notched point (Feature 2035 - Plate 36B), a small "eared" point (Feature 2021 - Plate 37D), and a "teardrop" point (Feature 2039 - Plate 37L) were also associated with the Early Woodland ceramics. Generalized corner-notched points have been found in other Early Woodland contexts (Custer 1989:160), and teardrop points are clearly dated to the Early Woodland Period in New Jersey (Mounier and Cresson 1988). However, "eared" points are not commonly found with ceramics. It is possible that the "eared" point is a resharpened example of a "Hellgrammite" point, and these points have been found in Early Woodland contexts in the middle Delaware Valley (Hummer 1991) and in the Susquehanna Valley (Kinsey 1959; Custer 1995). On the other hand, the "eared" point also resembles a Brewerton Eared type defined by Ritchie (1961). Brewerton point varieties date to the Late Archaic Period (Ritchie 1969a; Funk 1988) and it is possible that this type's date range could extend into the Early Woodland Period.

PLATE 35

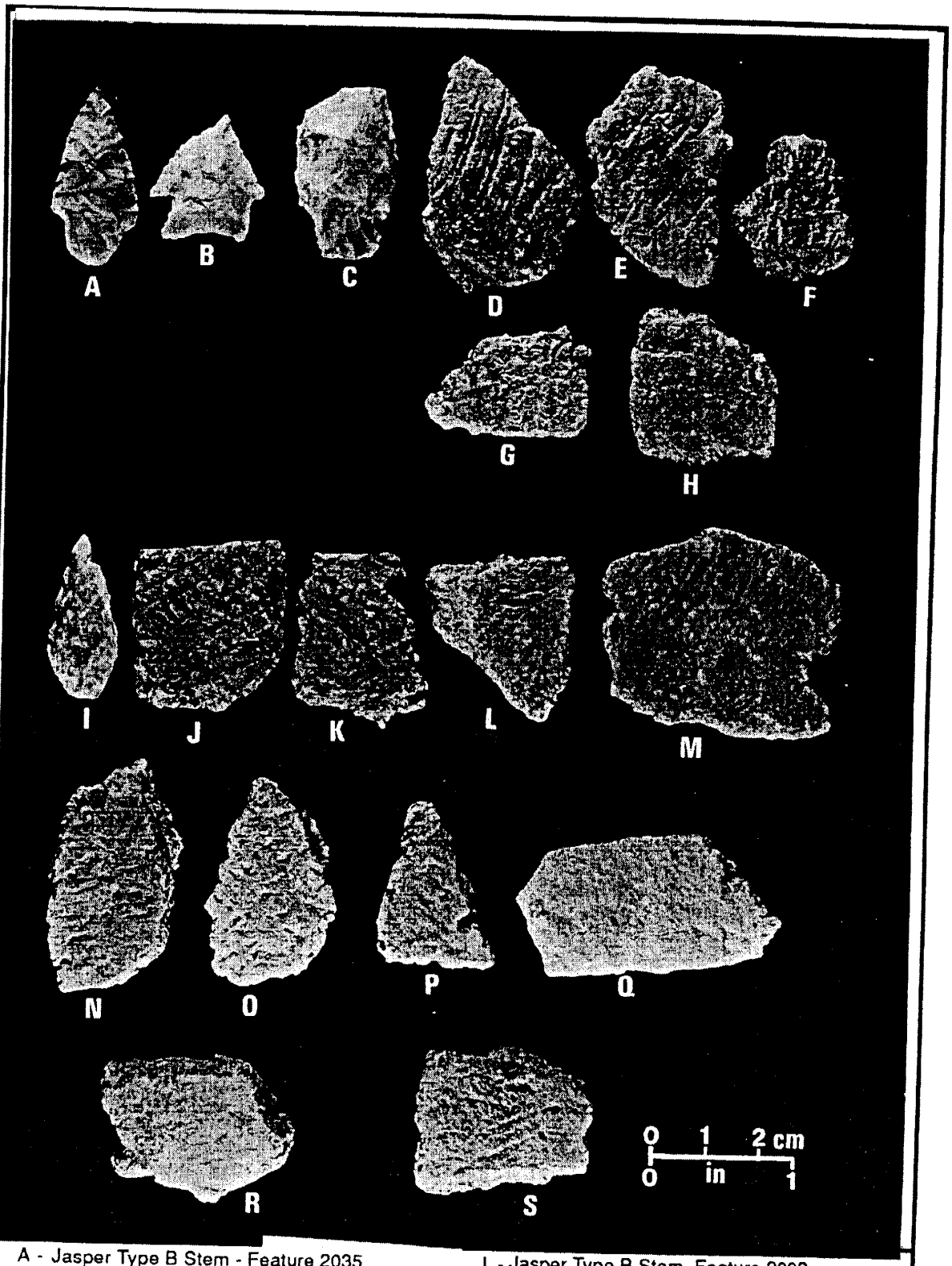
Artifact Assemblage - Feature 2031, Carey Farm Site, South Area, West Section



A - Jasper Type E Stem
B - Jasper Type B Stem
C - Chert Type D Stem
D - Quartz Side-Notched Point
E-L - Hell Island Cord-Marked Ceramic Sherds

PLATE 36

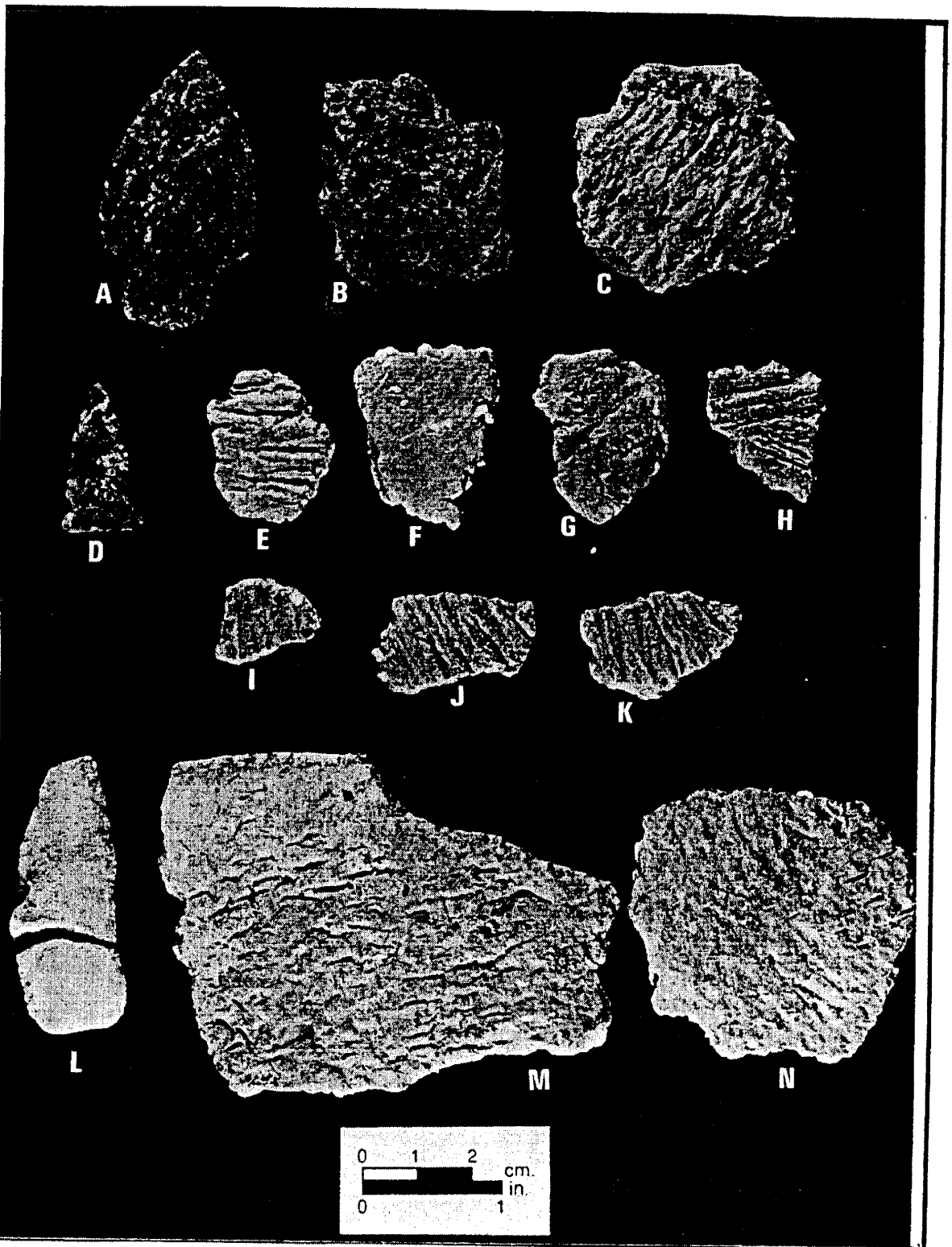
Artifact Assemblages - Features 2035 and 2002, Carey Farm Site, South Area, West Section



A - Jasper Type B Stem - Feature 2035
B - Jasper Corner-Notched Point - Feature 2035
C - Jasper Type B Stem - Feature 2035
D-H - Wolfe Neck Cord-Marked Ceramic Sherds, Feature 2035
I - Jasper Type B Stem, Feature 2002
J-M - Coulbourn Net-Marked Ceramic Sherds, Feature 2002
N-S - Accokeek Smoothed Ceramic Sherds, Feature 2002

PLATE 37

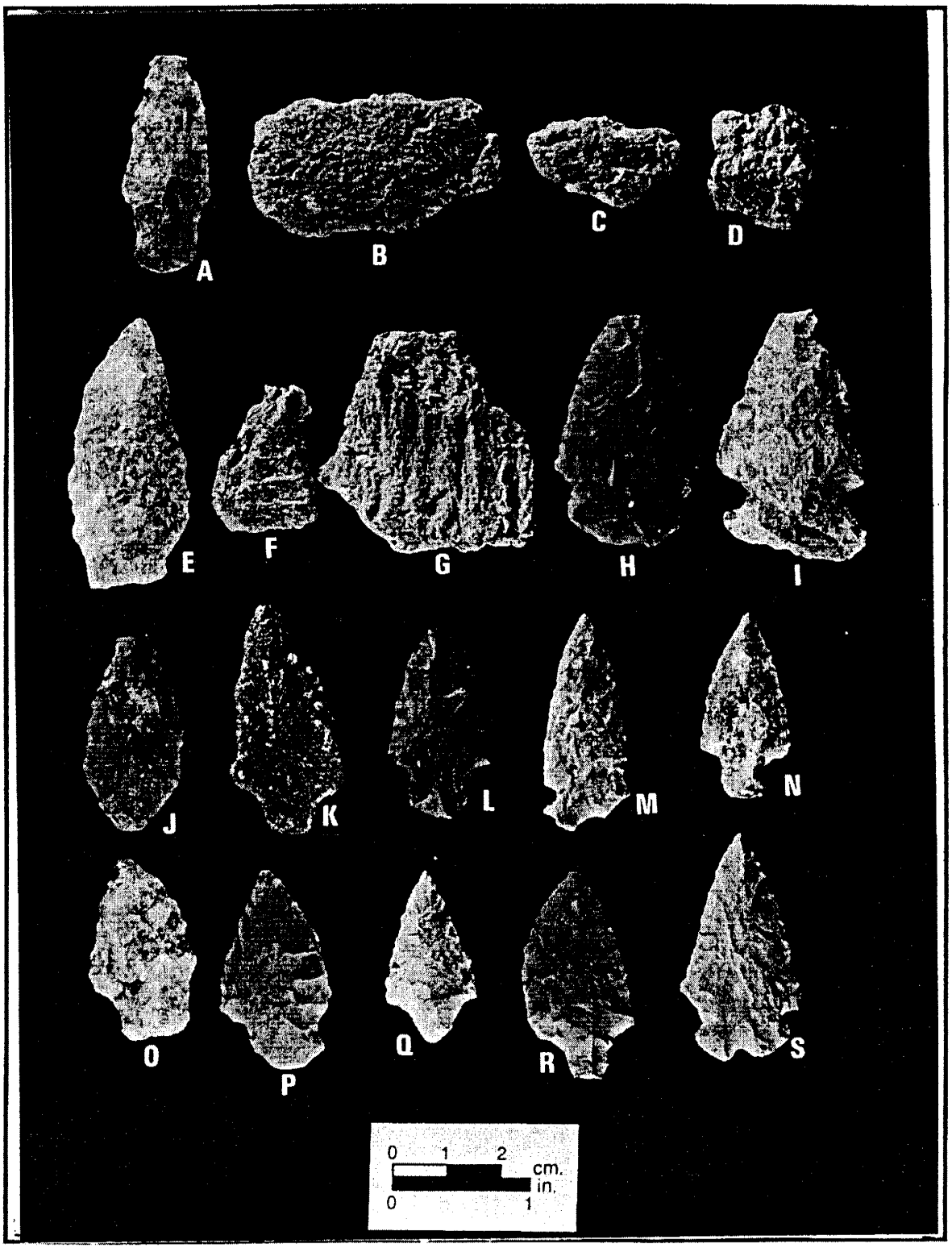
Artifact Assemblages - Features 137, 2021, and 2039, Carey Farm Site, South Area



A - Chert Type D Stem - Feature 137
B-C - Nassawango Cord-Marked Ceramic Sherds - Feature 137
D - Jasper "Eared" Point - Feature 2021
E-K - Wolfe Neck Cord-Marked Ceramic Sherds- Feature 2021
L - Argillite Teardrop Point - Feature 2039
M-N - Wolfe Neck Net-Marked Ceramic Sherds - Feature 2039

PLATE 38

Artifact Assemblages and Individual Diagnostic Artifacts from Miscellaneous Features, Carey Farm Site, South Area



Key to Plate 38

A - Jasper Type E Stem - Feature 2037
B-D - Hell Island Net-Marked Ceramic Sherds - Feature 2037
E - Quartz Type E Stem - Feature 1998
F-G - Hell Island Cord-Marked Ceramic Sherds - Feature 1998
H - Jasper Type D Stem - Feature 346
I - Jasper Side-Notched Point - Feature 346
J - Jasper Teardrop Point - Feature 2017
K - Argillite Type D Stem - Feature 2017
L - Jasper Type D Stem - Feature 2017
M - Chert Side-Notched Point - Feature 2030
N - Jasper Type E Stem - Feature 2030
O - Quartz Type I Stem - Feature 2029
P - Jasper Type I Stem - Feature 2006
Q - Chert Type B Stem - Feature 2012
R - Chert Type D Stem - Feature 2010
S - Chert Bifurcate Point - Feature 2008

Type B, D, E, and I stemmed points are also found in association with Middle Woodland Mockley ceramics (Feature 2017 - Plate 38J-L, Feature 2030 - Plate 38M-N, Feature 2029 - Plate 38O, Feature 2006 - Plate 38P). The association of Type I stemmed points with Middle Woodland Mockley ceramics is interesting because Type I points are more commonly found in site contexts dating to the Middle Archaic and early portions of the Late Archaic periods (Custer 1995; Custer and Silber 1994:177-188). It might be possible to explain one instance of the association of these supposedly early varieties of stemmed points with later Mockley ceramics as resulting from older artifacts, which could have been present in the site's surface given the long time range of its occupation, becoming mixed in the fill of later pit features. However, there are two instances of this association (Features 2029 and 2006), and these two instances together make the explanation based on accidental mixing somewhat less likely. Nevertheless, the two instances of this association do not clearly "prove" that Type I stemmed points are regularly associated with Middle Woodland assemblages. A teardrop point (Feature 2017 - Plate 37L) was also found with the Mockley ceramics and this association may indicate that the time frame of use of teardrop points extends into the Middle Woodland Period. The fact that teardrop points seem to be more commonly found in Early Woodland contexts (Mounier and Cresson 1988) may also indicate that Feature 2017 dates to the early portion of the time frame of Mockley ceramic use.

A series of stemmed points were found in association with Hell Island ceramics, which post-date Mockley ceramics in the local ceramic sequence (Custer 1989:175-176). Type E stemmed points are the most common point found with Hell Island ceramics in the South Area and are present in three features (Feature 2031 - Plate 35A, Feature 2037 - Plate 38A, Feature 1998 - Plate 38E). Type B points are associated with Hell Island ceramics in two features (Feature 2031 - Plate 35b, Feature 2012 - Plate 38Q), and a Type D point was also present in Feature 2031 (Plate 38C). The co-occurrence of Types B, D, and E with Hell Island ceramics in Feature 2031 (Plate 35) gives a sense of the variety of stemmed projectile point types that are probably associated with the later part of the Middle Woodland Period in central Delaware.

Feature 346 contained two projectile points, a side-notched point and a Type D stemmed (Plate 38H-I), but no ceramics were present. Nonetheless, based on the associations noted above, it is suggested here that this feature probably also dates to the Middle Woodland Period.

Feature 2008 contained a bifurcate point (Plate 38S), and this point type has been dated to the Middle Archaic Period in Delaware (Custer 1989:123-124). The occurrence of this projectile point type in a feature associated with a pit house is something of an enigma because it is generally believed

TABLE 14
Diagnostic Projectile Points from Features - Carey Farm Site, South Area

POINT TYPE	NUMBER OF POINTS	NUMBER OF FEATURES
Bifurcate	1	1
Type I Stemmed	2	2
Type D Stemmed	7	6
Type E Stemmed	5	5
Type B Stemmed	3	3
Teardrop	3	3
Side-Notched	3	3
Corner-Notched	1	1
"Eared"	1	1
Triangle	1	1

TABLE 15
Diagnostic Ceramics from Features - Carey Farm Site, South Area

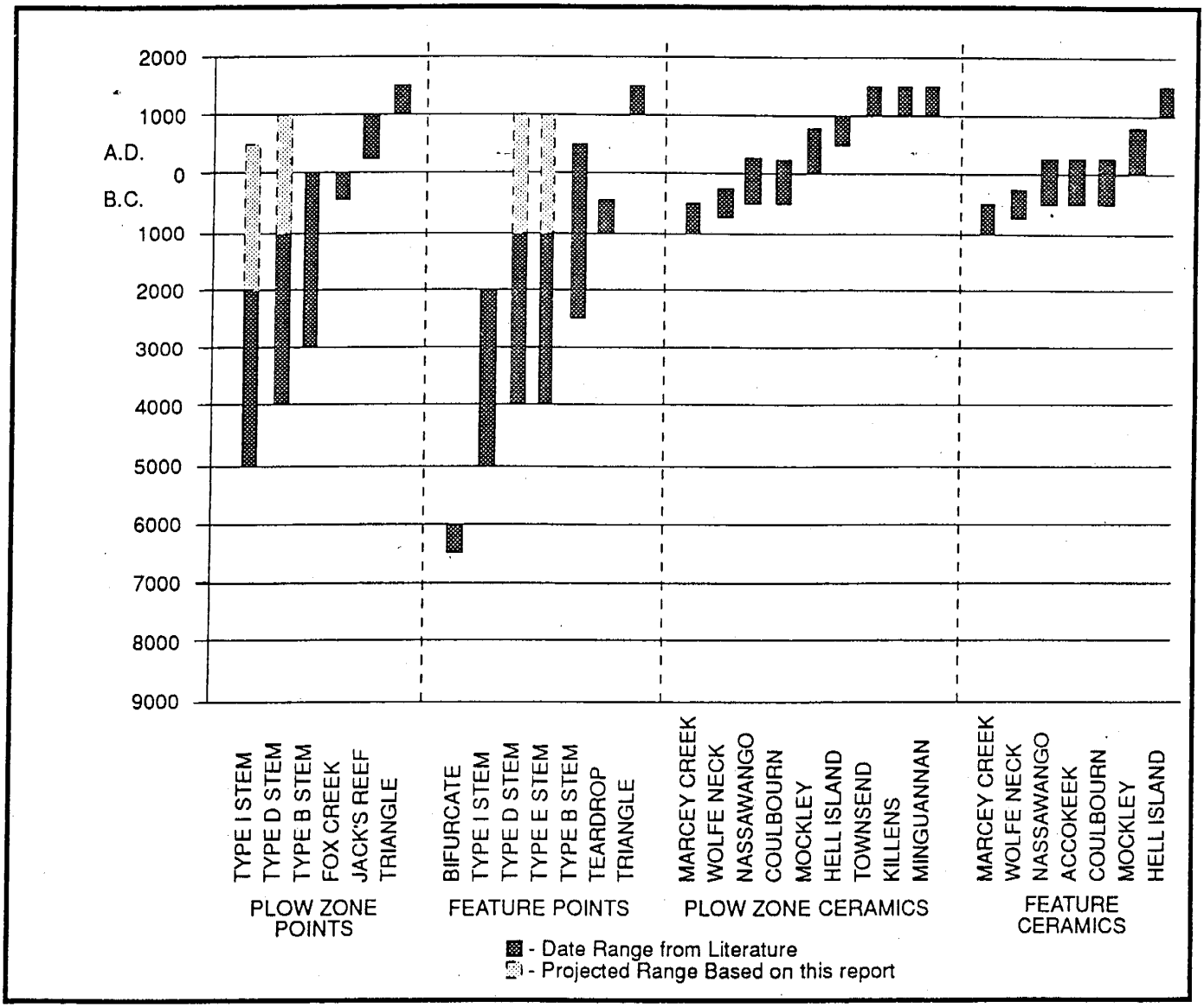
CERAMIC TYPE	NUMBER OF FEATURES
Marcey Creek	1
Wolfe Neck Cord-Marked	4
Wolfe Neck Net-Marked	2
Nassawango Cord-Marked	1
Accokeek Smoothed	1
Coulbourn Net-Marked	1
Mockley Cord-Marked	18
Hell Island Cord-Marked	5
Hell Island Net-Marked	1
Hell Island Smoothed	1

that pit houses first began to be used with regularity during the later Late Archaic Period. Similar associations of pre-Late Archaic points in pit features have been noted at other sites in Delaware (e.g., Custer, Hoseth, Silber, Grettler, and Mellin 1994:159-161; Custer, Kellogg, Silber, and Varisco 1995:50; Riley, Watson, and Custer 1994:95-101), and have been explained as the result of older artifacts being mixed into the fill of later pit features. In some cases, the validity of this interpretation is underscored by the fact that later ceramics were found in association with the earlier Middle Archaic, and supposedly "pre-ceramic" points. However, in the case of Feature 2008, no later artifacts were present. It has also been suggested (Custer, Kellogg, Silber, and Varisco 1995:50) that the numerous instances of finds of Middle Archaic projectile points in features like Feature 2008 may not be so easily explained by the mixing of older artifacts in younger features. As more and more of these seemingly anomalous associations are encountered, we may need to consider the possibility that some pit houses were used during the Middle Archaic Period. Further discussion of this issue is provided in the concluding section of this report.

Table 14 provides a summary of the diagnostic projectile points in features in the South Area of the Carey Farm Site. Both the number of points and the number of features with each point type are listed in order to provide a sense of the relative frequency of the varied point types. Early and Middle Woodland points clearly dominate the assemblage. Table 15 provides the same data for diagnostic ceramics in features. Only Early and Middle Woodland ceramics are present. Mockley ceramics are the most

FIGURE 44

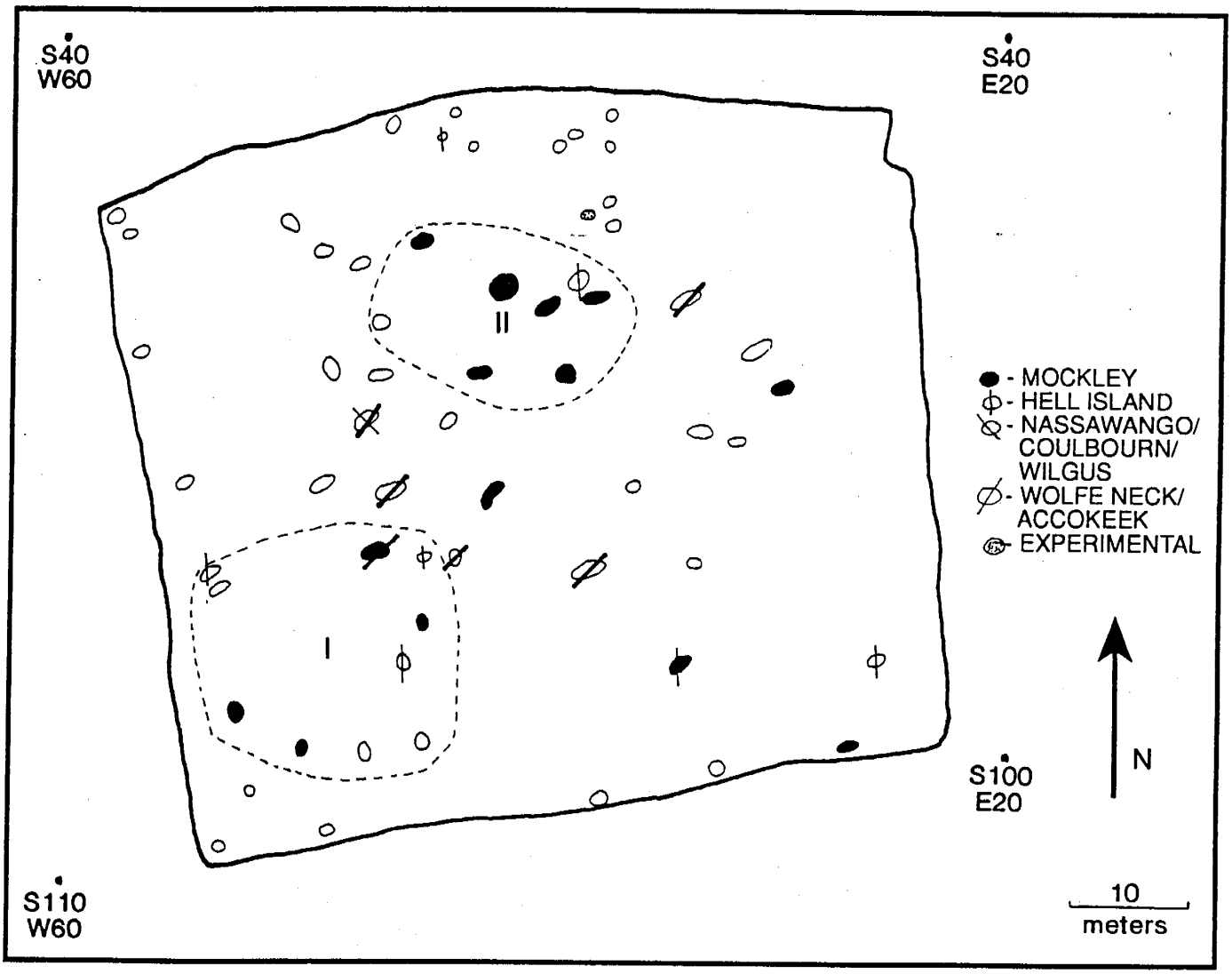
Date Ranges - Carey Farm Site, South Area



common and are found in slightly more than half of the features containing diagnostic ceramics. Figure 44 summarizes the date ranges represented by the diagnostic projectile points and ceramics in both the plow zone and the features from the South Area. This portion of the Carey Farm Site was clearly occupied on numerous occasions from the Middle Archaic to the Late Woodland time period. However, the greatest number of occupations occurred during the Early and Middle Woodland time periods. The most precise range of dates comes from the ceramics in the features. Because ceramics are generally more precisely dated than the projectile point types, as can be seen by comparing Tables 10 and 12, the feature ceramics probably provide the best estimate of the time range of the major occupation of this section of the site.

FIGURE 45

Distribution of Dated Features - Carey Farm Site, South Area, West Section

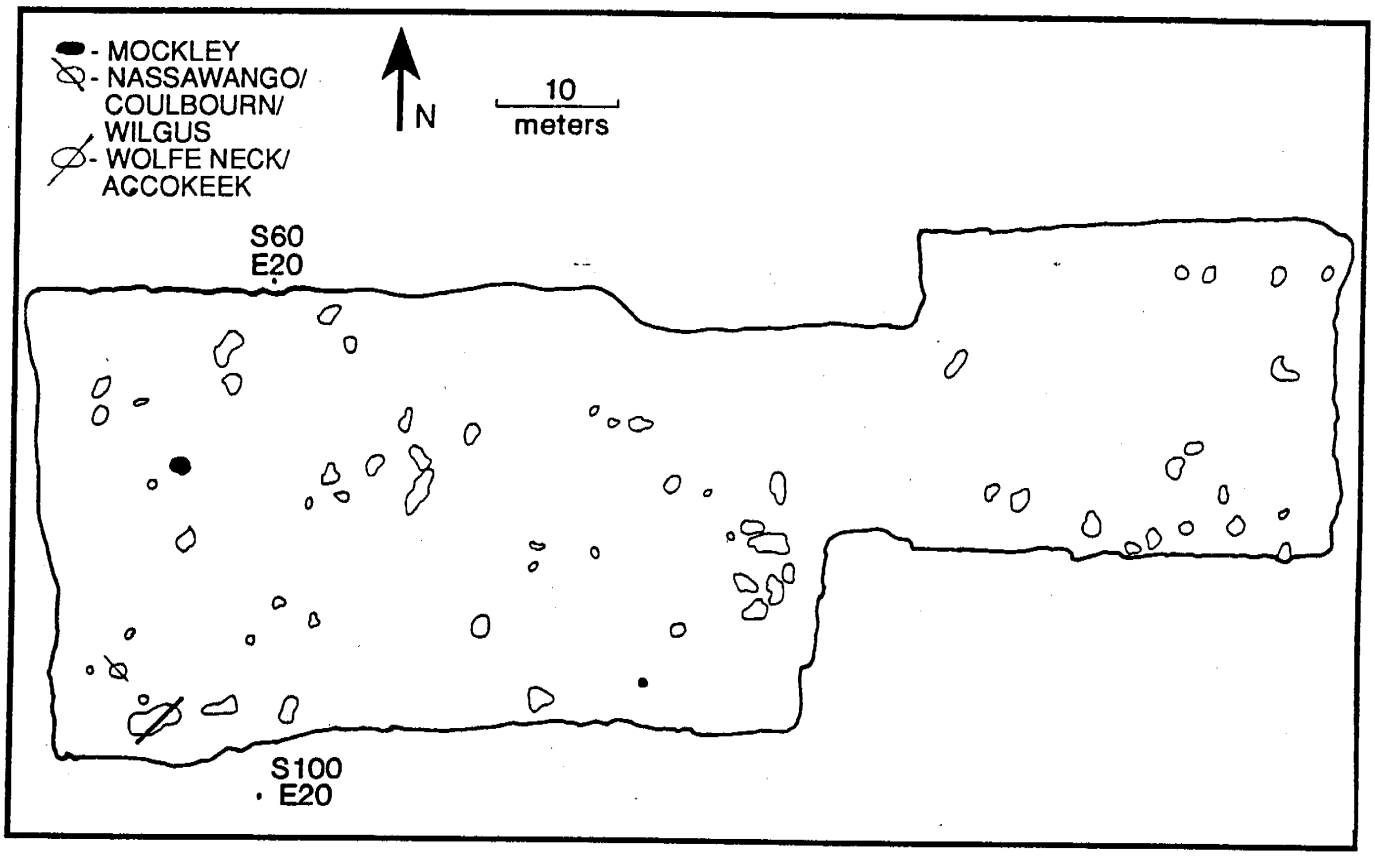


Radiocarbon Dates. Only one radiocarbon date was obtained from charcoal samples taken from features in the South Area of the Carey Farm Site. The date came from Feature 2031 and was 1010 ± 60 B.P. (Beta-76843), which has a calibrated date range of A.D. 990 - 1040 with a intercept value of A.D. 1020. The date is associated with a variety of stemmed points and Hell Island ceramics (Table 13, Plate 35). Because the date falls within the date range for Hell Island ceramics (Custer 1989:175-176), and because it was a large sample that produced a small standard deviation, it is viewed here as a valid and accurate date for the feature.

Distribution of Dated Features. The distribution of dated features was analyzed to see if areas of the site that may have been occupied during different time intervals could be identified. Figures 45 and 46 show the distribution of features in the western and eastern sections of the South Area that can be dated based on the diagnostic ceramics found within them. In the west section (Figure 45), two circular clusters of similarly dated features can be identified based on the proximity of similarly dated features, and are marked in Figure 45. Cluster I, located in the southwest corner of the western section of the South Area, contains 10 features dating to some portion of the time period of use of Mockley and Hell Island ceramics, ca. A.D. 200 - 1000. The inclusion of Feature 2039 in this cluster assumes that a Wolfe Neck sherd found in the feature is an older artifact accidentally included in the fill of a later feature. Cluster II is located in the north central section of the

FIGURE 46

Distribution of Dated Features - Carey Farm Site, South Area, East Section



South Area and consists of eight features containing mainly Mockley ceramics, with a few Hell Island sherds present in some features. The time range of the occupation of Cluster II is similar to that of Cluster I. Because of the mix of Mockley and Hell Island ceramics, it is likely that both feature clusters date to the time period of the transition from Mockley to Hell Island ceramics, ca. A.D. 500-600.

The roughly circular configuration of the distribution of features in both clusters in the western section of the South Area suggests that these features may be the remains of a small community. Although we can never know for certain if the features in the clusters were occupied contemporaneously, the similarity of the ceramics in the features does suggest that they could represent a limited time range of occupation. Therefore, for the purposes of this report, one interpretation of the feature clusters shown in Figure 45 is that each cluster represents an occupation of the site by a community composed of several households. Nevertheless, we also recognize that these features may not have been occupied contemporaneously, and that we cannot identify any potential multi-household communities at the site. More detailed descriptions of the feature clusters are presented later in this section of the report.

The small number of dated features in the eastern section of the South Area does not allow the identification of any feature clusters, and it is impossible to discern potential individual occupations. In general, the small size and configuration of the feature clusters that could be identified in the western section of the South Area, and the mix of features of unknown age among the feature clusters and across both sections of the South Area indicate that this section of the Carey Farm Site was periodically reused as a base camp. There is no evidence to suggest that there was a single large "village" occupation of this part the Carey Farm Site.

FIGURE 47
Distribution of All Artifacts in Plow Zone Soils - Carey Farm Site, South Area, West Section

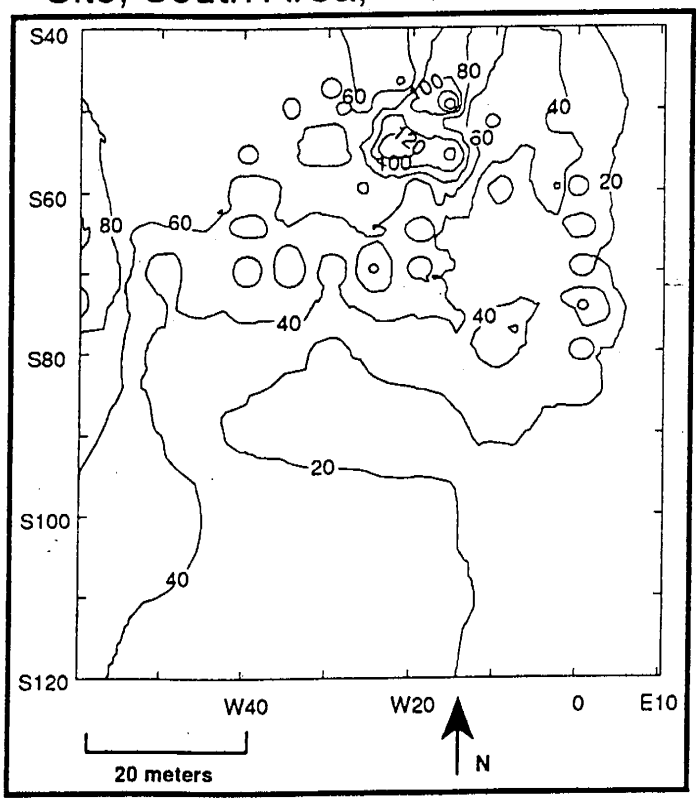


FIGURE 48
Distribution of Debitage Without Cortex in Plow Zone Soils - Carey Farm Site, South Area, West Section

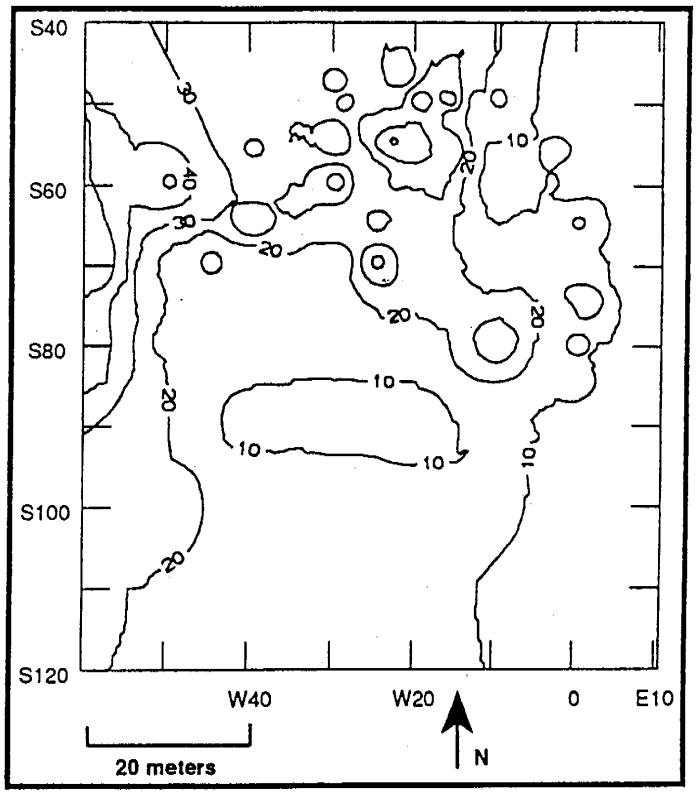


FIGURE 49
Distribution of Debitage With Cortex in Plow Zone Soils - Carey Farm Site, South Area, West Section

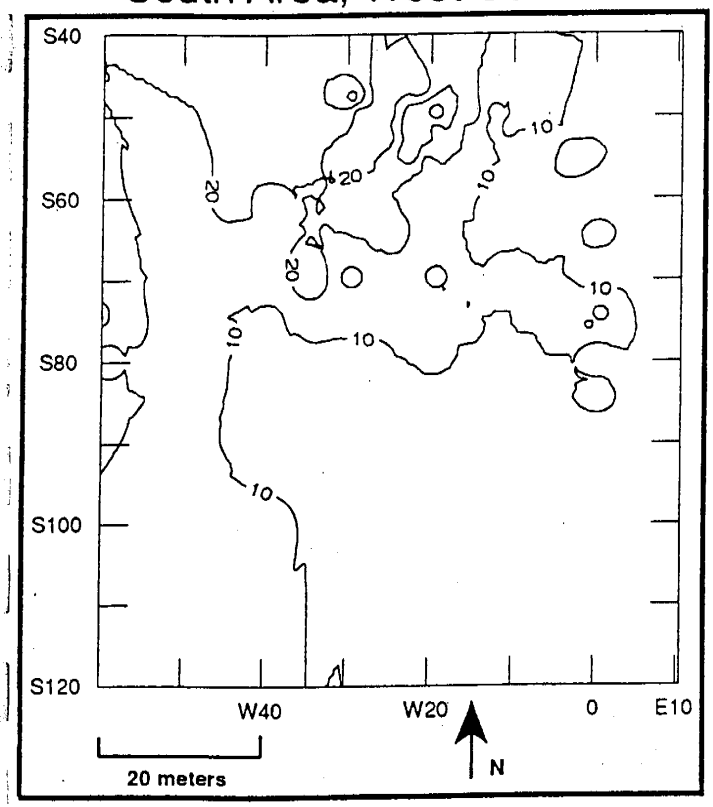


FIGURE 50
Distribution of Ceramics in Plow Zone Soils - Carey Farm Site, South Area, West Section

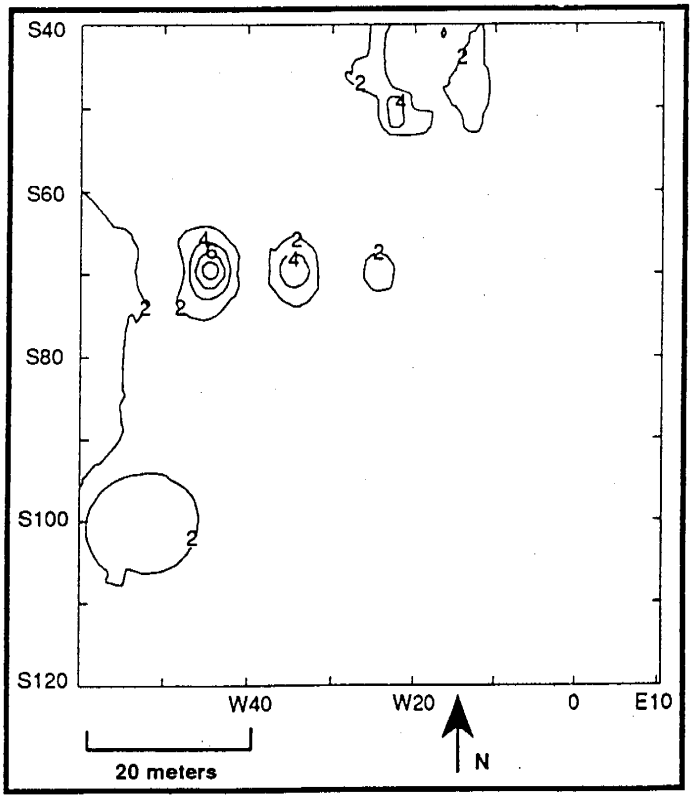
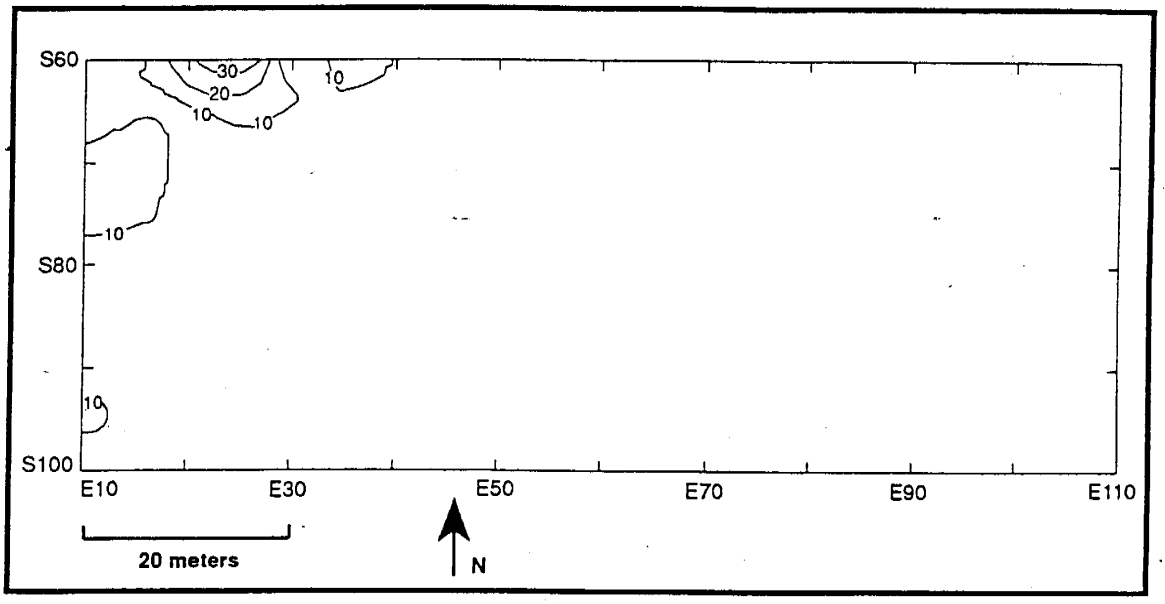


FIGURE 51

Distribution of All Artifacts in Plow Zone Soils - Carey Farm Site, South Area, East Section



Plow Zone Artifact Distributions

Plow zone artifact distributions, based on the excavation units spread throughout the South Area, were mapped for each of its two sections. Figure 47 shows the distribution of all artifacts in the West Section of the South Area. Artifacts generally are numerous closer to the tree line bordering the St. Jones River in the northern portion of this area. Sub-surface pit features are somewhat more concentrated in this same area (Figure 42) and the plow zone artifact distribution probably reflects the distribution of the sub-surface features. Figures 48 and 49 show the distribution of debitage with and without cortex. Debitage comprises the vast majority of the plow zone artifacts and, consequently, it is not surprising that these distributions are similar to the total artifact distribution. There are no real differences between the distributions of debitage with and without cortex indicating that there was no spatial differentiation in the reduction of tools from primary and secondary materials, or various stages of stone tool production. Figure 50 shows the distribution of ceramics. The clusters in the north central section are associated with Feature Cluster II (Figure 45), and a concentration in the southwest corner is associated with Feature Cluster I (Figure 45). Mockley ceramics are the most common ceramic type in these concentrations and are the dominant ceramic type in both feature clusters.

Figure 51 shows the distribution of artifacts in the plow zone soils of the East Section of the South Area. Artifacts are concentrated in the northwest corner of this area, which is nearest to the St. Jones River. The low number of artifacts and their limited distribution precludes the mapping of any individual artifact types for this section of the South Area. It is interesting to note that although the artifacts from plow zone soils were concentrated in the northwest corner of this area, sub-surface features were found spread throughout it (Figure 46).

In sum, the plow zone artifact distribution of the Western Section of the South Area did correspond to the distribution of sub-surface features. On the other hand there was no such correspondence in the Eastern Section.

TABLE 16

Summary Catalog of Feature Artifacts - Cluster I, South Area

FEATURE	DEBITAGE	TOOLS	CERAMICS	FCR (CT.)	FCR (WT.) g	TOTAL
2012 [Type 1]	72 (6)	2 (0)	4	6	410	84
2013 [Type 1]	46 (22)	9 (7)	4	14	527	74
2016 [Type 2]	30 (19)	0	12	37	1807	79
2017 [Type 2]	142 (45)	21 (9)	19	39	1945	221
2037 [Type 1]	15 (9)	3 (3)	16	8	186	42
2039 [Type 1]	190 (87)	26 (14)	10	60	2105	286
2040 [Type 1]	38 (14)	7 (4)	1	15	417	61
2041 [Type 1]	26 (11)	5 (2)	16	6	121	53
2043 [Type 3]	40 (13)	8 (4)	0	58	918	106
2044 [Type 6]	12 (5)	6 (0)	1	6	130	25
TOTAL	611 (231)	90 (43)	83	249	8566	1031

( ) - Artifacts with cortex

Feature Distributions

As was previously noted, a total of 132 features were excavated in this area including 75 Type 1 features, 14 Type 2 features, 14 Type 3 features, 11 Type 4 features, 10 Type 5 features, and eight features that did not fit within any specific categories. Thus, of the 132 features, 67 percent are house-related features. Eighteen of these features were included in two feature clusters in the Western Section of the South Area (Figure 45). The remaining features are spread across the two sections of this area. In the Eastern Section of the South Area, some of the house-related features are fairly closely spaced, such as the dense concentration in the central section. The houses reconstructed over these features would have certainly overlapped and this overlap shows that there were numerous occupations of this section of the Carey Farm Site. Except for the two clusters in the West Section of this site area, there is no evidence of any kind of a planned community such as those seen at other sites in the Middle Atlantic region (Kinsey and Graybill 1971; Custer, Hoseth, Guttman, and Iplenski 1993).

Feature Clusters

Features dating from different time periods and features of unknown ages are mixed together across the various sections of the Carey Farm and Island Farm sites. This distribution of evidence of varied occupations makes it difficult to assess the internal settlement patterns at the sites. However, the feature clusters in the West Section of the South Area of the Carey Farm Site, which are noted in Figure 45, provide one way to evaluate either individual occupations, or multiple related occupations from limited time periods. Each of the feature clusters shown in Figure 45 will be discussed below.

Cluster I. Cluster I is located in the southwestern corner of the West Section of the South Area (Figure 45) and dates to the later portion of the Carey Complex of Middle Woodland times (ca. A.D. 600 - 1000). Table 16 lists the individual features and their types, and a summary catalog of the artifacts found in each feature in Cluster I. Table 17 provides a summary catalog of the entire feature cluster along with those of other feature clusters identified at the site. Figure 52 shows the distribution of features within Cluster I. The possible house

TABLE 17

Summary Catalog of All Feature Clusters

FEATURE CLUSTERS	DEBITAGE	TOOLS	CERAMICS	FCR (CT.)	FCR (WT.) g	TOTAL
South, I	611 (231)	90 (43)	83	249	8566	1031
South, II	689 (294)	47 (20)	65	130	5593	931
South Central I	715 (416)	47 (31)	932	278	15,787	1972
South Central II	205 (116)	27 (13)	180	49	5996	461
South Central III	845 (375)	56 (27)	132	59	5168	1092
TOTAL	3065 (1432)	267 (134)	1392	765	41,110	5487

( ) - Artifacts with cortex

FIGURE 52

Feature Cluster I, South Area

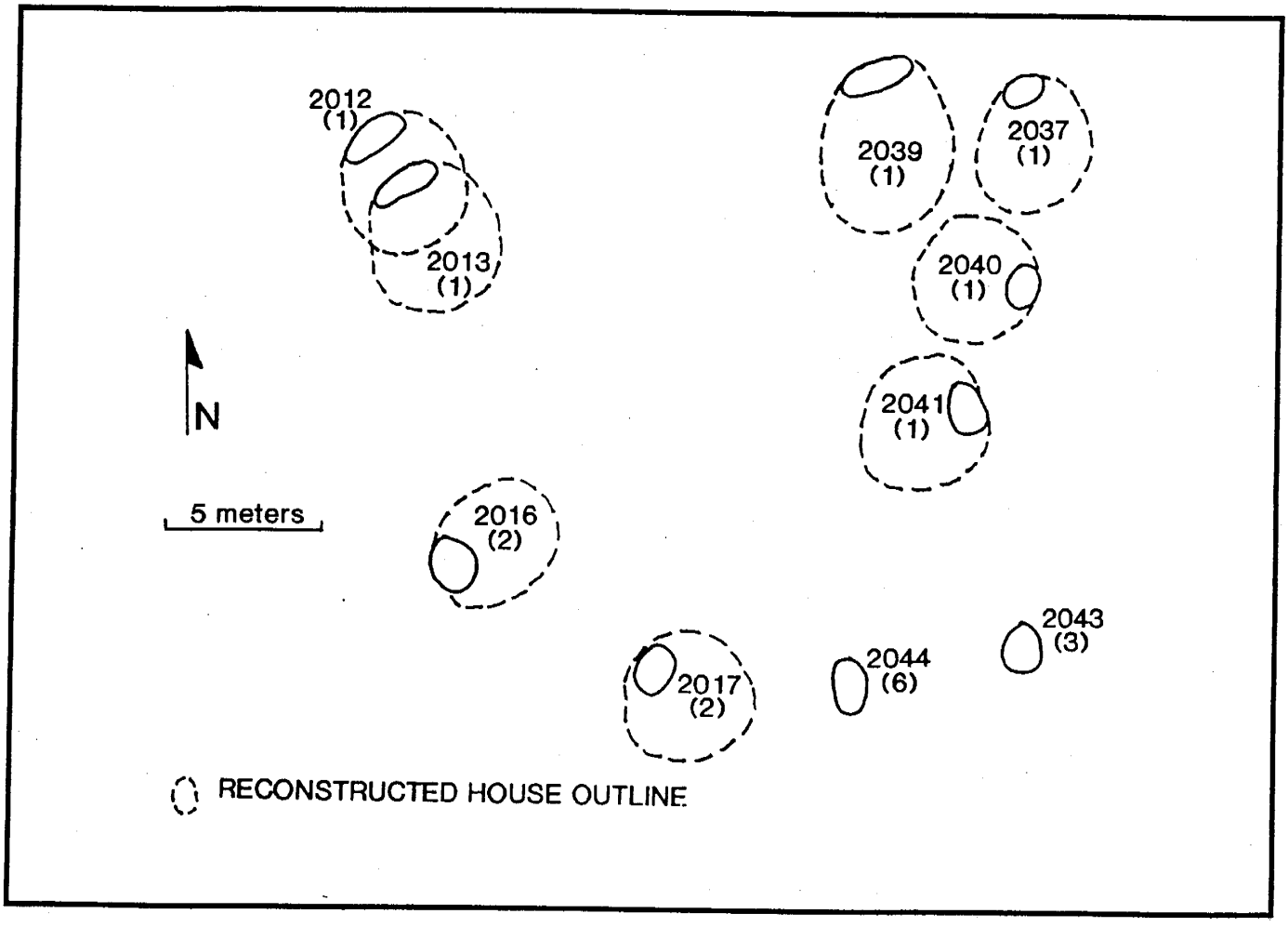


TABLE 18

Summary Catalog of Feature Artifacts - Cluster II, South Area

FEATURE	DEBITAGE	TOOLS	CERAMICS	FCR (CT.)	FCR (WT.) g	TOTAL
1990 [Type 2]	54 (36)	3 (1)	5	23	581	85
1995 [Type 1]	79 (23)	15 (6)	5	30	862	129
1996 [Type 3]	55 (30)	1 (1)	4	24	1395	84
1997 [Type 1]	131 (20)	9 (4)	8	15	780	163
1998 [Type 1]	186 (96)	7 (2)	4	15	688	212
1999 [Type 1]	56 (34)	1 (1)	5	2	726	64
2000 [Type 1]	117 (52)	10 (4)	32	16	262	175
2009 [Type 6]	11 (3)	1 (1)	2	5	299	19
TOTAL	689 (294)	47 (20)	65	130	5593	931

( ) - Artifacts with cortex

outlines associated with the Type 1 and Type 2 features are noted in Figure 52. These reconstructions are based on the size of the prehistoric house (Feature 153) identified at the Snapp Site (Custer and Silber 1994), the orientation of features within the house, and the relationship of the house size to the pit feature size.

Two of the reconstructed houses in Figure 52 (Features 2012 and 2013) clearly overlap and must be related to different occupations of the cluster. The remaining six houses do not overlap. If one of the overlapping houses is added to this total it is possible that Cluster I represents the remains of a small community of seven families. The feature cluster could also have been occupied on seven different occasions by individual families, but the absence of house overlap in all but the northwest corner of the cluster makes this scenario less likely. We can never know the smallest number of households occupying Cluster I, but we can say that the largest community that can be associated with this cluster of similarly dated features is seven families.

Two non-house features (Feature 2044 - Type 6, and Feature 2043 - Type 3) are present in the southeast corner of the cluster. These features may be associated with the house reconstructed around Feature 2017 and could be storage or refuse pits that were used by the inhabitants of Feature 2017. As such they may constitute part of a "household cluster" (Winter 1976) as discussed earlier in this report.

The summary catalogs in Table 16 show that the features in this cluster had fairly large amounts of artifacts. As was noted earlier, the mean number of artifacts per cultural feature for a random sample of features from the Carey Farm Site, excluding features with more than 50 artifacts, was 14 artifacts. All of the features in this cluster exceed this amount by more than small amounts. A mix of debitage and tools is present in all features and secondary raw materials with cortex were utilized. Ceramics are present in all but one of the features, and fire-cracked rock was present in all of them. In general, the features in this cluster contain the normal mix of domestic debris seen in features from other areas of the site.

Cluster II. This feature cluster (Figure 53) is located in the north central portion of the Western Section of the South Area (Figure 45). Six house related features and two non-house features are present within it (Table 18). Two of the house feature reconstructions overlap (Features 1997 and 1998); therefore, the largest number of households that could have occupied this cluster at any one

FIGURE 53

Feature Cluster II, South Area

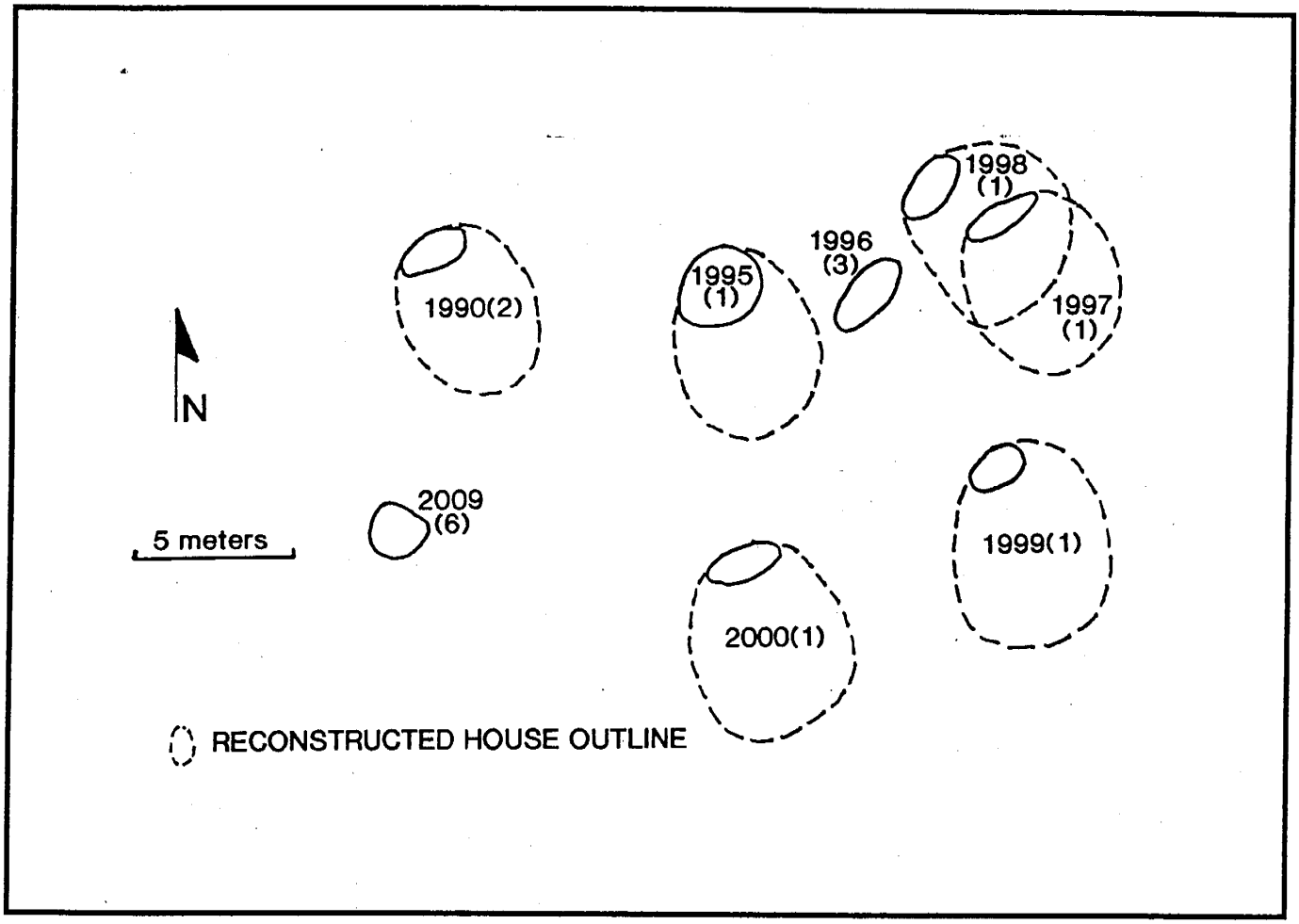


TABLE 19

Lithic Artifact Assemblage and Raw Materials from Plow Zone Soils, South Area

	RAW MATERIALS							
TOOL TYPE	Quartzite	Quartz	Chert	Jasper	Rhyolite	Argillite	Ironstone	Other	TOTAL
Flakes	102 (48)	577 (206)	1031 (356)	1740 (801)	16	24	3	12 (4)	3505 (1415)
Utilized flakes	1 (0)	6 (3)	59 (32)	177 (100)	1	0	0	0	244 (135)
Flake tools	1 (0)	2 (1)	12 (8)	8 (7)	0	0	0	0	23 (16)
Points	1 (0)	0	2 (0)	8 (0)	1	1	0	0	13 (0)
Early stage biface rejects	1 (0)	1 (0)	1 (1)	7 (4)	1	1	0	0	12 (5)
Late stage biface rejects	0	3 (0)	1 (0)	3 (1)	0	0	0	0	7 (1)
Other bifaces and fragments	0	1 (0)	11 (0)	18 (4)	4	4	0	0	38 (4)
Miscellaneous stone tools	0	4 (2)	4 (2)	10 (7)	0	0	0	0	18 (11)
Cores	3 (3)	13 (5)	5 (2)	5 (1)	0	0	0	0	26 (11)
TOTAL	109 (51)	607 (217)	1126 (401)	1976 (925)	23	30	3	12 (4)	3886 (1598)

( ) - Artifacts with cortex

time is five. Given the placement of the non-house features it is difficult to identify any household clusters; however, Feature 2009 may be a storage/refuse pit associated with the house reconstructed around Feature 1990. As was the case with Cluster I, the features in Cluster II contained relatively large assemblages of artifacts that appear to represent domestic debris (Tables 17 and 18).

Analysis of Lithic Technology

The interpretation of lithic technologies specific to the South Area of the Carey Farm Site is presented below. Additional analyses of topics in lithic technologies pertaining to all site areas are presented later in this report along with a summary discussion of ceramic technologies. Table 19 shows a summary artifact catalog of the lithic artifacts from the plow zone soils in the South Area and notes that the raw materials used and the number of artifacts with cortex present. The presence of cortex is an indicator of utilization of secondary cobble and pebble resources as opposed to primary outcrop raw materials (Custer and Galasso 1980). Table 20 is derived from Table 19 and shows the percentage of artifacts with cortex for each raw material type. Table 21 is also derived from Table 19 and shows the raw material percentages used for each artifact type. These kinds of summary catalogs are used in all of the discussions of lithic technologies in this report.

Tables 22 - 24 show the same lithic material use data for artifacts from features, and the assemblages from the features and plow zone soils are very similar. Tables 20 and 23 show that cortex is present on a little more than 40 percent of the lithic artifacts. When individual artifact types are considered, higher cortex percentages are seen for flake tools from both features and the plow zone, and early stage bifaces, miscellaneous stone tools, and cores from features. Utilized flakes have cortex percentages closer to that of flakes. The different cortex percentages may indicate that the prehistoric inhabitants of the South Area were using local secondary cobble resources to make a series of tools,

TABLE 20

Lithic Artifact Assemblage - Cortex Percentage from Plow Zone Soils, South Area

	RAW MATERIALS								
TOOL TYPE	Quartzite	Quartz	Chert	Jasper	Rhyolite	Argillite	Ironstone	Other	TOTAL
Flakes	47	35	34	46	0	0	0	33	40
Utilized flakes	0	50	54	56	0	–	–	–	55
Flake tools	0	50	67	87	–	–	–	–	69
Points	0	–	0	0	0	0	–	–	0
Early stage biface rejects	0	0	100	57	0	0	–	–	42
Late stage biface rejects	–	0	0	33	–	–	–	–	14
Other bifaces and fragments	–	0	0	22	0	0	–	–	10
Miscellaneous stone tools	–	50	50	70	–	–	–	–	61
Cores	100	38	40	20	–	–	–	–	42
TOTAL	47	36	36	47	0	0	0	33	41

TABLE 21

Lithic Artifact Assemblage - Raw Material Percentage by Tool Types from Plow Zone Soils, South Area

	RAW MATERIALS							
TOOL TYPE	Quartzite	Quartz	Chert	Jasper	Rhyolite	Argillite	Ironstone	Other
Flakes	3	16	29	50	<1	<1	<1	<1
Utilized flakes	<1	2	24	72	<1	0	0	0
Flake tools	4	9	52	35	0	0	0	0
Points	7	0	15	62	7	7	0	0
Early stage biface rejects	8	8	8	58	8	8	0	0
Late stage biface rejects	0	43	14	43	0	0	0	0
Other bifaces and fragments	0	3	29	47	10	10	0	0
Miscellaneous stone tools	0	22	22	56	0	0	0	0
Cores	11	50	19	19	0	0	0	0
TOTAL	3	15	29	50	<1	<1	<1	<1

namely flake tools, early stage bifaces, miscellaneous stone tools, and cores, to replace damaged tools that they had brought with them to the Carey Farm Site. The lower cortex percentages may reflect the fact that some primary lithic raw materials were brought to the site as part of a curated tool kit. While living in the South Area, the primary materials could have been reduced and produced the debitage with no cortex.

It is also possible that the lower percentages of artifacts with cortex are due to the fact that reduction and flaking of cobbles does produce some debitage with no cortex. Splitting of cobbles and pebbles and flaking of their outer surfaces removes flakes with cortex, but flaking of inner portions can produce flakes with no cortex. Thus, the lower percentages of cortex on some artifacts from the South Area may simply reflect intensive use of secondary lithic materials, and the natural production of

TABLE 22

Lithic Artifact Assemblage and Raw Materials from Features, South Area

TOOL TYPE	RAW MATERIALS								
	Quartzite	Quartz	Chert	Jasper	Rhyolite	Argillite	Ironstone	Other	TOTAL
Flakes	173 (47)	665 (292)	611 (252)	1790 (828)	38	39	3	3	3322 (1419)
Utilized flakes	7 (2)	27 (16)	30 (14)	111 (60)	1	0	0	0	176 (92)
Flake tools	3 (2)	9 (8)	13 (12)	37 (32)	0	0	0	0	62 (54)
Points	0	3 (0)	3 (0)	17 (1)	1	1	1	1 (1)	27 (2)
Early stage biface rejects	1 (1)	7 (4)	4 (4)	9 (6)	1	0	1	0	23 (15)
Late stage biface rejects	0	2 (0)	0	0	0	2	0	0	4 (0)
Other bifaces and fragments	1 (0)	2 (0)	11 (1)	17 (5)	0	6	0	1	38 (6)
Miscellaneous stone tools	0	1 (1)	5 (3)	8 (8)	0	1	0	0	14 (12)
Cores	0	5 (4)	7 (5)	7 (7)	0	0	0	0	19 (16)
TOTAL	185 (52)	721 (325)	684 (291)	1996 (947)	41	49	5	5 (1)	3685 (1616)

( ) - Artifacts with cortex

TABLE 23

Lithic Artifact Assemblage - Cortex Percentage from Features, South Area

TOOL TYPE	RAW MATERIALS								
	Quartzite	Quartz	Chert	Jasper	Rhyolite	Argillite	Ironstone	Other	TOTAL
Flakes	27	44	41	46	0	0	0	0	43
Utilized flakes	28	59	47	54	0	--	--	--	52
Flake tools	67	88	92	86	--	--	--	--	87
Points	--	0	0	6	0	0	0	100	7
Early stage biface rejects	100	57	100	67	0	--	0	--	65
Late stage biface rejects	--	0	--	--	--	0	--	--	0
Other bifaces and fragments	0	0	9	29	--	0	--	0	16
Miscellaneous stone tools	--	100	60	100	--	0	--	--	86
Cores	--	80	71	100	--	--	--	--	84
TOTAL	28	45	43	47	0	0	0	20	43

flakes with and without cortex in cobble reduction, rather than any special trends in raw material use by the site's inhabitants. Whatever, the interpretation, the raw material use data clearly show a relatively intensive use of locally available cobbles and pebbles. The four main raw materials utilized (quartzite, quartz, chert, and jasper) all show similar cortex percentages. These similarities would indicate that there was no difference in the use of secondary versus primary lithic sources among the major raw materials present in the South Area.

TABLE 24

Lithic Artifact Assemblage - Raw Material Percentage by Tool Types from Features, South Area

	RAW MATERIALS							
TOOL TYPE	Quartzite	Quartz	Chert	Jasper	Rhyolite	Argillite	Ironstone	Other
Flakes	5	20	18	54	1	1	<1	<1
Utilized flakes	4	15	17	63	<1	0	0	0
Flake tools	5	14	21	60	0	0	0	0
Points	0	11	11	63	3	3	3	3
Early stage biface rejects	4	30	17	39	4	0	4	0
Late stage biface rejects	0	50	0	0	0	50	0	0
Other bifaces and fragments	3	5	29	44	0	15	0	3
Miscellaneous stone tools	0	7	36	57	0	7	0	0
Cores	0	26	36	36	0	0	0	0
TOTAL	5	20	19	54	1	1	<1	<1

Tables 21 and 24 show the varied use of lithic raw materials among the different artifact types. Jasper is clearly the most commonly used stone with chert and quartz sharing relatively similar secondary percentages. Quartzite is used much less commonly. Only very small amounts of rhyolite, argillite, and ironstone are present. The small amount of rhyolite is interesting because in other parts of the Middle Atlantic region, rhyolite is an important component of Middle Woodland stone tool kits, especially at sites that have Mockley ceramics in the Chesapeake region (Gardner 1982; Custer 1989). Likewise, the very low frequency of argillite is interesting because at the Abbott Farm Site (Cross 1956; Stewart 1986; Cavallo 1983) and other sites further north in the Delaware Valley, argillite is an important lithic material in Middle Woodland tool kits. The implications of the low frequency of these non-local raw materials will be discussed later in this report.

Because of the relatively high percentage of artifacts with cortex in the assemblage, most of the cryptocrystalline materials, and the quartz, were probably derived from the local cobble and pebble deposits along the St. Jones River and on the surface of the Carey Farm and Island Farm sites. It is difficult to know exactly what cobble and pebble deposits were exposed for use when the sites were inhabited during prehistoric times, but a cursory survey of the modern cobble and pebble deposits showed that numerous cryptocrystalline cobbles suitable for stone tool manufacture were present. Thus, the local cobble deposits in and around the South Area were the most likely sources of lithic raw materials for the sites' inhabitants.

Lithic resource data were also compiled for each of the individual Middle Woodland feature clusters identified in Figure 45. Tables 25 - 27 show the data for Cluster I and Tables 28 - 30 show the data for Cluster II. For some artifact types the counts are small, and the data in these tables may be subject to sampling biases. However, for the categories with more numerous artifacts, such as flakes, utilized flakes, and all bifaces in general, the same resource utilization patterns noted above hold true. The previous discussion of this section of the site's chronology noted that there were a wide variety of occupations with the bulk of them occurring during Early and Middle Woodland times, particularly Middle Woodland times. The similarities in the lithic resource data for all of the data sources, plow zone soils, features, and feature clusters, suggest that there was little change in lithic resource utilization at the site over time.

TABLE 25

Lithic Artifact Assemblage and Raw Materials - Cluster I, South Area

TOOL TYPE	RAW MATERIALS								
	Quartzite	Quartz	Chert	Jasper	Rhyolite	Argillite	Ironstone	Other	TOTAL
Flakes	30 (18)	93 (48)	142 (55)	418 (173)	6	0	0	0	689 (294)
Utilized flakes	0	0	5 (1)	20 (6)	0	0	0	0	25 (7)
Flake tools	0	1 (1)	0	2 (1)	0	0	0	0	3 (2)
Points	0	1 (0)	0	0	0	0	0	0	1 (0)
Early stage biface rejects	0	0	1 (1)	1 (0)	0	0	0	0	2 (1)
Late stage biface rejects	0	1 (0)	0	0	0	1	0	0	2 (0)
Other bifaces and fragments	0	1 (0)	1 (1)	3 (1)	0	1	0	0	6 (2)
Miscellaneous stone tools	0	0	0	1 (1)	0	0	0	0	1 (1)
Cores	0	3 (3)	3 (3)	2 (2)	0	0	0	0	8 (8)
TOTAL	30 (18)	100 (52)	152 (61)	447 (184)	6	2	0	0	737 (315)

( ) - Artifacts with cortex

TABLE 26

Lithic Artifact Assemblage - Cortex Percentage - Cluster I, South Area

TOOL TYPE	RAW MATERIALS								
	Quartzite	Quartz	Chert	Jasper	Rhyolite	Argillite	Ironstone	Other	TOTAL
Flakes	60	52	39	41	0	--	--	--	43
Utilized flakes	--	--	20	30	--	--	--	--	28
Flake tools	--	100	--	50	--	--	--	--	67
Points	--	0	--	--	--	--	--	--	0
Early stage biface rejects	--	--	100	0	--	--	--	--	50
Late stage biface rejects	--	0	--	--	--	0	--	--	0
Other bifaces and fragments	--	0	100	33	--	0	--	--	33
Miscellaneous stone tools	--	--	--	100	--	--	--	--	100
Cores	0	100	100	100	--	--	--	--	100
TOTAL	60	52	40	41	0	0	--	--	43

TABLE 27

Lithic Artifact Assemblage - Raw Material Percentage by Tool Types - Cluster I, South Area

	RAW MATERIALS							
TOOL TYPE	Quartzite	Quartz	Chert	Jasper	Rhyolite	Argillite	Ironstone	Other
Flakes	4	13	21	61	1	0	0	0
Utilized flakes	0	0	20	80	0	0	0	0
Flake tools	0	33	0	67	0	0	0	0
Points	0	100	0	0	0	0	0	0
Early stage biface rejects	0	0	50	50	0	0	0	0
Late stage biface rejects	0	50	0	0	0	50	0	0
Other bifaces and fragments	0	16	16	50	0	16	0	0
Miscellaneous stone tools	0	0	0	100	0	0	0	0
Cores	0	37	37	25	0	0	0	0
TOTAL	4	13	21	61	1	<1	0	0

TABLE 28

Lithic Artifact Assemblage and Raw Materials - Cluster II, South Area

	RAW MATERIALS								
TOOL TYPE	Quartzite	Quartz	Chert	Jasper	Rhyolite	Argillite	Ironstone	Other	TOTAL
Flakes	52 (10)	164 (69)	79 (30)	311 (122)	1	5	0	0	612 (231)
Utilized flakes	2 (0)	16 (9)	7 (3)	21 (10)	1	0	0	0	47 (22)
Flake tools	0	0	4 (4)	6 (3)	0	0	0	0	10 (7)
Points	0	0	0	4 (1)	0	0	0	1 (1)	5 (2)
Early stage biface rejects	1 (1)	4 (2)	1 (1)	2 (2)	0	0	0	0	8 (6)
Late stage biface rejects	0	0	0	0	0	0	0	0	0
Other bifaces and fragments	0	0	3 (0)	3 (3)	0	2	0	0	8 (3)
Miscellaneous stone tools	0	1 (1)	1 (1)	1 (1)	0	0	0	0	3 (3)
Cores	0	1 (1)	2 (1)	1 (1)	0	0	0	0	4 (3)
TOTAL	55 (11)	186 (82)	97 (40)	349 (143)	2	7	0	1 (1)	697 (277)

( ) - Artifacts with cortex

TABLE 29

Lithic Artifact Assemblage - Cortex Percentage - Cluster II, South Area

	RAW MATERIALS							
TOOL TYPE	Quartzite	Quartz	Chert	Jasper	Rhyolite	Argillite	Other	TOTAL
Flakes	19	42	38	39	0	0	0	38
Utilized flakes	0	56	43	48	0	--	0	47
Flake tools	--	--	100	50	--	--	0	70
Points	--	--	25	25	--	--	100	40
Early stage biface rejects	100	50	100	100	--	--	0	75
Late stage biface rejects	--	--	--	--	--	--	0	0
Other bifaces and fragments	--	--	0	100	--	0	0	38
Miscellaneous stone tools	--	100	100	100	--	--	0	100
Cores	--	100	100	100	--	--	0	75
TOTAL	20	44	41	41	0	0	100	40

TABLE 30

Lithic Artifact Assemblage - Raw Material Percentage by Tool Types - Cluster II, South Area

	RAW MATERIALS							
TOOL TYPE	Quartzite	Quartz	Chert	Jasper	Rhyolite	Argillite	Ironstone	Other
Flakes	8	27	13	51	<1	<1	0	0
Utilized flakes	4	34	15	45	0	0	0	0
Flake tools	0	0	40	60	0	0	0	0
Points	0	0	0	80	0	0	0	20
Early stage biface rejects	12	50	12	25	0	0	0	0
Late stage biface rejects	0	0	0	0	0	0	0	0
Other bifaces and fragments	0	37	37	0	25	0	0	0
Miscellaneous stone tools	0	33	33	33	0	0	0	0
Cores	0	25	50	25	0	0	0	0
TOTAL	8	27	14	50	<1	1	0	<1

TABLE 31

Tool Types - South Area

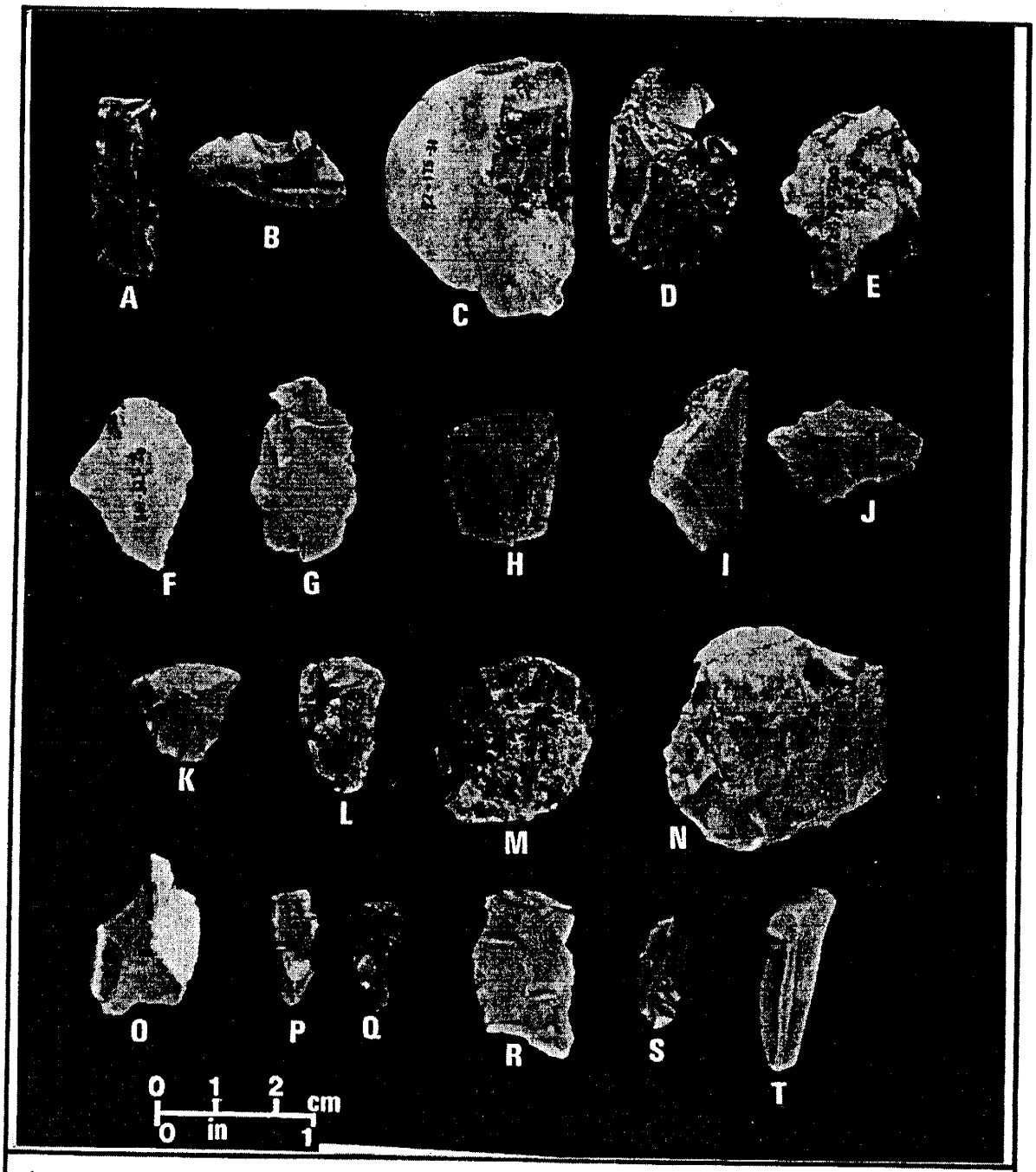
	PLOW ZONE	FEATURES	TOTAL
Points/Knives	13	27	40
Late Stage Bifaces	7	4	11
Early Stage Bifaces	12	23	35
Drills	1	0	1
Concave/Biconcave Scrapers	5	0	5
Bifacial Side Scrapers	2	2	4
Unifacial Side Scrapers	3	7	10
Trianguloid End Scrapers	2	2	4
Slug-Shaped Unifaces	0	0	0
Wedges	0	3	3
Primary Cores	15	3	18
Secondary Cores	11	16	27
Denticulates	0	1	1
Gravers	0	1	1
Regular Utilized Flakes	236	157	393
Blade-Like Utilized Flakes	8	19	27
TOTAL	315	265	580

Table 31 lists the varied tool types found in the South Area of the Carey Farm Site. The categories used in Table 31 are derived from the work of Lowery and Custer (1990) and will be used throughout this report. Examples of some of the flake tools from the plow zone soils of the South Area are illustrated in Plate 39 including a drill fragment (Plate 39A), a concave/biconcave scraper (Plate 39B), and a blade-like flake tool (Plate 39T). Figure 54 shows a sample of flake tools from features in the South Area including unifacial side scrapers (Figure 54A-B, I-J), end scrapers (Figure 54C-D), wedges (Figure 54E-F), a graver (Figure 54G), a denticulate (Figure 54H), a utilized core fragment (Figure 54N), and a series of blade-like flake tools (Figure 54K-M, O-Q). The unifacial side scraper shown in Figure 54I is of special interest because cortex was retained on the side opposite the working edge to produce a "backed tool" (Bordes 1968) where the remnant cortex could be used as a flat area to grip the tool. The presence of the "backed" tool is interesting because it shows that at least some of the flake tools were manufactured for use without handles. The utilized core fragment (Figure 54N) shows that tools and cores were being used for multiple purposes.

Considering the fact that more than 7500 lithic artifacts were found in the South Area of the Carey Farm Site, the total of 580 tools is rather small and represents approximately seven percent of the assemblage. Furthermore, of the 580 tools noted in Table 31, 393 (67%) are simple utilized flakes whose edges show signs of only casual edge shaping and resharpening. Formal tool forms comprise only two percent of the total lithic artifact assemblage. Some categories of tools are not represented at all, and other types are represented by individual specimens. These data tend to indicate that generalized flake tools, probably derived from cobble and pebble reduction, were used more commonly than formal flake tools designed to fit specific functions.

PLATE 39

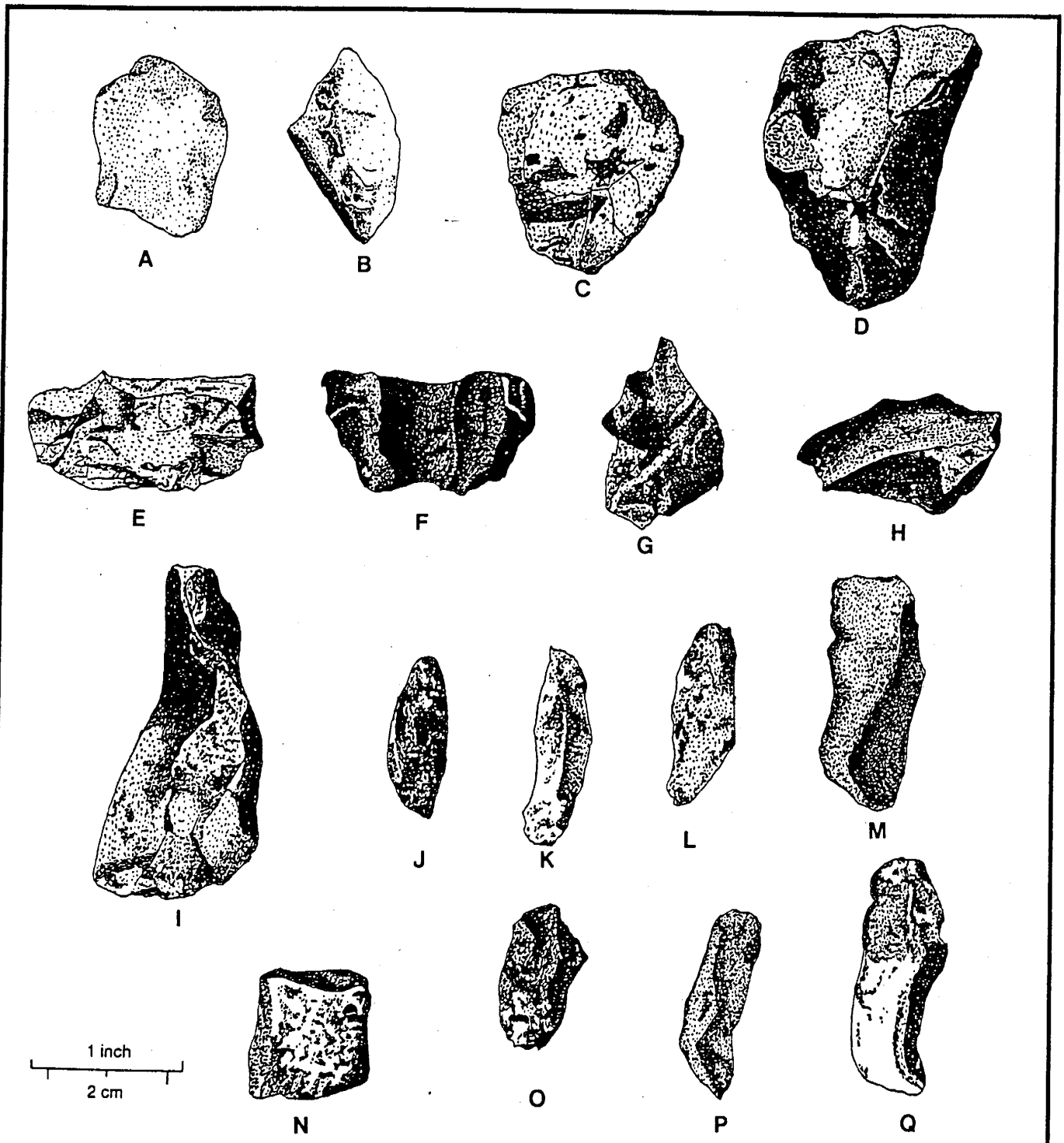
Sample Flake Tools from Plow Zone Soils



A - Chert Drill - 91/4/K20
B - Chert Concave/Biconcave Scraper - 91/4/K13
C - Quartz Bifacial Side Scraper - 92/175/31
D - Chert Bifacial Side Scraper - 89/9/1
E - Jasper Bifacial Side Scraper - 92/175/300
F - Jasper Unifacial Side Scraper -92/175/103
G - Chert Unifacial Side Scraper - 92/175/130
H - Jasper Unifacial Side Scraper - 92/175/113
I - Jasper Unifacial Side Scraper - 92/175/266
J - Jasper Denticulate - 92/175/247
K - Jasper End Scraper - 91/39/108
L - Chert End Scraper - 92/175/152
M - Chert End Scraper - 92/175/195
N - Chert Wedge - 92/175/241
O - Jasper Graver - 92/175/235
P - Jasper Blade-Like Flake - 92/175/108
Q - Chert Blade-Like Flake - 92/175/107
R - Jasper Blade-Like Flake - 92/175/122
S - Jasper Blade-Like Flake - 92/175/270
T - Jasper Blade-Like Flake - 91/4/K17

FIGURE 54

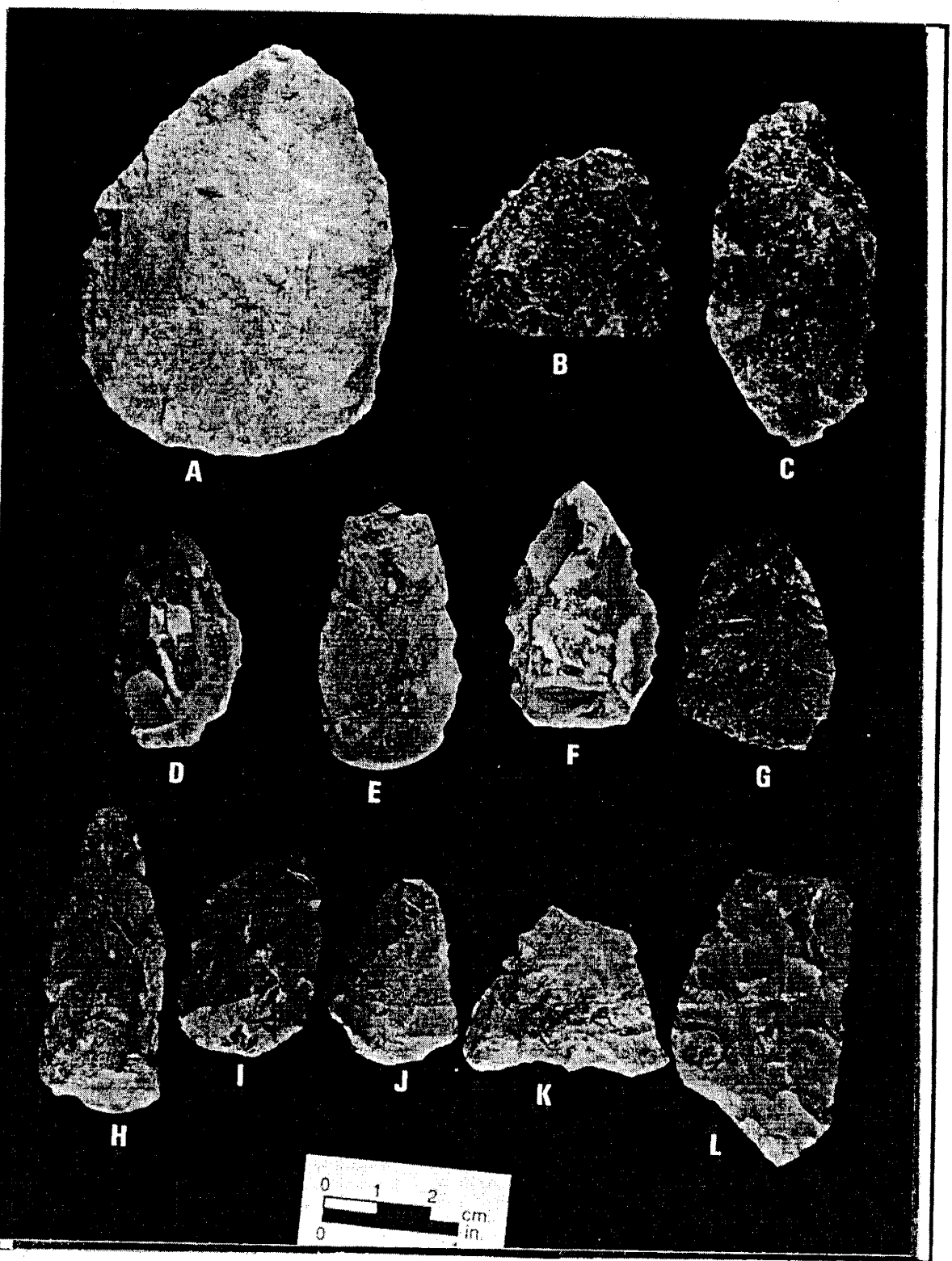
Flake Tools from South Area Features



A - Quartz Unifacial Side Scraper, Feature 2033
B - Quartz Unifacial Side Scraper, Feature 2030
C - Chert End Scraper, Feature 1992
D - Jasper End Scraper, Feature 1995
E - Jasper Wedge, Feature 137
F - Jasper Wedge, Feature 2021
G - Chert Graver, Feature 2039
H - Chert Denticulate, Feature 1990
I - Jasper Backed Unifacial Side Scraper, Feature 2039
J - Jasper Unifacial Side Scraper, Feature 2023
K - Jasper Blade-like Flake, Feature 1995
L - Jasper Blade-like Flake, Feature 1992
M - Chert Blade-like Flake, Feature 2039
N - Jasper Utilized Core Fragment, Feature 2034
O - Jasper Blade-like Flake, Feature 2000
P - Jasper Blade-like Flake, Feature 2000
Q - Jasper Blade-like Flake, Feature 2000

PLATE 40

Sample Bifaces from Plow Zone Soils



A - Jasper 91/4/K1
B - Chert 92/175/25
C - Jasper 92/175/39
D - Jasper 92/175/248
E - Jasper 89/9/49
F - Jasper 92/175/307

1 inch
2 cm

G - Jasper 92/175/476
H - Jasper 92/175/332
I - Jasper 92/175/310
J - Jasper 92/175/395
K - Jasper 92/175/352
L - Jasper 92/175/475

Numerous bifaces were present in the South Area assemblage, and examples are illustrated in Plates 40A, 41A-F, and 42I-L. The biface shown in Plate 40A is a good example of an early stage biface and is made from a grainy quartzite cobble. Cortex is visible on both faces and the biface was made from a thin cobble less than 15 millimeters thick, thus illustrating the use of secondary raw material sources. Use of this relatively thin piece of secondary lithic material further illustrates the observations made by Custer and Galasso (1980) that secondary raw material sources can sometimes be easier to use for biface manufacture than primary materials because cobbles' natural shape already approximates the form of a biface.

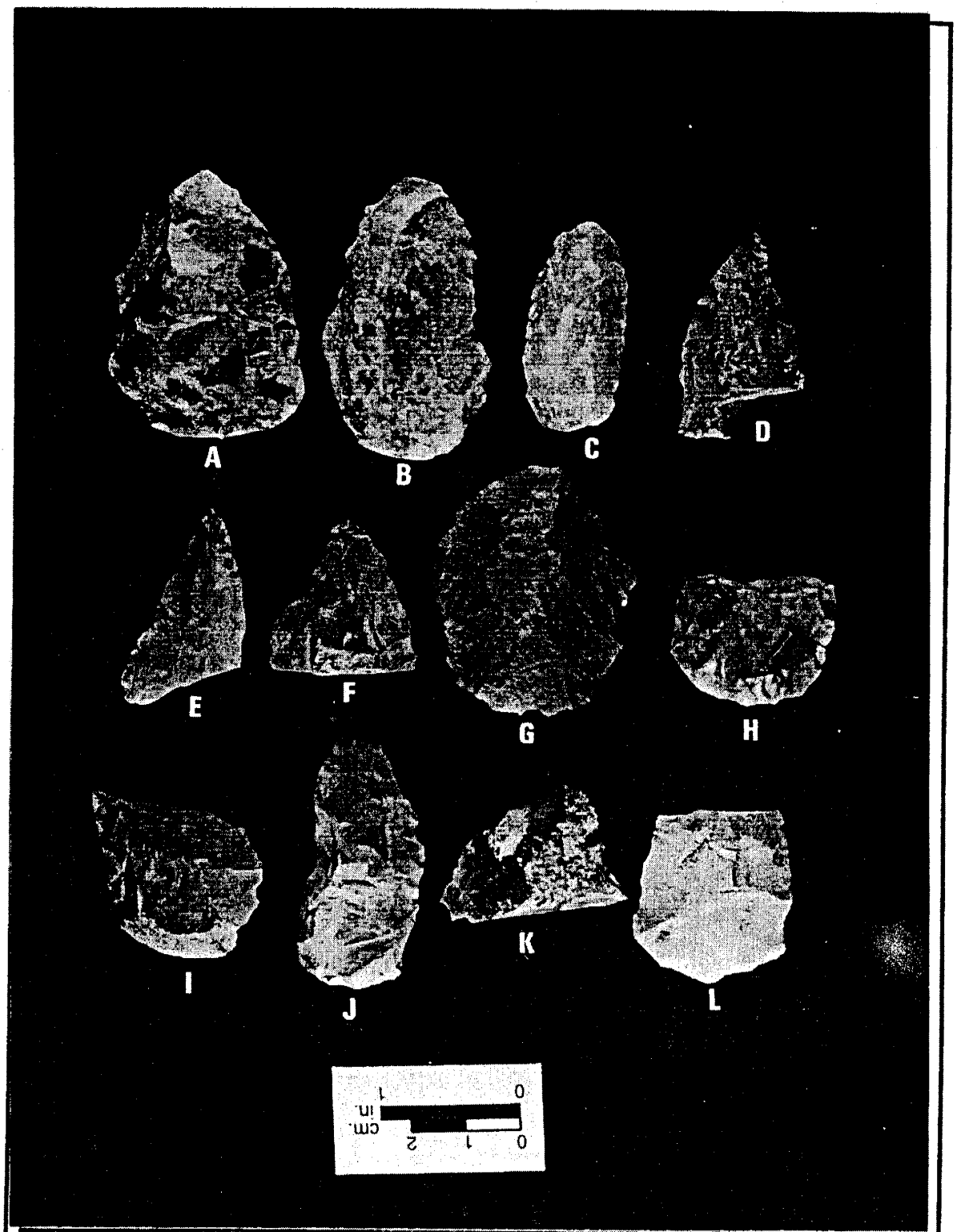
The bifaces in Plate 41A-F include both early and later reduction stage forms. Cobble cortex is present on most of these specimens. Snap-breaks along the medial portion of the bifaces, such as the examples shown in Plate 41D and 41E, are common manufacturing errors seen in the later stages of biface thinning (Callahan 1979). Argillite bifaces were also recovered from features in the South Area and Plate 42I-L show four examples. Three of these (Plate 42J-L) are late stage bifaces with medial fractures from manufacturing and all were found in Middle Woodland features.

Plate 43 shows an interesting end scraper made from a piece of jasper that includes a fossil shell. The presence of the shell means that the jasper cobble that was used to produce the tool probably came from a jasper outcrop within the Pennsylvania Jasper outcrops of the Great Valley where fossiliferous jaspers are not uncommon (Custer 1995). It is possible that the fossiliferous jasper was specifically used to manufacture the tool after the fossil's presence was noted in the cobble's interior.

A sample of five hammerstones from the South Area are illustrated in Plate 44 and can be placed into two main size categories. Three of the hammerstones (Plate 44A-C) weighed less than 200 grams, and one (Plate 44C) is quite small. The other two hammerstones weighed more than 1.25 kilograms and are rather large. The variation in sizes reflects different lithic reduction activities and their presence suggests that a variety of tool production activities took place in this site area. The large hammerstones would be especially useful for early stages of lithic reduction and the splitting of cobbles and pebbles using bipolar reduction (see discussion in Geier 1990). The smaller hammerstones would have been used in later stages of reduction. The very small hammerstone (Plate 44C) is similar to several seen in burial caches (Figure 55) at the nearby Middle Woodland Island Field Site (Custer, Rosenberg, Mellin, and Washburn 1990), and would have been especially useful for the final stages of tool production. It is possible that small hammerstones like these could have replaced billets and pressure flakers in those final tool production stages at the Carey Farm Site.

PLATE 41

Sample Bifaces from Features, South and South Central Areas



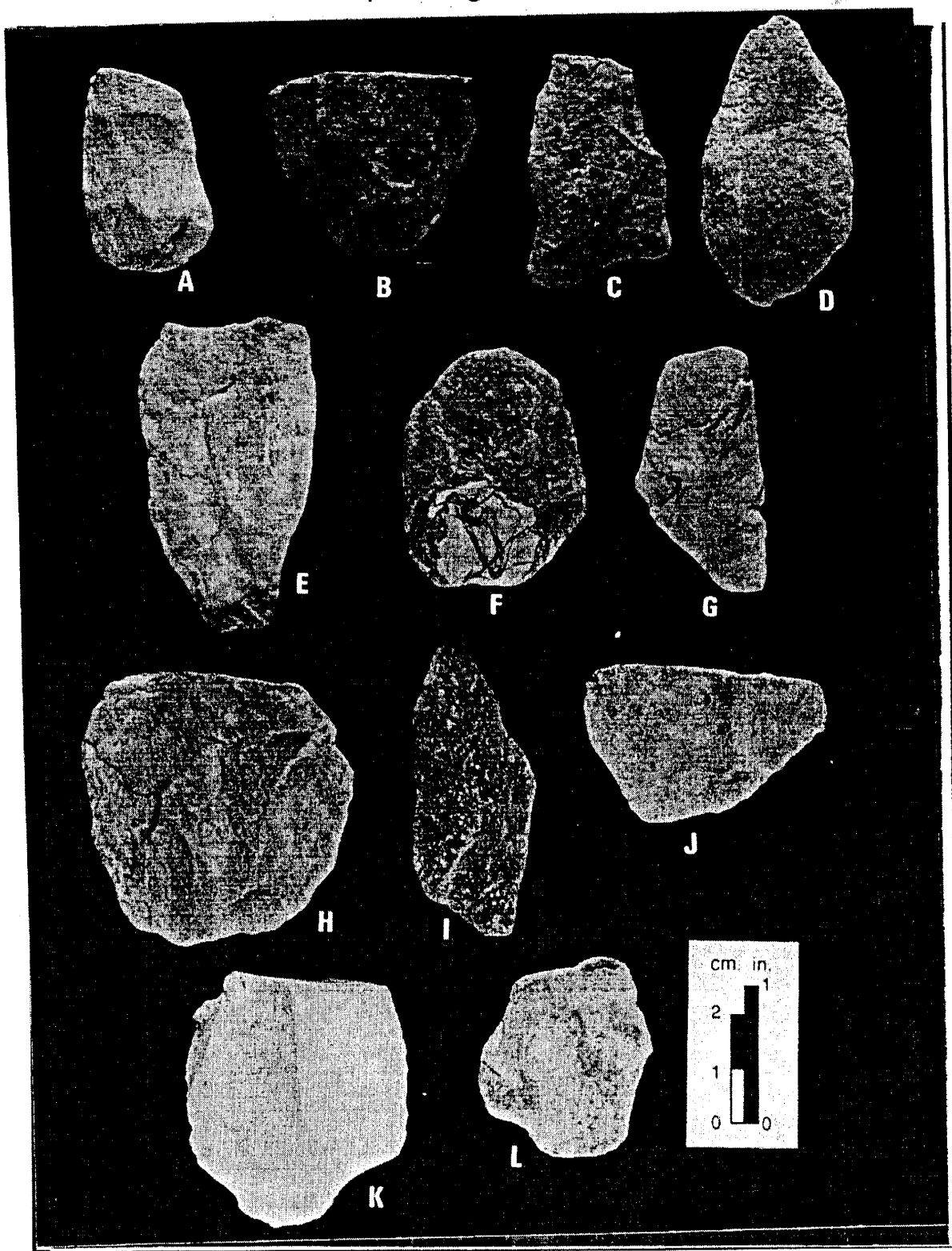
South Area
A - Chert - Feature 2010
B - Chert - Feature 181
C - Quartz - Feature 1995
D - Jasper - Feature 1995
E - Jasper - Feature 1998
F - Jasper - Feature 1998

1 inch
2 cm

South Central Area
G - Jasper - Feature 369
H - Jasper - Feature 741
I - Jasper - Feature 371
J - Jasper - Feature 601
K - Jasper - Feature 645
L - Chert - Feature 715

PLATE 42

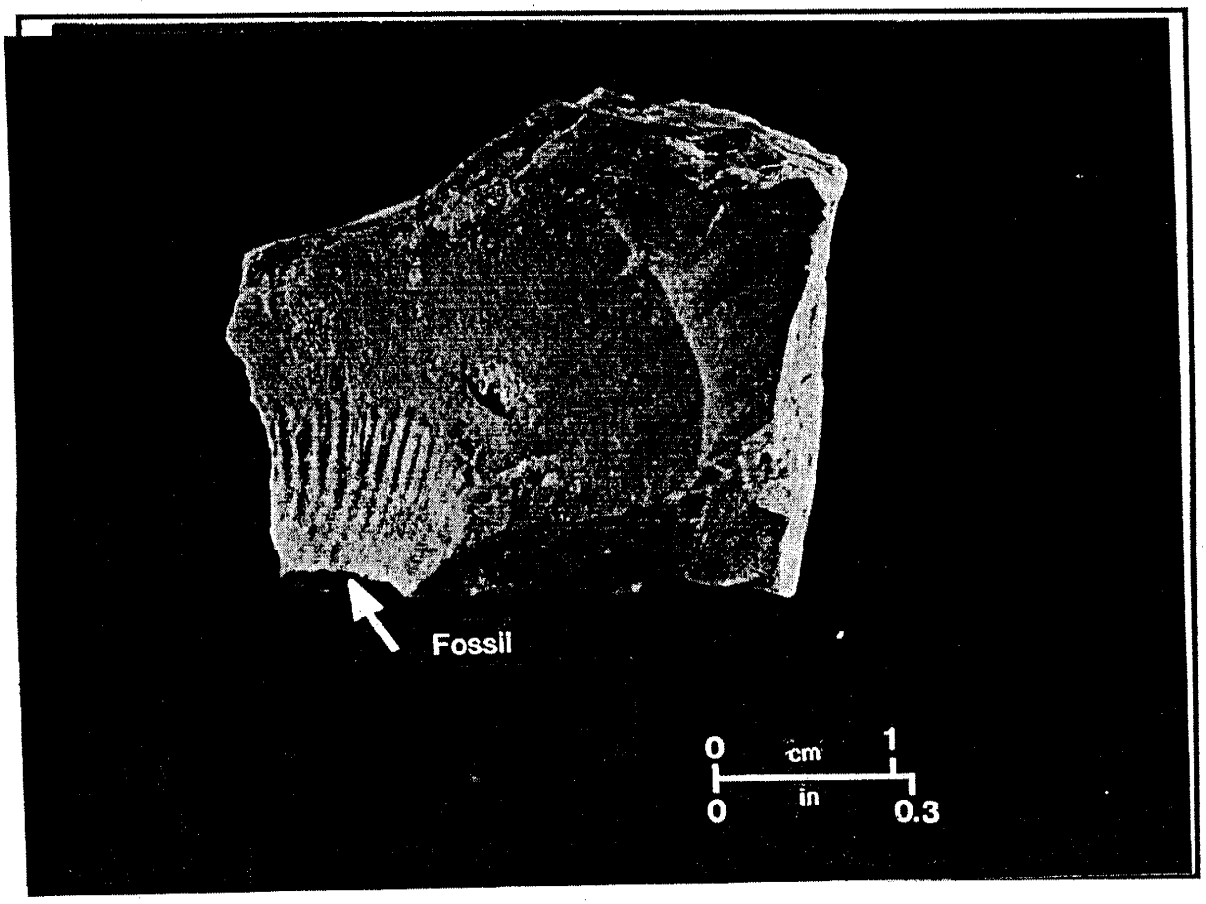
Sample Argillite Bifaces



A - Feature 163, Island Farm Site
B - N213 E198, Woods Area
C - N463 E28, Woods Area
D - Feature 236, Woods Area
E - Feature 121, Carey Farm Site, North Area
F - Feature 1892, Carey Farm Site, North Area
G - Feature 1278, Carey Farm Site, North Central Area
H - Feature 427, Carey Farm Site, South Central Area
I - Feature 1998, Carey Farm Site, South Area
J - Feature 1998, Carey Farm Site, South Area
K - Feature 1983, Carey Farm Site, South Area
L - Feature 2044, Carey Farm Site, South Area

PLATE 43

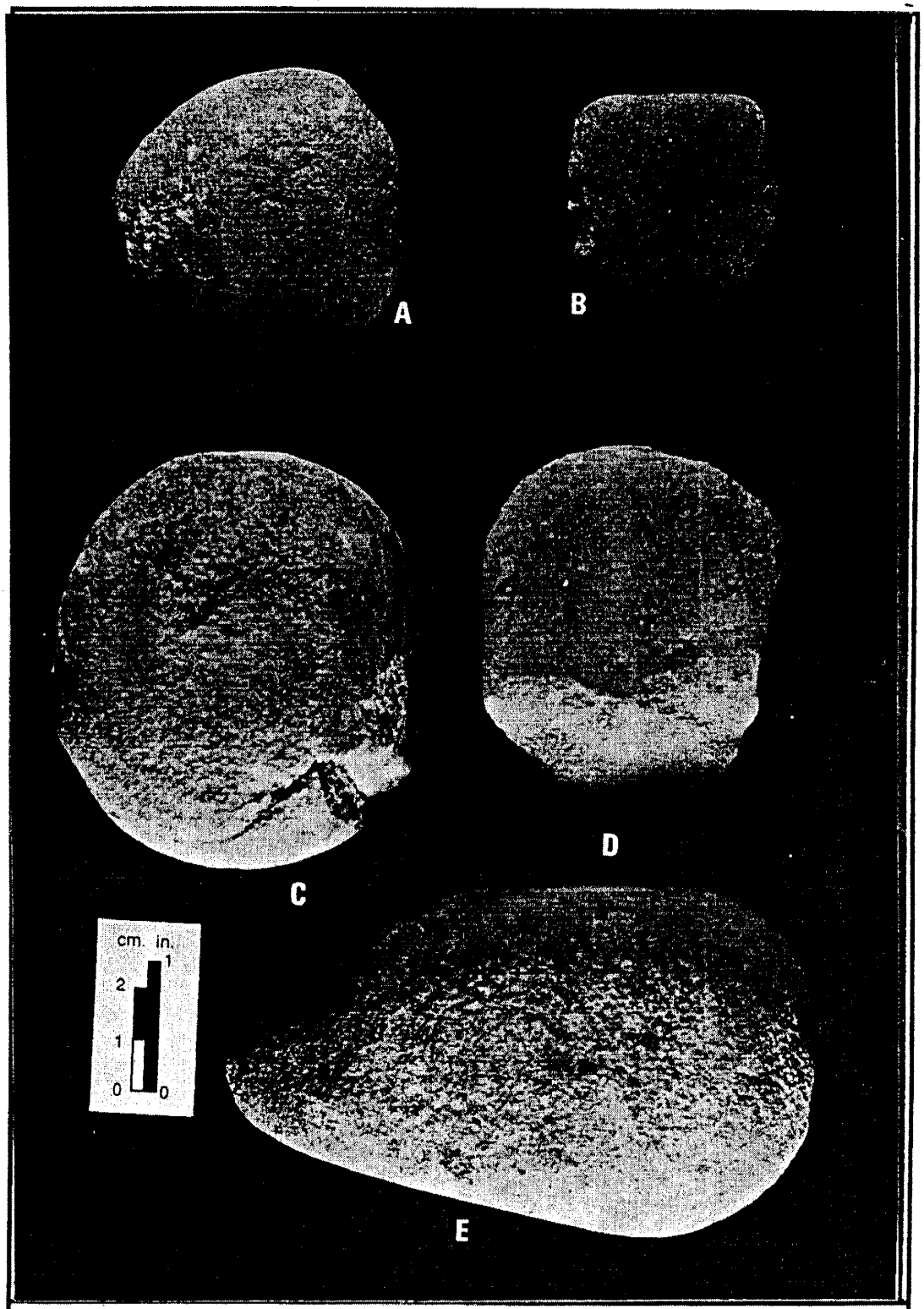
End Scraper with Fossil from Feature 2039



The South Area lithic assemblages contained several examples of cobbles and pebbles that had been split using bipolar percussion where the pebble or cobble is placed on end on an anvil stone, and then struck on the opposite end with a hammerstone. If struck properly, the cobble will split in half, and there will be striking platforms on both ends of the cobble and the flakes that are removed. Figure 56 contrasts two cobbles split using bipolar percussion with another cobble that was flaked using simple bifacial reduction, and the differences are apparent. After the cobbles were split, they were used to manufacture both bifacial and unifacial tools. Figure 57 shows two examples of unifacial side scrapers made from cobbles split via bipolar percussion, and Figure 58 shows three examples of bifaces made from similarly split cobbles. These examples show the variety of tools that could be made from secondary cobbles and highlight the flexibility of bipolar technologies.

PLATE 44

Hammerstones from South Area



A - Feature 2035
B - Feature 1989
C - Feature 2039
D - Feature 2012
E - Feature 2026

FIGURE 55

Flintknapping Tool Kit from the Island Field Site

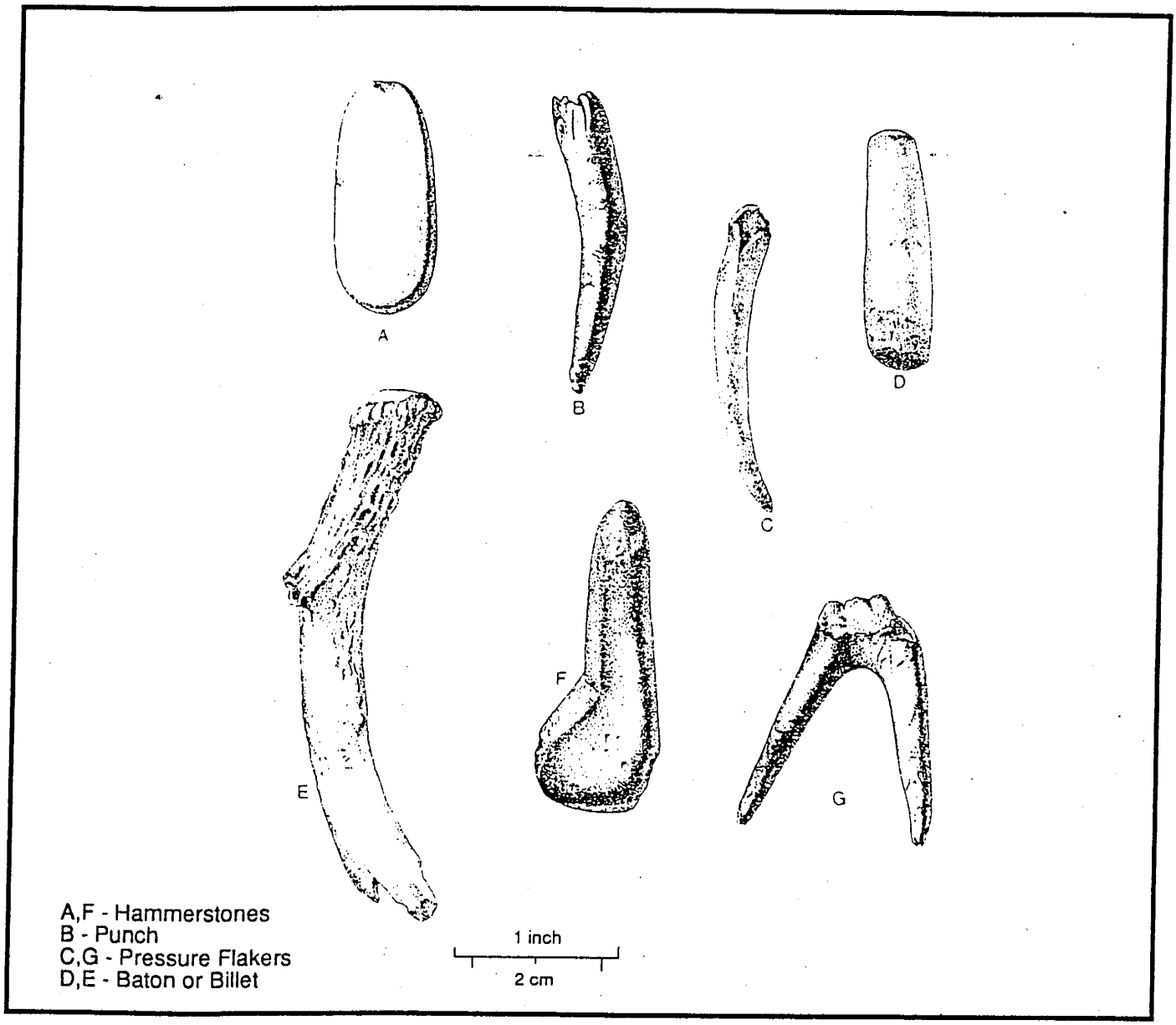


FIGURE 56

Split Cobbles, South Area

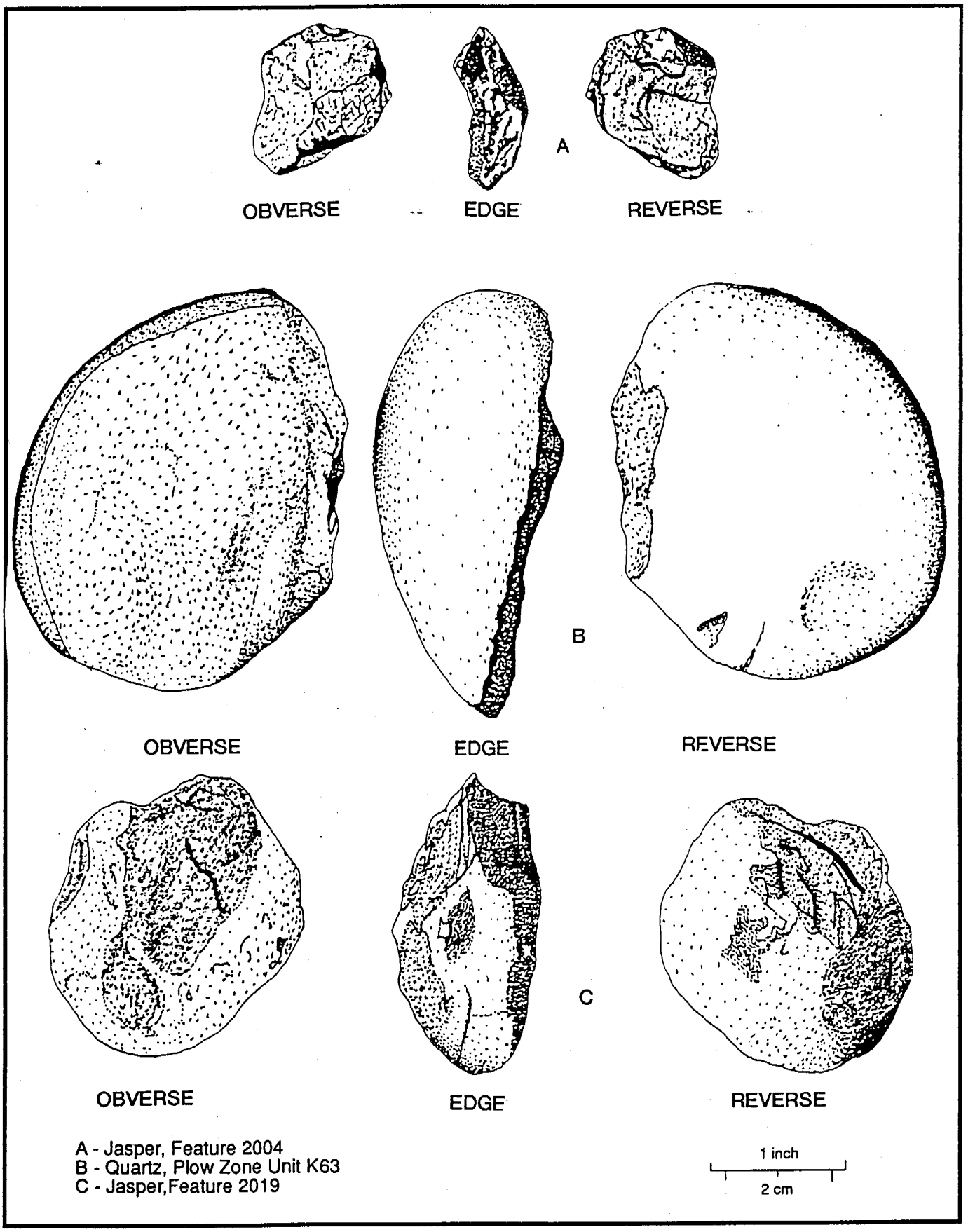


FIGURE 57

Bipolar Split Cobbles Used to Manufacture Unifaces, South Area

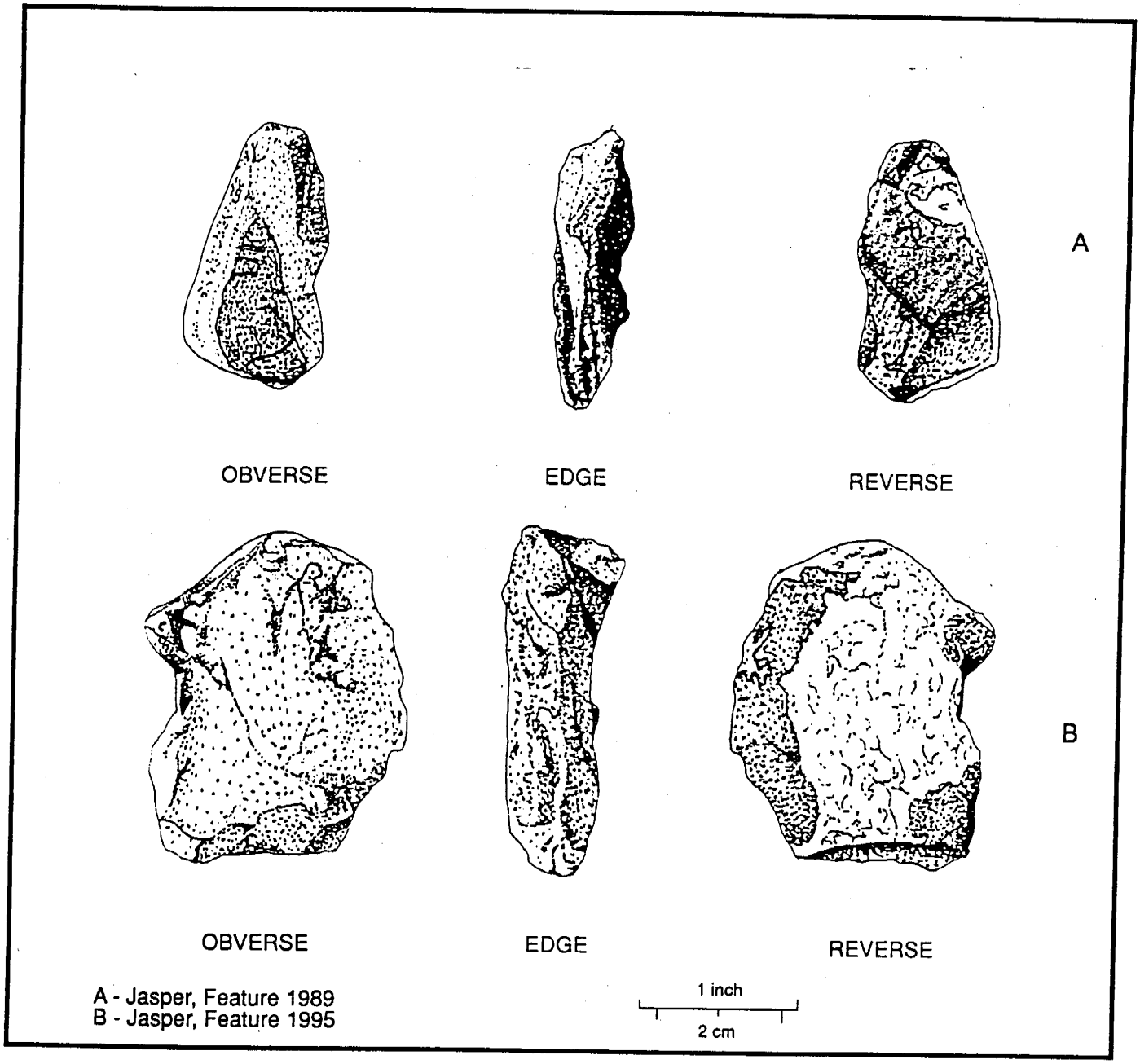


FIGURE 58

Bipolar Split Cobbles Used to Manufacture Bifaces, South Area

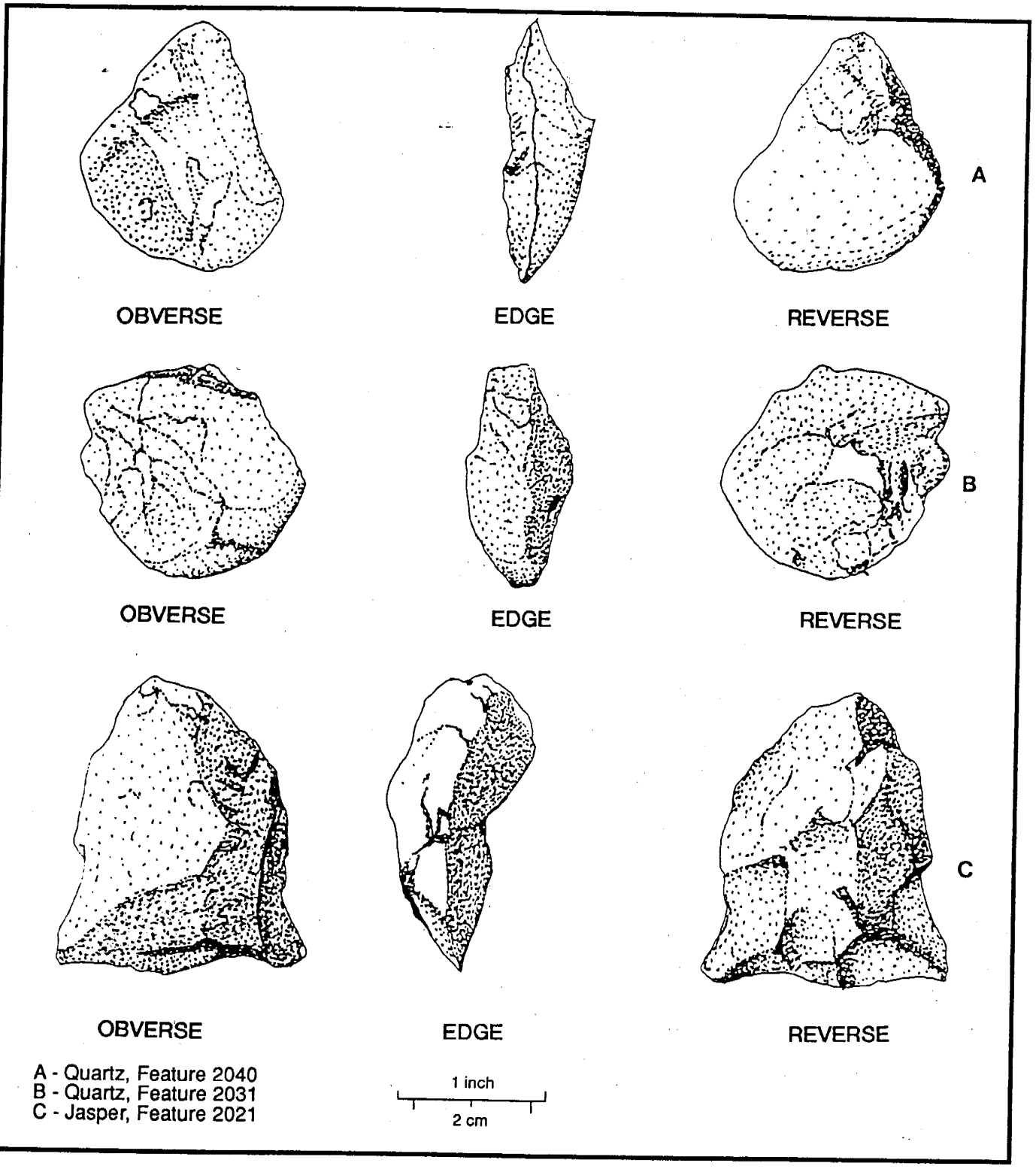


FIGURE 59

Conjoining Bipolar Flakes from Feature 2005

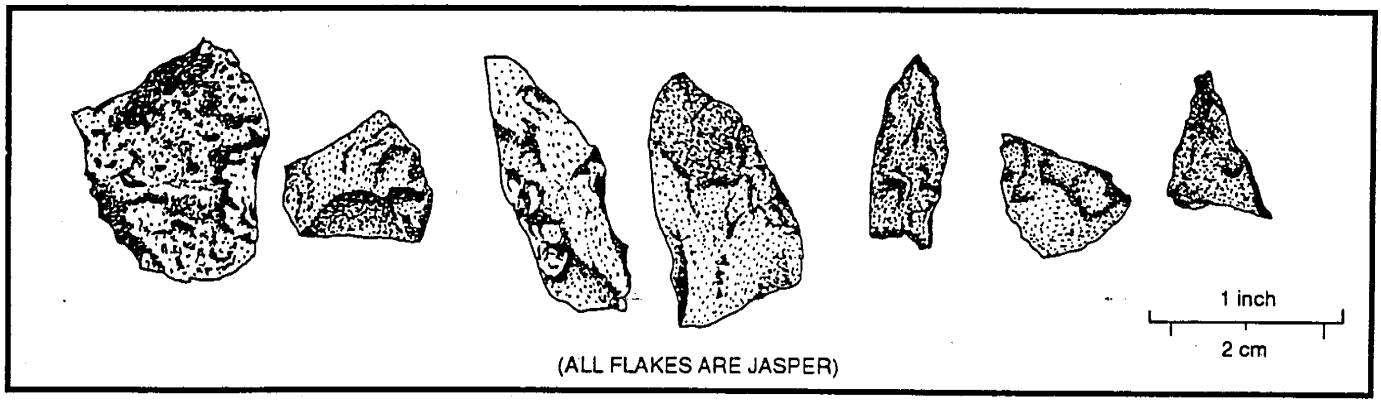


FIGURE 60

Hafted Flake Tool

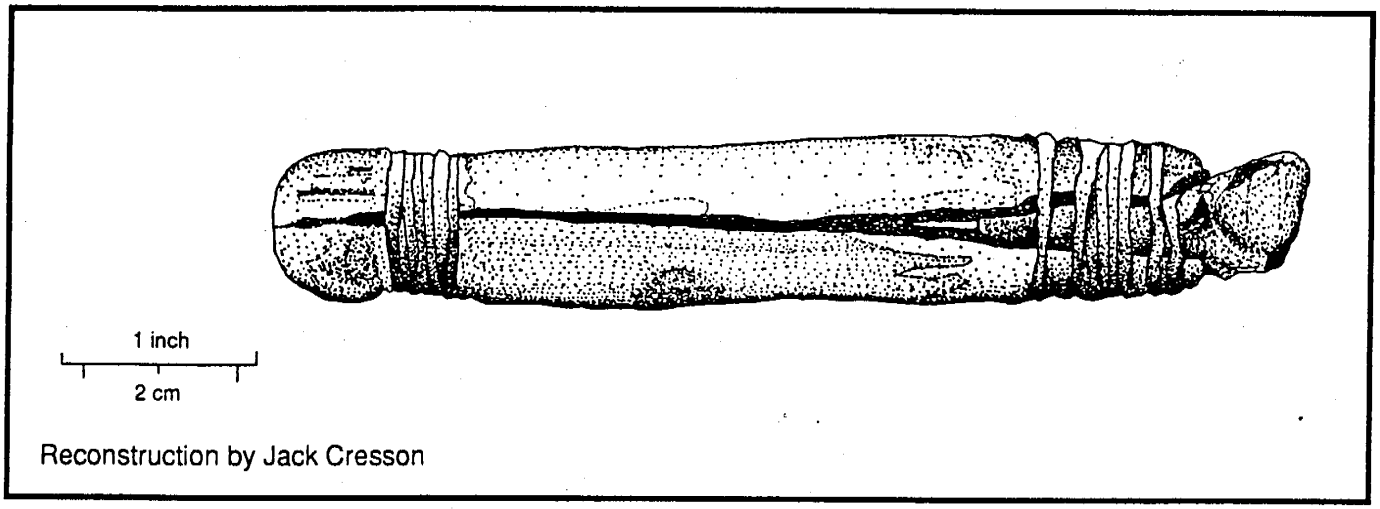
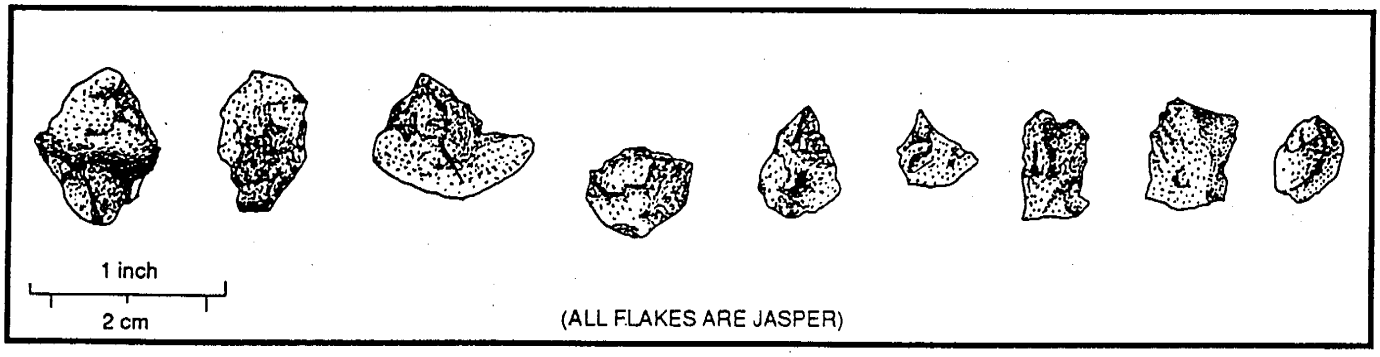


FIGURE 61

Small Utilized Flakes from Feature 1997



Flakes from bipolar reduction are also present in the artifact assemblage from the South Area. Figure 59 shows seven jasper flakes that all fit together, conjoin, and were produced by a series of successive bipolar reduction blows. These flakes could have been used for a variety of purposes and Figure 60 shows a reconstruction of a hafted bipolar flake based on a replica created by Jack Cresson, a specialist in the recreation of prehistoric technologies. Similar hafted flake tools have been identified at sites from the Northwest Coast culture area of North American where they were used as fish processing tools (Oswalt 1976).

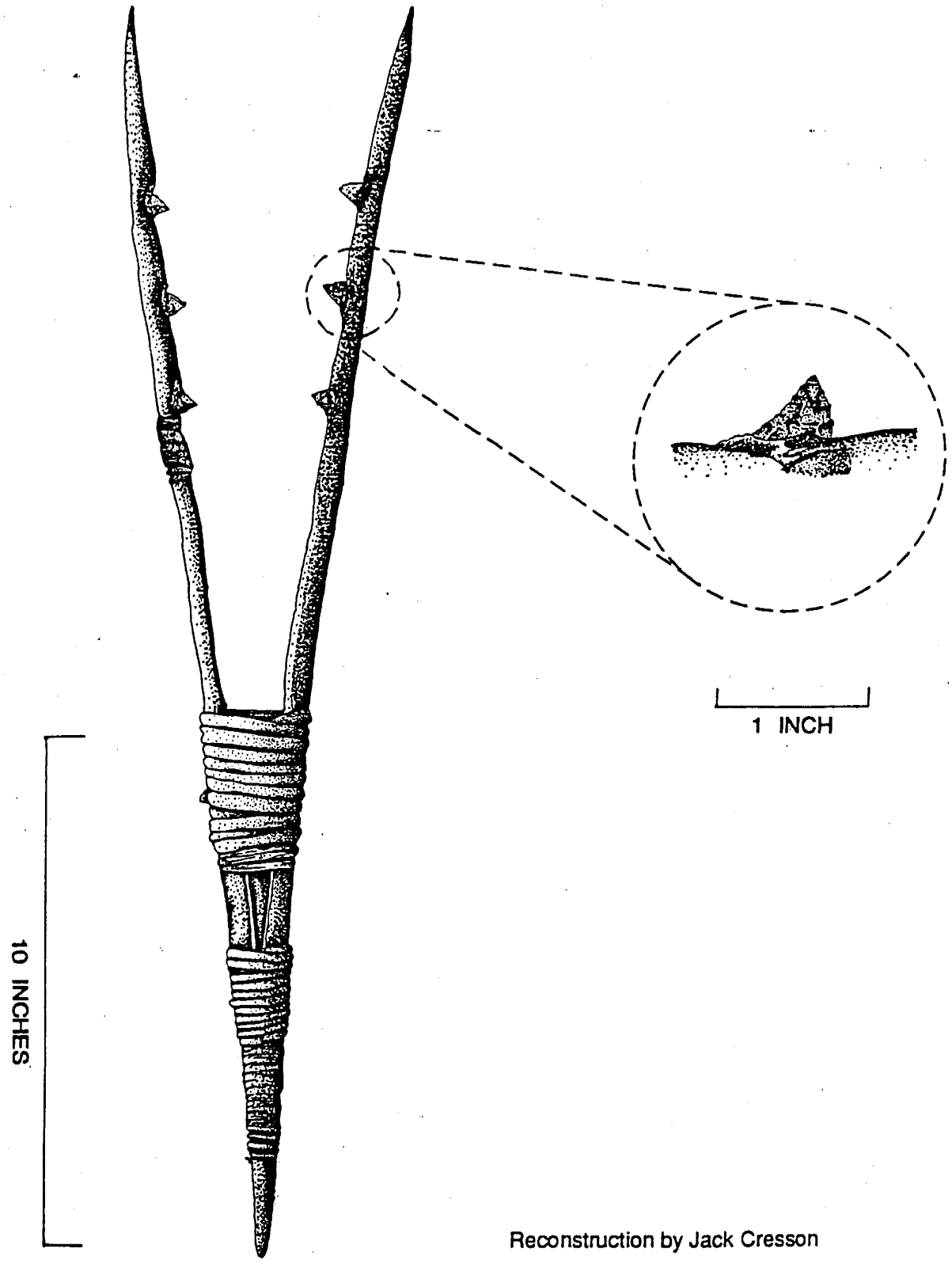
Several features in the South Area contained numerous small utilized flakes, and a sample from Feature 1997 is illustrated in Figure 61. All of these tiny flakes show extensive retouching along their lateral margins. The small size of the flakes makes it unlikely that they were used unhafted. However, these small flakes could have been hafted in sets to produce cutting or penetrating edges for compound tools. Figure 62 shows a reconstructed fishing spear, or harpoon, based on ethnographic examples described by Oswalt (1976). The small flakes are set into the "jaws" of the harpoon and hold the fish. Figure 63 shows how such spears could have been used in the St. Jones River during prehistoric times. It is important to realize that this projected function of these small retouched flakes is conjectural and other uses are possible. However, the reconstruction in Figure 62 is based on true ethnographic examples of the use of similar small flakes.

Analysis of Ecofacts

Faunal and floral remains were not well preserved in most of the features excavated at the Carey Farm and Island Farm sites. Flotation analysis did recover some seeds and other small artifacts. The discussion of the flotation materials for all areas of the site will be presented in the final section of the report. The only other ecofacts found in the South Area are some bone fragments found in Feature 1984. These bones include some fragments of long bones from a deer, probably a femur, and teeth fragments, also probably from a deer.

FIGURE 62

Reconstructed Fish Spear or Harpoon



Reconstruction by Jack Cresson

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FIGURE 64

Feature Locations - Carey Farm Site, South Central Area