Carcajou Point is located in Jefferson County, along the western shore of Lake Koshkonong (Figure 3.1). Fieldwork was conducted at the Kelly North Tract portion of Carcajou Point (47 Je 02) for three weeks during the 2002 field season (Figure 3.2). Investigations were conducted with the logistical and financial support of Mr. Thomas Kelly, who plans to develop the property in the future. The objective was to gain an understanding of land use by prehistoric populations before this northern portion of the Carcajou Point site was to be developed.

The site has been previously investigated by a number of archaeologists, who recovered data indicating that the site had primarily been inhabited by Late Woodland and Oneota cultures (Hall 1962; Gaff 1998; Goldstein 1994; Richards et al. 1997). The Kelly North Tract is just south of Kuehn Road, and approximately 200-250m north of previous excavations by UWM in 1988 and 89 (Goldstein 1994) and immediately east of a portion of the Carcajou Point site surveyed in 1983 by UWM, and given the field number Bu-5. Rodell (1984:160-161) interpreted Bu-5 as a light scatter of Oneota and Late Woodland material associated with Je02. One triangular and two notched projectile points, along with five other bifaces, two shell tempered and two grit tempered sherds were recovered from surface survey (Rodell 1984:156). The site area Bu-5 is designated
Figure 3.1 Location of North Kelly Tract, Carcajou Point 47Je02.
Figure 3.2 Location of Kelly North Tract in relation to Carcajou Point sites.
Carcajou Point III, site number of 47Je812, in the Wisconsin ASI files. To differentiate the area investigated in 2002 from previous designations, the research area in this article is termed the Kelly North Tract.

The site location is a sandy outwash bench along the western shore of Lake Koshkonong. It lies between 790-780 feet amsl, based on the Busseyville USGS 7.5 minute topographic quadrangle. The land slopes up to the west for approximately 225m to the ridge top at 820 feet amsl, and slopes down approximately 50m to marshland and the current shoreline to the east with an elevation of 776 ft amsl. The site is thus only about 5 feet above the current level of the marsh, and is possibly the original beach shore for the lake after its initial impoundment circa 10,000 BP. The soil on which the site sits is Boyer sandy loam, and it abuts Watseka sandy soil, which forms the basis for the marshy ground next to the lakeshore (Glocker 1979).

**Methods**

Initially, two slit trenches were excavated to determine the stratigraphy of the site. During excavation of Trench 2, a large pit feature was uncovered. The trench was expanded to a 1 x 2 m trench to capture the profile, then Unit 02-01 was placed directly north of the 1 x 2 to retrieve the rest of the feature (F02-01). Stratigraphy of the trenches showed a clay fill had been brought in to cover the original land surface for the purposes of house and road construction. This layer went to a maximum depth of 30 cm in some areas, but most often went to a depth of 15 cm in unit 02-01 and Block 01. Trench 2 was placed 30m east of Trench 1, on an east/west axis, while Trench 1 was on a north/south
axis. Trench 1 was located approximately eight m south of the Kelly residence. Both trenches showed similar stratigraphy. Block 1 was placed approximately three m east of Trench 1 (Figure 3.3).

Exploratory shovel probes were placed to the north and south of the house to examine stratigraphy and locate subsurface materials. A shovel probe north of the Kelly residence uncovered a large quantity of flakes and two copper awls. Stratigraphy in the probe was similar to the trenches. Block 2, which contained Unit 02-02 was placed 50 cm to the east of this shovel probe. The shovel probe excavated to the south of the house did not provide as much material, influencing the decision to place Block 2 north of the house. Soil descriptions were taken at the beginning of each level and included color, texture, consistency, plasticity, structure, PH, and presence or absence of mottling. The soil matrix was screened through 1/4" (6.3mm) mesh screen to recover cultural material. Artifacts and floatation samples recovered were taken to the UWM- Archaeological Research Laboratory for processing.

Features were excavated using a feature-trench, bisection technique. Before excavation the feature was mapped and photographed in plan view. A trench was defined across the feature, extending into the excavation unit (or square). The feature and square soil matrices were dug separately within the trench, in arbitrary 10 cm levels. The square matrix was screened through 6.3 mm mesh, while the feature matrix was bagged as a flotation sample.
Figure 3.3. Map of excavation units, Block 1, 2, and slit trenches.
Block 1

Block 1 was a 6 m x 12 m area. A front-end loader with a 6 foot wide bucket was used to strip the fill. Once the fill was removed, hand excavation was used to remove the loose dirt, which was dry screened. Due to the nature of the sandy soil, the machine excavated and disturbed part of the buried A Horizon, 10 yr 2/2, Very Dark Brown, denoted as Level 01. It was not until the loose matrix was removed and the floor leveled, that a datum was established at the surface on the center of the west wall (Figure 3.4).

The B Horizon was designated Level 02 at 29 cmbs. The soil matrix was a 7.5 yr 4/3, Brown, sand. It was noted that Late Woodland pottery was restricted to the loose material or A Horizon. Once the B Horizon was reached, Late Woodland pottery was no longer present. Features 02-10 through 02-16 were identified in this level, and radiocarbon dates were obtained for Features 02-12, 02-13, 02-14, and 02-15 (Figure 3.5). These features were moderately deep, basin-shaped pits (e.g., Figure 3.6).

Excavation continued into Level 02, B Horizon due to the extensive lithic material present. A T-drill was found in the vicinity where Unit 02-03 was placed. Two Paleoindian points and a hammerstone were recovered as well. One point was recovered at approximately 57 cmbs, while the second point was uncovered between 48 and 72 cmbs during a feature trench excavation. A dense lithic scatter was uncovered adjacent to the first point. The two points were located approximately 85 cm apart within Block 1.
Figure 3.4  Block 1 west wall profile.
Figure 3.5 Location of radiocarbon dated features, Kelly North Tract.
Figure 3.6. Plan view and profile of F02-13 with midden strata shown.
Unit 02-03, a 1 x 1 m unit was placed in Block 1 where the T-drill was found. Excavation began at 47 cmbs and continued to a depth of 104 cmbs. Cultural material was recovered at a maximum depth of 72 cmbs. A small number of flakes and FCR were found throughout the unit.

Unit 02-04 was placed in Block 1 where the first Paleoindian point was found. The unit began at 59 cmbs and extended to a depth of 99 cmbs. Flakes were recovered during the excavation of the unit to a depth of approximately 90 cmbs.

**Unit 02-01**

Level 00 of this unit was the fill layer. The fill layer was a 10 yr 4/2 Dark Greyish Brown. A small number of flakes and a chert tool were recovered. The level was terminated at 21 cmbs. Level 01 soil matrix was a 10 yr 3/2, Very Dark Grayish Brown, sand. Lithic tools and flakes were recovered, as was FCR. The level was terminated at 44 cmbs (Figure 3.7).

Level 02 soil matrix was a 10 yr 4/4 Dark Yellowish Brown, sand, also identified as the B Horizon. At the surface of the level, the remaining portion of F02-01 was uncovered, as was a smaller stain, F02-02. Flakes and FCR were recovered from within the area of the features. Both features were mapped, photographed and excavated.
Figure 3.7 Unit 2, west wall profile.

Block 2 (Unit 02-02)

Block 2 comprised four 4 x 4 m units, of which only Unit 02-02 was excavated. Only the western portion of the block was covered by fill, which was removed by hand but not screened. The A Horizon, a Very Dark Grayish Brown (10 yr 3/2) sand, was excavated to a depth of 30 cmbs and screened. The level was terminated due to a change in soil color. A copper socketed point was recovered from the southeast corner of the unit, and a large quantity of flakes was recovered from this level as well.

Beneath the A horizon, Level 02 was a Very Dark Brown (10 yr 2/2) sandy layer that contained copious amounts of lithic debris, stone tools, two copper tools, a small quantity of grit tempered sherds, and a concentration of FCR in the center of the unit (F02-05). The level was terminated at 50 cmbs. Plow scars were evident at the top of the level.
Level 03 soil was a Dark Yellowish Brown (10 yr 4/4) sand, in which features were defined and excavated (Figure 3.8). Feature 02-08, which was defined in the east wall near the southeast corner of the unit, was not excavated (Figure 3.9).

Figure 3.8 Plan view of Block 2, Unit 2, Level 2.
Figure 3.9  Block 2, south wall profile.
Radiocarbon Dates—by Robert J. Jeske

Four features were examined by Dr. Kathryn Egan-Bruhy to obtain carbonized plant material for radiocarbon samples. Samples were sent to Beta Analytic, Incorporated, and underwent standard pretreatment and accelerator mass spectrometry analysis. The results show that the features from Block 1 are from the Middle Archaic and Late Woodland periods (Tables 3.1-3.2). Highlighted calendrical dates are associated with the highest probability distributions.

<table>
<thead>
<tr>
<th>Table 3.1. Middle Archaic Radiocarbon dates from Kelly North Tract</th>
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<td>Feature</td>
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<td>02-12</td>
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<td>02-14</td>
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Calibrated using Calib 4.3 (Stuiver et al. 1998).

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<th>Table 3.2 Late Woodland Radiocarbon dates from Kelly North Tract</th>
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<td>Feature</td>
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<td>02-13</td>
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Calibrated using Calib 4.3 (Stuiver et al. 1998).

Middle/Late Archaic Dates Three features yielded dates consistent with Wisconsin Middle Archaic dates, circa calendrical 4200-3540 BP (see Stoltman 1997). In the Lower Illinois River Valley this period is considered the Late Archaic Titterington Phase, and
would be associated with lanceolate and stemmed points, rather than Matanzas points (cf. Cook 1976; Brown and Vierra 1983:175; Wiant et al. 1983:160). In northern Illinois, Matanzas points have been dated to 4650 ± 50 and 4620 ± 150 (Demel 2000:400-421), 4690 ±90 (Porubcan 1999:101), but in Indiana to circa 4000 BP (Justice 1987:119-120).

Feature 02-12 provides a conventional radiocarbon date of 4200± 40. The Beta Analytic calibration program provides an intercept 2 sigma calibrated date of 2900 to 2830 BC and 2830 to 2650 BC (1 sigma= 2880-2860 BC; 2810-2750BC; and 2720-2700 BC). The Calib program (Stuiver and Reimer 1993, 2000) yields a two sigma calibration of 2890-2620 BC, with 74% of the curve taking in the time range of 2820-2860 BC (1 sigma= 2880-2700, with 58% of the curve taking in the time range of 2810-2750 BC). A trianguloid bladed, Vosburg-like notched point was found in the feature (Figure 3.30).

Feature 02-14 has a conventional radiocarbon date of 3180 ± 50. The Beta Analytic calibration program provides an intercept 2 sigma calibrated date of 1530-1380 BP (1 sigma= 1500-1410 BC). The Calib program (Stuiver et al. 1998) yields a two sigma calibration of 1600-1320 BC, with 93% of the curve taking in the time range of 1530-1370 BC (1 sigma= 1500-1410 BC; 100% of the curve). Two utilized pieces were recovered with F02-14.

Feature 02-15 has a conventional radiocarbon date of 3540 ± 50. The Beta Analytic calibration program provides an intercept 2 sigma calibrated date of 2010-1740 BP (1 sigma= 1940-1770 BC). The Calib program (Stuiver et al. 1998) yields a two sigma
calibration of 2020-1740 BC, with 96% of the curve taking in the time range of 1980-1740 BC (1 sigma= 1940-1770 BC; with 53% of the curve taking in the time period of 1940-1860 BC). The base of a lanceolate point was found in F02-15 (Figure 3.29).

*Late Woodland Date*

Feature 02-13 returned a conventional radiocarbon date of 1410 ± 50. The Beta Analytic calibration program provides an intercept 2 sigma calibrated date of A.D. 560-690 (1 sigma= A. D. 620-660). The Calib program (Stuiver et al. 1998) yields a two sigma calibration of A.D. 540-760, with 99% of the curve taking in the time range of A.D. 540-690 (1 sigma= A. D. 600-670; with 100% of the curve). The date of the feature is not consistent with the projectile point form found in it (a Hi-Lo point) (Figure 3.29), but is consistent with the Late Woodland sherds and a triangular projectile point found in the stratum above the stratum in which the feature was identified (Figure 3.34).

None of the dates overlap, even at the two sigma level, demonstrating a long-term use and reuse of the same spot on the landscape. The radiocarbon dates confirm the morphological change seen in lithic technology, with point styles from the Late Paleoindian, Early Archaic, Middle Archaic, Late Archaic and Late Woodland present in the assemblage from the site. Feature 02-12, which contained a Matanzas-like Vosburg-like Notched point, is exactly what we expected in terms of its date. The other dates will be discussed below.
Dates, Projectile Points, Stratigraphy, and Sandy Soil

The only disappointment in this investigation so far is that the feature dates do not conform to the presence of earlier projectile point styles—in Feature 02-13, a Hi-lo point and a nearby Plainview point, and in Feature 02-15 the base of a Plainview point. How do we reconcile the Middle Archaic and Late Woodland dates in association with Early Archaic points in features and midden deposits? There are several possibilities that might be considered:

1) The features were not excavated properly. Artifacts from outside features were incorporated into feature fill. The top margins of the features were located in a dark-colored midden, and it is possible that a portion of a feature boundary may have been mis-identified in the excavation process. Feature 02-12 is an example of a feature where the excavator had difficulty determining the exact boundary between the feature and the site matrix. However, it is unlikely that the excavators would have missed projectile points while scraping to determining feature boundaries.

2) The point styles were misidentified; the proposed Late Paleoindian Hi-Lo is a variation of a Woodland style point and the proposed Plainview point is a hitherto unknown version of a Middle Archaic point. Again, this possibility cannot be ruled out. There are no projectile points securely dated to the Middle Archaic in eastern Wisconsin up to now (Stoltman 1997). It may be that the point styles we have from the features are, in fact, consistent with the radiocarbon dates.
3) **Bioturbation and other forms of disturbance moved artifacts in and out of feature boundaries.** This possibility is highly likely. All of the site is a loose sandy loam, with a large amount of evidence for animal burrows and root disturbances. Roots from modern grasses penetrated all of the features, even at a depth of 80 cm below datum. Controlled tests have documented the considerable and significant movement of artifacts in sandy soil—both vertically and horizontally—as a result of bioturbation and cryoturbation(). In addition, we have several examples of artifact refits at the site connecting material from inside features with soil matrix outside of features (Winkler and Jeske 1993).

4) **The early projectile points are accidental inclusions that fell into the pit features when they were originally dug into the earlier culture-bearing strata of the site.** This possibility is also highly likely. Excavating any pit in sandy soil results in slumping and infilling of the pit. If Middle Archaic or Late Woodland occupants dug a storage pit into a stratum that contained Early Archaic material, it is very likely that some of the Early Archaic cultural material would have slipped into the pit during its use or after its abandonment. In addition, we have several examples of artifact refits at the site connecting material from inside features with soil matrix outside of features (Winkler and Jeske 1993).

5) **The Hi-lo and Plainview points were reused and discarded into pits long after their original abandonment.** This possibility is also likely. The Hi-Lo point in Feature 02-13 is extremely reworked, while the Plainview point in Feature
02-15 is just the very bottom of the hafting element. Reuse of Early Archaic artifacts and their redeposition in later deposits has been recorded previously in northern Illinois (e.g., Doershuk 1990).

Not all of these possibilities are mutually exclusive, and there are undoubtedly other possibilities that can explain the juxtaposition of the points and the dates. For now, it is adequate to recognize that the site has a series of occupations that have no analogs in southeastern Wisconsin. To date, there is no excavated data reported upon for Early or Middle Archaic habitation sites in eastern Wisconsin (Stoltman 1997). In addition, our knowledge of non-mound Early Late Woodland sites in southeastern Wisconsin is restricted to the Klug site, dug by an amateur and incorrectly published as a Middle Woodland site (cf. Clauter 2003; Salkin 2000; VanLangen). It is clear that future research at this site has great possibilities.

**Carcajou Point Feature Analysis-- Debra Miller**

When analyzing an archaeological site, not only are artifacts such as lithics, ceramics and floral/faunal assemblages analyzed, but also the features that are present at the site. Analyzing features is important because it allows archaeologists to interpret the way a particular part of the site was used and also helps archaeologists rebuild the site.

Features provide a context from which archaeologists are able to better determine the lifestyle of the culture being studied at a particular site. Artifacts are recovered from
features and must be studied in conjunction with the feature to not only define what the feature was used for, but also how a group of people lived.

When analyzing a feature, artifacts that are recovered from the feature itself are used in determining what the feature may have been. If one finds a multitude of broken ceramics, lithics, animal bones, seeds and burned wood within one feature, it is possible that the feature was used as a trash midden. In historic archaeology, there are a number of items found in privies, such as ceramics, burned wood, seeds and animal bones. These features are used similar to trash middens from pre-historic archaeology. In addition to analyzing the artifacts found, the size and depth of the feature is also considered. These characteristics of features help archaeologists understand the culture being studied. Lithic and ceramic technologies as well as the floral/faunal assemblages are only two examples of the many things that can be studied from artifacts that are found within features. Many times a storage pit that holds certain items for a given amount of time can eventually become a trash midden. These features act as a kind of time capsule since there are examples of the society’s technology and the material manifestations of various forms of behavior present in the storage pit which is covered up by the trash.

When reconstructing a site, feature analysis can provide information regarding the types of structures that may have been present. If a number of post-holes are found in a particular shape, such as a long rectangle, it could be assumed a long-house once stood there. If a large trench is found with post-holes present within the trench, such as the trench uncovered at the Crescent Bay Hunt Club, it can be assumed there was a palisade
present. Land use patterns can be studied when the features are put into perspective. Many times, the trash midden or privy will be located far away from the area of the site used for living structures or cooking areas (Hoseth, et al.: 1994). This can help archaeologists determine hygiene and assist with other analysis when determining causes of death within a society. This, however, is only one example of how feature analysis can help archaeologists studying a site on a much wider scale.

It is important for features to be analyzed along with the artifacts that are recovered from an archaeological site. The features can provide a multitude of information that can allow archaeologists to better understand a society, not only on a pre-historic level, but also historic. Features are the proof that a structure, hearth or trash pit was once present in a particular area. This allows archaeologists to rebuild a site to better understand the way a society lived and made use of the land available to them. Feature analysis should always be used when analyzing a site, since it has been shown that it assists with a broad range of questions regarding past societies that archaeologists ask.

This is an analysis of the features found in the 2002 investigations at the Carcajou Point site, 47Je02. In the 2002 season, a total of two blocks and four units were excavated at the site after two exploratory trenches, 50 cm x 2 m, one oriented north-south (Trench 1) and one oriented east-west (Trench 2) were dug to determine the site stratigraphy. Each excavation block, unit and feature were given sequential field numbers with a 02 prefix to designate the year (e.g., Block 02-01, Unit 02-04, Feature 02-06).
Block 02-01 consisted of a 6 x 12 m strip to the east of Trench 1. The topsoil and clay cap on Block 02-01 were mechanically removed and the remaining irregular surface cleared by hand. The general area of the block was excavated as well as two units within the block. Unit 02-03 consisted of a 1 x 1 m square on the northeast end of the block and Unit 02-04, a 2 x 2 m square, was located against the east wall in the center of the block. Features 02-10 through 02-16 were identified in the general area of Block 02-01.

Block 02-02, a 4 x 12 m strip, located north of Trench 2, was stripped of its topsoil and partial clay cap by hand and one 4 x 4 m square, Unit 02-02, at its south end, was fully excavated. Features 02-03 through 02-09 and 02-17 were found in Unit 02-02.

With the discovery of Feature 02-01 in the wall, Trench 2 was expanded from 50 cm to 1 m wide. Unit 02-01, a 2 m x 2 m square was placed directly north of the trench in order to excavate Feature 02-01. Incorporating the trench, the total size for Unit 02-01 was 2 x 3 m. Excavation of the unit led to the discovery of Feature 02-02.

A total of 17 features were identified in the field. Generally, each feature was defined, photographed and mapped in plan view. Trenches were placed not to bisect a feature, but to provide an adequate description of the cross section, and were excavated to a minimum depth of 10 cm below the feature to assess stratigraphy. Feature trench matrix was screened through 6.3 mm mesh. All excavated cultural material from the screens was saved.
The portion of the feature remaining was excavated in natural levels and all feature fill was collected for flotation analysis at the laboratory. Flotation processing is incomplete at this time. Botanical and faunal remains have not been analyzed. UWM graduate and undergraduate students under the direction of Robert Jeske analyzed lithic and ceramic material from feature and non-feature contexts, but this analysis does not include any material recovered from flotation.

During the 2002 excavation, artifacts found on the surface and level 01 were consistent with the Late Woodland time frame assigned to earlier excavations in the vicinity of the site (Hall 1962). Lithic materials associated with Archaic and Paleoindian time frames were located in some of the blocks, units and features, typically in level 03, at the bottom of the A Horizon.

**Individual Feature Analysis**

For this study of feature function, excavation forms, field notes, informal maps, and digital photographs were used to provide information to describe and interpret each feature. In addition, analyses of lithics and ceramics have been used to help inform our interpretations. Details analyses of these material classes are reported elsewhere in this volume. Because of the limited area of the site excavated so far, all interpretations here are considered preliminary and subject to revision in later reports. Colors were determined using a standard Munsell chart and are indicated by symbols (Figure 3.10). In some cases profile and plan Munsell readings differed, probably due to soil moisture, light conditions and/or human error. It should be noted that in plan view the outlines of
most features were immediately discernible to the excavators due to the contrast of very dark soil in the feature itself with lighter color surrounding soil. This contrast was lost as a feature was excavated since the soil deeper in the feature usually became lighter in color and closer to that of the surrounding soil, making the boundaries of many of the features ephemeral.

In Figures 1.2 – 1.18, the plan view of the feature is on the left or top and the profile is on the right or bottom.

![Figure 3.10 Key to individual feature symbols.](image-url)
Feature 02-01 was defined in Unit 02-01 after Trench 2 cut into it (Figure 3.11). It was a deep basin asymmetrical in plan view, measuring approximately 60 cm across east to west with a depth of approximately 70 cm. The soil was 10YR 2/1 black sand, non-sticky, non-plastic and granular with no mottling. Artifacts found within the feature include lithics, debris, FCR and 1 glass sherd. Based on the artifacts recovered, the feature is determined to be late woodland.

![Feature 02-01 Plan view and North Wall Profile](image)

Figure 3.11 Feature 02-01 Plan view and North Wall Profile.

Feature 02-02 (Figure 3.12) was found in Unit 02-01 approximately 20 cm north of F02-01. It was a circular, shallow basin, measuring approximately 6 cm in diameter, with a depth of 10 cm. The soil was 10YR 2/1 black sand, non-sticky, non-plastic and granular with no mottling. Artifacts recovered include a few flakes and other lithic debris. Based on the shape of the feature, it is probably a storage pit.
Feature 02-03 (Figure 3.13) was defined in Unit 02-02. It was a circular, shallow basin measuring approximately 78 cm north to south going into the north wall and approximately 100 cm east to west with a depth measuring approximately 25 cm. The soil was 10YR 2/1 black sand, non-sticky, non-plastic and granular with no mottling. Artifacts recovered include a few flakes and a very small trace of charcoal.
Feature 02-04 was defined in Unit 02-02 (Figure 3.14). It was a circular shallow basin measuring approximately 92 cm north to south and 110 cm east to west with a depth of 22 cm at the deepest point. The soil was 10YR 2/2 black sand, sticky, non-plastic and granular with no mottling. Artifacts recovered include flakes, most of which are heat treated chert, burnt rock, a piece of FCR and one piece of pottery. The feature is interpreted as either a fire pit or flintknapping station. It may be Late Woodland based on the point styles found in midden contexts.

![Figure 3.14 Plan view and profile of F02-04.](image)

Feature 02-05 was defined in Unit 02-02 (Figure 3.15). It was a circular, shallow basin measuring approximately 80 cm north to south and 74 cm east to west at the widest point with a depth of approximately 12.5 cm at the deepest point. The soil was 10YR 2/1 black sand, non-sticky, non-plastic and granular with 2-5% mottling with no pH reading. Artifacts recovered are mostly FCR which was found in large amounts at the top of the feature. Because of the FCR, it is possible this feature was a fire pit.
Feature 02-06 was defined in Unit 02-02 (Figure 3.16). It was a semi-circular, shallow basin measuring approximately 120 cm north to south and 95 cm east to west going into the east wall with a depth of 64 cm at the deepest point. The soil was 10YR 3/2 very dark grayish brown sand, non-sticky, non-plastic and granular with no mottling.
Artifacts recovered include lithics, a few projectile points, two copper awls and a large piece of fired limestone. This feature was first interpreted as a lithic work station, however due to the lack of burnt soil, only small amounts of charcoal found and the bell shape, the feature was finally interpreted as a possible food storage pit.

Figure 3.16  Plan view and profile of F02-06.

Feature 02-07 was defined in Unit 02-02 (Figure 3.17). It was a semi-circular, shallow basin measuring 50 cm north to south going into the south wall and 80 cm east to west with a depth of 22.5 cm at the deepest point. The soil was 10YR 2/1 black sand, non-sticky, non-plastic and granular with no mottling and no pH reading. Artifacts recovered include flakes. The feature has been interpreted as a possible storage pit due to the quality of the artifacts found.
Feature 02-08 was defined in Unit 02-02 (Figure 3.18). The feature was not excavated due to time constraints and the size of the feature present in the excavation unit. Along the east wall, the feature measures approximately 35 cm going north and south. At the widest point the feature measures approximately 12 cm east to west. The soil was 10YR 2/1 black sand, non-sticky, non-plastic and granular with no mottling. Flakes, debris and copper were found while scraping the floor.
Feature 02-09 was defined in Unit 02-02 at Level 3 (Figure 3.19). It was a shallow circular basin measuring 120 cm north to south and 104 cm east to west, with a depth of 26 cm. The soil was 10YR 2/1 black sand, non-sticky, non-plastic and granular with 10% to 15% mottling present. No PH reading was recorded. Due to the presence of 2% charcoal in the feature matrix, it was interpreted by the field excavator as a fire pit or, possibly, a threshing pit, due to the lack of lithics.

![Figure 3.19 Plan view of F02-09.](image)

Feature 02-10 (Figure 3.20) was defined in Block 02-01 at Level 2, 5.5 m from the south wall of the block and 42 cm from the east wall. It was a shallow circular basin measuring 71 cm north to south and 70 cm east to west, with a depth of 28 cm. In plan view the soil was characterized as 10YR 2/2 very dark brown sand, non-sticky, non-plastic and granular with no mottling present. In profile the soil was characterized as 10YR 5/6 yellow brown sand, non-sticky, non-plastic and granular with no mottling present. Potsherds, stone tools, lithic debris and FCR were recovered from the feature matrix. Preliminary mass analysis of the lithic debitage identified three artifacts between 8 and 12.5 mm, sixteen artifacts between 12.5 and 25 mm and six elements greater than
25 mm in size. No analyzable potsherds have been identified. The area around the feature was also full of artifacts.

Figure 3.20 Plan view and profile of F02-10.

Feature 02-11 was defined in Block 02-01 at Level 2 (Figure 3.21). Part of the feature was outside the block and not excavated. It was a shallow circular basin measuring 44 cm north to south and 100 cm east to west, with a depth of 35 cm. Soil color was 10YR 2/1 black or 10YR 2/2 very dark brown and 10 YR 5/6 yellow brown sand, non-sticky, non-plastic and granular with no mottling present and a PH of 7. In profile the soil was characterized as 10YR 5/6 yellow brown sand, non-sticky, non-plastic and granular with no mottling present. Lithic debris and FCR were recovered from the feature matrix. An area of FCR is delineated at the bottom of the feature in profile view.
Preliminary mass analysis of the lithic debitage taken from bags marked F02-11/16\(^1\) identified two artifacts between 12.5 and 25 mm in size.

Feature 02-12 was defined in Block 02-01 at Level 2 (Figure 3.22). It was a deep circular basin measuring 88 cm north to south and 89 cm east to west, with a depth of 74 cm. The excavator notes indicate that the basin was expanded too far as a result of difficulties in delineating it from a lithic deposit\(^2\). The soil was characterized as 10YR 2/1 black sand, non-sticky, non-plastic and granular with no mottling present. In profile the soil was characterized as 10YR 2/2 very dark brown sand, non-sticky, non-plastic and granular with no mottling present.

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\(^1\) Feature F02-16 was found underneath F02-11.
Feature 02-13 was defined in Block 02-01 at Level 2 (Figure 3.23). It was a shallow oval basin measuring 61 cm north to south and 55 cm east to west, with a depth of 21 cm. In plan view the soil was characterized as 10YR 2/2 very dark brown sand, non-sticky, non-plastic and granular with no mottling present. In profile the soil was characterized as 10YR 3/3 dark brown sand, non-sticky, non-plastic and granular with no mottling present. The profile includes an area of rodent intrusion marked by 10YR 3/4 dark yellow brown soil. Flakes, bone, points, one possibly Paleo-Indian, and a possible hammer stone were recovered in the feature trench. Mass analysis of lithic debris marked as belonging to Feature 02-13 identifies a large number of recovered artifacts not mentioned in the excavator’s notes. It may be that this material is actually from the feature trench.

Figure 3.22 Plan view and south wall profile of F02-12.
Feature 02-14 was defined in Block 02-01 at Level 2 (Figure 3.24). It was a shallow circular basin measuring 82 cm north to south and 67 cm east to west, with a depth of 19 cm. The soil was 10YR 2/1 black sand, non-sticky, non-plastic and granular with no mottling present. Flakes and fire-cracked rock were recovered from the feature. The excavator interpreted this feature as a storage pit based on the flakes and FCR.
Feature 02-15 was defined in Block 02-01 at Level 2 (Figure 3.25). It was a shallow circular basin measuring 45 cm north to south and 53 cm east to west, with a depth of 21 cm. The soil was 10YR 2/2 very dark brown sand, non-sticky, non-plastic and granular with no mottling present. The feature and surrounding soil had several rodent intrusions. Flakes and a very small amount of FCR were recovered from the feature near the surface. Preliminary mass analysis of the lithic debitage identified one artifact between 8 and 12.5 mm, six artifacts between 12.5 and 25 mm and one element greater than 25 mm in size. The excavator interpreted this feature as a storage pit.

![Feature 02-15 Plan view and profile](image)

Figure 3.25 Plan view and profile of F02-15.

Feature 02-16 was defined in Block 02-01 underneath F02-11 (Figure 3.26). It was a shallow circular basin measuring 55 cm north to south and 34 cm east to west, with a depth of 30 cm. In plan view the soil was characterized as 10YR 4/2 dark gray brown sand, non-sticky, non-plastic and granular with no mottling present. In profile the soil

---

3 Measurement represents portion of feature inside the block. Because the portion of the feature outside the block was not excavated, a full measurement is not available.
was characterized as 10YR 4/1 dark gray sand, non-sticky, non-plastic and granular with no mottling present. Excavator summary notes indicate a pH of 7. Stone tools, lithic debris and FCR were recovered from the feature matrix. An area of FCR delineated at the top of feature in plan view is not captured in the selected west wall profile.

Preliminary mass analysis of the lithic debitage identified one artifact between 8 and 12.5 mm, four artifacts between 12.5 and 25 mm and one element greater than 25 mm in size. The area around the feature was also full of lithic debris, tools and FCR.

![Plan view and west wall profile of F02-16.](image)

Figure 3.26 Plan view and west wall profile of F02-16.

Feature 02-17, a probable pit of undetermined use, was identified in profile on the south wall of Block 02-02 after excavation. It was not excavated and no information was collected.
Analysis and Conclusions

All of the features at Carcajou have been preliminarily identified as pits. Where possible, based on the presence or absence of types of artifacts, pit shape and/or depth, further specification of possible pit purpose is mentioned in the above descriptions. Where not mentioned, the pit is presumed to be for storage or refuse. Since flotation analysis is incomplete these identifications remain preliminary.

The soil of Carcajou Point site is sandy. As Stevenson (1994:279) noted with regard to the Valley View Oneota site:

“Because the soil at the site is very sandy, open pits tend to fill in very quickly... The soft, sandy nature of the soil also means that pits would have been very easy to dig; in fact, digging new pits might have been easier than cleaning out old ones. . . .Evidence for long-term or repeated occupations can include . . . superimposed or overlapping features.”

In the limited areas excavated at Carcajou, only one instance of feature superimposition, F02-11 over F02-16, was found. Even though no features overlapped, they were in close proximity and could be representative of multiple occupations.

The artifacts thus far recovered from Carcajou suggest occupations in various culture periods – Late Woodland, Archaic and Paleo-Indian – which span periods over thousands of years. Mason (1988:212) points out, “As is often the case, Paleo-Indian sites are not
‘pure’. That is to say, other cultures often chose these same sites as their homes, . . .
extensive use of these site locations is probably due to their settings, which are ideal for
taking advantage of resource diversity.” The hunter-gatherer lifestyle of both the Archaic
and Paleo-Indian cultures would point to seasonal occupation of the site. Botanical
analysis of plant remains recovered from flotation may provide clues as to the actual
season. A Late Woodland occupation may have been more sedentary or could have been
seasonal as well. Again, botanical analysis of materials recovered by flotation of the
feature matrix would provide information in this regard.

Many types of pits have been identified in the literature. Margaret Brown (1975),
reporting on the Zimmerman site, categorized the pits at that site into four different
categories based on dimensions and depth. Deep pits were presumed to be for storage
while shallow ones were classified for disposal of debris. Firepits, used for roasting
quantities of meat, were identified by the presence of carbonized logs, FCR and ash at the
bottom. They tended to be much larger and deeper than the dimensions found in the
Carcajou features. However, Brown also identified deep earth ovens, which, based on
their smaller dimensions, may be a possible function for some of the Carcajou pits,
particularly those with large quantities of FCR.

Stiger (2001:112-112) discusses features and hunter-gather food processing
techniques during the Archaic (8000 B.P. to 3000 B.P.) He notes a type of feature used
for stone boiling, and also conducts experiments to evaluate how pit construction
influences the burning characteristics found in the archaeological record.
Hall (1962:22) speculates on the pits found at the nearby Late Woodland excavations at Carcajou Point and notes that “Some of the shallower, basin-shaped pits may have served originally as hulling pits within which the grain of wild rice was separated from the chaff. . .it would not be surprising if the many square miles of wild rice beds that once covered Lake Koshkonong had not been exploited.” The dimensions mentioned by Hall – 2 to 3 feet in diameter and 6 to 18 inches deep – are in line with some of the shallower pit features from this excavation (Hall 1962:22-23).

Summary

The Carcajou Kelly North Tract provided 17 features in the small amount of excavated area. The possibility of chronological seriation of the features is strong. Final flotation analysis of feature matrix will provide more information about the diet and subsistence practices of the residents and uses of the existing features through time.
Table 3.3 Feature Descriptions at Carcajou Point Kelly North Tract.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Location</th>
<th>Level</th>
<th>Plan view</th>
<th>Profile</th>
<th>Type</th>
<th>Dimensions</th>
<th>Primary Soil</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-09</td>
<td>Unit 02-02</td>
<td>3*</td>
<td>circular</td>
<td>basin</td>
<td>hearth</td>
<td>20 x 04 x 26</td>
<td>10YR2/1 black, non-sticky sand with 10-15% mottling</td>
</tr>
<tr>
<td>2-10</td>
<td>Block 02-01</td>
<td>2??</td>
<td>circular</td>
<td>basin</td>
<td>storage</td>
<td>71 x70 x 28</td>
<td>10YR5/6 yellow brown granular, non-sticky sand with no mottling</td>
</tr>
<tr>
<td>2-11</td>
<td>Block 02-01</td>
<td>2</td>
<td>circular**</td>
<td>basin</td>
<td>hearth</td>
<td>44 x100 cm.</td>
<td>10YR4/1 and 10YR5/6 yellow brown, granular, non-sticky sand, no mottling</td>
</tr>
<tr>
<td>2-12</td>
<td>Block 02-01</td>
<td>?</td>
<td>circular</td>
<td>basin</td>
<td>hearth</td>
<td>88 89 cm.74 cm.</td>
<td>10YR2/1 and 2/2 black, granular, non-sticky sand, no mottling</td>
</tr>
<tr>
<td>2-13</td>
<td>Block 02-01</td>
<td>2</td>
<td>oval</td>
<td>basin</td>
<td>storage</td>
<td>61 cm.55 cm21 cm.</td>
<td>10YR2/2 very dark brown and 3/3 dark brown, granular, non-sticky sand, no mottling</td>
</tr>
<tr>
<td>2-14</td>
<td>Block 02-01</td>
<td>?</td>
<td>circular</td>
<td>basin</td>
<td>hearth</td>
<td>82 cm.67 cm.19 cm.</td>
<td>10YR2/1 black, granular, non-sticky sand, no mottling</td>
</tr>
<tr>
<td>2-15</td>
<td>Block 02-01</td>
<td>?</td>
<td>circular</td>
<td>basin</td>
<td>storage</td>
<td>45 cm53 cm.21 cm.</td>
<td>10YR2/2 very dark brown granular, sticky, sand, no mottling</td>
</tr>
<tr>
<td>2-16</td>
<td>Block 02-01</td>
<td>2</td>
<td>oval**</td>
<td>basin</td>
<td>hearth</td>
<td>34 cm.55 x30 cm.</td>
<td>10YR4/2 and 4/1 granular, non-sticky sand with no mottling</td>
</tr>
<tr>
<td>2-17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Carcajou Point Ceramic Assemblage—by Robert J. Jeske

A total of 1112 ceramic sherds were recovered from the site. Of these, only 95 were large enough for analysis. Of these, 9 (9%) came from Block 2, 10 (11%) came from Block 3, and 76 (80%) came from Block 1. All sherds were grit tempered, and 13 were rim sherds. Of these, six were collared and seven were not collared. The collared rims are Aztalan collared ware, and the uncollared rims are variations of Madison ware. Four of the uncollared rim sherds have diagonal and horizontally incised lines and corded stick impressions, which are consistent with Madison Cord-Impressed ware. The Late Woodland in southern Wisconsin is divided into three sub-periods, the Early Late Woodland, Horicon Phase, and Kekoskee phase (Salkin 2000). It is beyond the scope of this study to go into the appropriateness or usefulness of these designations in any detail, except to note that recent work (e.g., Clauter 2003; Kelly 2002; Richards and Jeske n.d.; Stoltman and Christensen 2000) indicate that this typology is in need of reworking. The radiocarbon date associated with Feature 02-13 is slightly earlier than the dates traditionally given for Madison wares. Salkin (2000:526) refers to the period of AD 400-700 as “Early Late Woodland,” but does not discuss it in any detail except to note that the Klug site may be a good candidate for fitting into the category. The Klug site, in Ozaukee County, has two dates that calibrate to the 6th century. The ceramics from the Klug site are in many respects similar to the material recovered from the Kelly North Tract (cf. Clauter 2003), although there is little in the way of net impressed or other wares that might be considered “Early Late Woodland.”.
The Horicon Phase is considered to range from A.D 700-1200, and is associated with effigy mounds and Madison ware pottery (Salkin 2000:533); however, Stoltman and Christiansen (2000:507) indicate that AD 700-1000 is more appropriate. Madison wares are part of the assemblage at the Kelly North Tract, including Madison Cord Impressed ware. Madison Cord-Impressed, a highly decorated ware, is associated with an 11th Century date from the Klug Island site, located immediately adjacent to the Klug site in Ozaukee county (Clauter 2003; Goldstein 1994).

Collared wares, associated with the Kekoskee Phase, are often dated to circa AD 800-1200 (Salkin 2000:527). Others have argued that collared wares are a later manifestation, dating to post AD 1000-1250 (Stoltman and Christiansen 2000:511). Using a consistent method, selection for single component contexts, and appropriate calibration techniques, recent work by Kelly (2002) suggests that the most reasonable chronological placement for Wisconsin collared wares (Aztalan, Starved Rock, and Point Sauble) is circa AD 950-1150, with a median date of circa AD 1020-1040.

Due to the tiny sample size and fragmentary nature of the ceramics, little in the way of functional, diachronic, or spatial trends can be discerned at this time from the ceramic assemblage at Carcajou Point Kelly North Tract. At this point, it is noteworthy that ceramics were restricted to the top 20 cm of material at the surface, and only features 02-01 and 02-13, have yielded sherds. However, future work may yield feature contexts with more material in datable contexts, which would shed much light on the early portions of the Late Woodland in southern Wisconsin.
Carcajou Point Lithic Analysis

*Mass Analysis of Debris*-- Daniel McGuire Winkler

An analysis schema known as mass analysis was used to analyze the lithic debris from the Carcajou Point site. This schema was developed by Dr. Robert J. Jeske and is currently used in the University of Wisconsin-Milwaukee Archaeology Laboratory. The schema consists of sorting the debitage from a site into categories based on size, weight and number of pieces with cortex (see figure 1). The size grades that were employed for this study are (1). less than 8 mm, (2). 8 mm to 12.5 mm, (3). 12.5 mm to 25 mm, and (4). greater than 25 mm. Size grades 1, 2, and 3 are assumed to be the result of bifacial reduction. Due to the small size of the debitage, they likely would have been removed from smaller, more refined tools. Pieces of debitage in size grade 4, or greater than 25 mm, are assumed to be byproducts of core reduction. This is because the main goal of core reduction is to produce large flakes that can be used either as expedient tools or be flaked into other tools.

The procedure for conducting mass analysis is to place each piece of debitage into a size grade. The total number of pieces in each size grade, from a provenience are then counted, weighed and the number of pieces with cortex are also counted. The results are recorded onto a spreadsheet. The cortex and size grade categories are important factors in the determination of the lithic reduction activities at a site. Since flint knapping is a reductive process a piece of debitage cannot be larger than the biface or core that the piece is being detached from (Ahler 1989; Kooyman 2000). Therefore, as chipped stone tools become smaller and more refined the debitage should also become small (Ahler
As a chipped stone tool becomes more refined there should also be less cortex on the debitage that is detached from the tool. The combination of large pieces of debitage and cortex should indicate either early stage biface reduction or core reduction (Ahler 1989; Kooyman 2000; Morrow 1997). Conversely, the presence of small pieces of debitage and little cortex in an assemblage should indicate later or more refined stages of bifacial reduction. These predictions have been supported by bifacial reduction experiments conducted by Ahler (1989). Mass analysis is helpful if no stone tools are recovered, and allows for assumptions regarding the lithic reduction activities that took place at a site to be made, without having to examine each flake individually.

Mass analysis presents several advantages over individual debitage analyses, especially when analyzing large lithic assemblages. The first advantage is that mass analysis can be applied to all of the lithic debris recovered from a site (Ahler 1989). The second advantage of mass analysis is that the debris from a site can be analyzed in a very rapid and efficient manner (Ahler 1989; Morrow 1997). The third advantage of analyzing a lithic assemblage using mass analysis is that it treats all debitage from a site equally (Ahler 1989; Schott 1994). In other words, all pieces of debitage are included within the analysis. Typically with individual debitage analysis smaller pieces, broken flakes, and shatter may be excluded. All of these pieces of debitage are treated the same when mass analysis is applied to an assemblage. The final advantage that mass analysis presents is that it is very consistent and easy to replicate (Ahler 1989; Magne 2001; Morrow 1997; Schott 1994). All of these advantages allow for the lithic debris from a site to be analyzed quickly and consistently (Andrefsky 1998).
**Carcajou Point Mass Analysis**

Chert debris from the site was recovered at all levels down to 1 m. To date, 5077 pieces of debitage, weighing 4079 grams, have been examined for a preliminary mass analysis (Table 3.4; Figure 3.27). These materials come from 6.3 mm mesh screen samples. Flotation data will change our final numbers.

<table>
<thead>
<tr>
<th>Size mm</th>
<th>N</th>
<th>Column%</th>
<th>Weight in grams</th>
<th>Cortex</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Column%</td>
<td>Weight (Column%)</td>
<td>N</td>
</tr>
<tr>
<td>&lt;8</td>
<td>28</td>
<td>(0.5)</td>
<td>--</td>
<td>(&lt;0.1)</td>
</tr>
<tr>
<td>8-12.5</td>
<td>1140</td>
<td>(22.5)</td>
<td>159</td>
<td>(39)</td>
</tr>
<tr>
<td>12.5-25</td>
<td>3395</td>
<td>(66.9)</td>
<td>1778</td>
<td>(43.6)</td>
</tr>
<tr>
<td>&gt;25</td>
<td>514</td>
<td>(10.1)</td>
<td>2142</td>
<td>(52.5)</td>
</tr>
<tr>
<td>Total</td>
<td>5077</td>
<td>100</td>
<td>4079</td>
<td>(100)</td>
</tr>
</tbody>
</table>

**Size Categories:** Less than 0.5% of debitage pieces are Category 1 flakes of less than 8 mm in size. A total of 1140, or 22%, are Category 2 flakes between 8 and 12.5 mm. Category 3 flakes, between 12.5 to 25 mm, total 3395 or 67%, while Category 4 flakes, which are greater than 25 mm, total 514, or 10%. These numbers suggest a relatively large amount of tool production and maintenance at the site. Category 1 flakes are underrepresented, but that is expected given the screen size used for collection. However, the largest flake category is second lowest in numbers, indicating either little initial reduction of flakes or the use of small raw material cobble size for the production of flakes. The two middle sizes, Categories 2 and 3, show an interesting pattern. There are significantly more 12-25 mm sized pieces than 8-12 mm sized pieces. The under representation is not due to sampling as both should have been collected by the screens. A look at weight helps to put production into perspective. Within the assemblage weight varies significantly from N: although the Category 4 flakes constitute only 10
Figure 3.27  Percentages of each size grade for the entire site.
percent of the assemblage, they are 52 percent of the assemblage by weight. On average, they are 8 times heavier per piece than the Category 3 pieces. Likewise, Category 3 pieces are on average 5 times heavier per piece than are Category 2 pieces. These patterns suggest that Category 3 debris is proportionately thicker than Category 2 debris while Category 4 debris is proportionately thicker than Category 3 debris.

A total of 3323 pieces of debris show some percentage of cortex on their dorsal surface, indicating a significant amount of lithic reduction occurred at this site. But more tellingly, the proportion of flakes with cortex remains quite high regardless of size category. The combination of size category, weight, and cortex suggests that all stages of tool production, from initial modification of chert cobbles to tool maintenance, were conducted at the site. Almost 65% of the debitage that was recovered had some cortex present on the surface. This percentage appears high and would indicate that the main lithic activity at the site was reduction of early stage bifaces or cores. However, as stated earlier, the size of the debitage at the Carcajou Point site indicates the main lithic activity was instead bifacial reduction. The high percentage of cortex can be explained by the raw material that was being used to manufacture the tools at the Carcajou Point site. The primary raw materials that were used include Platteville Formation, Galena, Prairie du Chien, and Silurian cherts. All of these cherts are locally available in the glacial till. Many of the cherts are medium quality but some cortex or other rough areas can be present in voids or flaws in the raw material. The Platteville Formation chert is often very poor quality, and cortex or other raw material flaws may be present throughout the chert matrix. The poor to medium quality of the locally available raw material is the
reason why there is a high percentage of cortex present on the debitage from the Carcajou
Point site.

An average of 39.03 pieces of debitage per square m was recovered during the
2002 excavations at the Carcajou Point site. The distribution of the debitage over the site
is uneven ranging from as high as just over 100 pieces of debitage per m$^2$ to as low as 9
pieces of debitage per m$^2$ (Figure 3.28).

Block 2 had the highest density of lithic debitage. Block 2 was a 4 x 12 m block that
includes Unit 02-02. Most of the debitage in Block 2 was recovered from Unit 02-02.
Block 2, as a whole, averaged 42.5 pieces of debitage per m$^2$. Only 13.68% of the
debitage recovered from Block 2 was larger than 25 mm, 72.06% was between 25 mm
and 12.5 mm, 14.12% was between 12.5 mm and 8 mm, and 0.15% was less than 8 mm.

The main lithic activity in Block 2 was most likely bifacial reduction. If the debitage
from Unit 02-02 is removed from the totals for Block 2 an average of only 10.13 pieces
of debitage per square meter was recovered from this block. Unit 02-02, on the other
hand, had a very dense concentration of lithic debitage. A total of 1612 pieces of
debitage were recovered in this four by four m unit, an average of 100.75 pieces of
debitage per square meter. It is likely that the area around Block 2 was an area of heavy
lithic activity, but Unit 02-02 may be more representative of the density of artifacts for
this area.
Figure 3.28  Debitage densities across Kelly North Tract proveniences.
The second highest area of concentration of lithic debitage occurred in Block 1. An average of 31 flakes per square meter were recovered in Block 1. Only 6.4% of the debitage in Block 1 was greater than 25 mm, 61.1% was between 25 mm and 12.5 mm, 31.9% was between 12.5 mm and 8 mm, and 0.6% was less than 8 mm in size. The size of the debitage that was recovered in Block 1 indicates that the main lithic reduction activity in this area was bifacial reduction. Two units were excavated in Block 1. Unit 02-04 was a 2m x 2 m unit. This unit had a high density of lithic debitage with an average of 77.75 pieces per square meter. Unit 02-03 was a 1 m by 1 m unit. This unit, on the other hand, had a lower density of lithic debitage, averaging only 27 pieces per square meter. Had the soil in Block 1 been screened it is very likely that the density of lithic debitage would have been much higher in this area.

The rest of the areas that were excavated at the Kelly North Tract during the 2002 excavations had very low densities of lithic debitage. The areas of low lithic density are both of the trenches and Unit 02-01. Trench 1 was a 2 m by 50 cm trench excavated to expose the soil stratigraphy at the site. An average of 9 pieces of lithic debitage per square meter were recovered in this trench. All of the debitage recovered was greater than 12.5 mm and 55.6% of the debitage was over 25 mm. This indicates that there was little lithic reduction in this area, and the activity was probably core reduction as a means to produce large, usable flakes.

Unit 02-01 was a 2 m x 2 m unit placed directly North of Trench 1 to expose the rest of a feature that was identified in Trench 1. Unit 02-01 also had a very low density
of lithic debitage, averaging 9.5 pieces per square meter. About 31.6% of the debitage recovered in Unit 02-01 was greater than 25 mm, 47.4% was between 25 mm and 12.5 mm, 18.4% was between 12.5 mm and 8 mm, and 2.6% was less than 8 mm in size. It appears that both bifacial reduction and core reduction took place in this area.

Trench 2 was also a 2 m x 50 cm trench that was excavated to expose the soil stratigraphy at the site. An average of 13 pieces of debitage per square m were recovered from Trench 2. Only 23.1% of the debitage recovered in Trench 2 was greater than 25 mm, 61.5% was between 25 mm and 12.5 mm, and 18.2% was less than 8 mm. It appears that both bifacial reduction and core reduction took place in this area.

**Debitage from Unit 02-04—Leanne Plencner and Robert J. Jeske**

Unit 02-04 was a 2 m x 2 m square located against the east wall at the center of Block 02-01. The unit was dug specifically to gain a small, controlled sample of debris and tools within the larger block excavation. All the lithic debris gathered from Unit 02-04 that was greater than 12.5 mm was analyzed using a debris-recording schema originally developed by Rochelle Lurie and Robert J. Jeske at Northwestern University. This schema was last updated by Jeske and Daniel Winkler in 2003, and is currently in use at the Archaeological Research Laboratory at UWM.

A total of 246 pieces of debitage from Unit 02-04 was larger than 12.5 mm, which provides a lithic density of 61.5 artifacts per m². The most abundant form was flake-like material (41.1%), followed by free-hand flakes (39.8%). Most of the debris was large
enough that form could be determined; only 37 pieces (15%) could not be determined (Table 3.5). The large number of flake-like pieces suggest that bipolar manufacturing activities may have been conducted at the site (Jeske and Lurie 1993).

An overwhelming percent of the raw material type is Galena chert (47.6%), which is concurrent with the idea that they were using locally formed cherts (Table 3.6). Galena, along with Burlington and Prairie du Chien cherts, are considered to be locally available cherts (see artifact discussion below).

<table>
<thead>
<tr>
<th>Form</th>
<th>Count</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free-hand Flake</td>
<td>98</td>
<td>39.8</td>
</tr>
<tr>
<td>Bipolar Flake</td>
<td>1</td>
<td>.4</td>
</tr>
<tr>
<td>Flake-like</td>
<td>101</td>
<td>41.1</td>
</tr>
<tr>
<td>Non-flake</td>
<td>9</td>
<td>3.7</td>
</tr>
<tr>
<td>Indeterminate</td>
<td>37</td>
<td>15.0</td>
</tr>
<tr>
<td>Total</td>
<td>246</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 3.5. Lithic debris by Form, 2002 excavations.
Most of the material collected was of fair to poor quality-- only 55 pieces (22.4%) were deemed to be good quality (Table 3.7). The material quality is slightly worse than that reported for stone tools at the site, overall. This may be the result of sampling error.
There was a large amount of heat altered material. Although 124 pieces (50.4%) lacked the presence of heat alteration, 70 (28.5%) were definitely heat altered and an additional 46 pieces (18.7%) had possibly been heat altered (Table 3.8).

<table>
<thead>
<tr>
<th>Heat Alteration</th>
<th>Count</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat alteration present</td>
<td>70</td>
<td>28.5</td>
</tr>
<tr>
<td>Heat alteration possible</td>
<td>46</td>
<td>18.7</td>
</tr>
<tr>
<td>Burned</td>
<td>6</td>
<td>2.4</td>
</tr>
<tr>
<td>Heat treatment absent</td>
<td>124</td>
<td>50.4</td>
</tr>
<tr>
<td>Total</td>
<td>246</td>
<td>100</td>
</tr>
</tbody>
</table>

Most of the material examined had less than 50% cortex on the dorsal surface (89.8%) suggesting that some of the activities going on at this site were final stage manufacturing, maintenance and reworking tools. Reworking tools creates flakes with little to no cortex on them (Table 3.9). On the other hand, many of the debitage included in the less than 50% category had cortex running completely through the raw material, suggesting that small cobbles were chosen for the production of tools.

<table>
<thead>
<tr>
<th>Amount of Cortex</th>
<th>Count</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>145</td>
<td>58.9</td>
</tr>
<tr>
<td>Less than 50%</td>
<td>76</td>
<td>30.9</td>
</tr>
<tr>
<td>50% to 99%</td>
<td>22</td>
<td>8.9</td>
</tr>
<tr>
<td>100%</td>
<td>3</td>
<td>1.2</td>
</tr>
<tr>
<td>Total</td>
<td>246</td>
<td>100</td>
</tr>
</tbody>
</table>
The size of flakes overall was small (Table 3.10). Most of the material that was screened through 6 mm mesh was of size grade 3, which is 12.5 mm to 25 mm. This corresponds with the idea that they were reworking an abundance of tools at the site, because they are such small flakes. They were probably chipped off of the tools to create a sharper edge on items such as scrapers, bifaces, unifaces, and points.

<table>
<thead>
<tr>
<th>Size Category</th>
<th>Count</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.5 mm to 25 mm</td>
<td>207</td>
<td>84.1</td>
</tr>
<tr>
<td>Greater than 25 mm</td>
<td>39</td>
<td>15.9</td>
</tr>
<tr>
<td>Total</td>
<td>246</td>
<td>100</td>
</tr>
</tbody>
</table>

The debitage data collected at the site indicate that the occupants were manufacturing and refinishing stone tools at this site. The abundance of local material, the preponderance of debitage with little cortex, and the probable use of bipolar reduction indicates significant reworking and repair of tools and extensive reduction of small cores at the site. These data also suggest that the occupation was potentially a long-term habitation. These conclusions, although preliminary and tentative, are consistent with the feature analysis, mass analysis and stone tool analysis reported for the site.
**Initial description of tool assemblage**—Daniel Winkler and Robert J. Jeske

A total of 125 stone tools were recovered during the 2002 excavations at the Carcajou Point site. A total of 5,077 pieces of debitage were also recovered during the excavations at Carcajou Point (Winkler 2002). The debitage to tool ratio is high at 40.6 to 1.

Of the 125 stone tools recovered 80 were classified as bifaces, eight as unifaces, 18 as edge only, and 18 as multifaces or cores (Table 3.11). The bifaces were further broken down into hafted and non-hafted bifaces. A total of 31 (24.8%), were classified as hafted, while another 8 (6.4%) of the bifaces were classified as possibly hafted.

<table>
<thead>
<tr>
<th>Table 3.11. Tool Types from Carcajou Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Totals</td>
</tr>
<tr>
<td>Edge Only</td>
</tr>
<tr>
<td>Unifacial</td>
</tr>
<tr>
<td>Bifacial</td>
</tr>
<tr>
<td>Multifacial</td>
</tr>
<tr>
<td>Nonfacial</td>
</tr>
<tr>
<td>Unknown</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

**Raw material patterns in tools** Raw material of tools is overwhelmingly local materials (Table 3.12). The outcrops of local limestone in the area are the western edges of Niagran dolostone and limestone, which produce Silurian, or Mokoqueta, chert. Prairie du Chien, or Platteville, limestones outcrop to the west of the site, while Galena cherts outcrop to the southwest (Morrow 1994). The Silurian cherts outcrop to the northeast of the site in the Door County area, and were probably collected in glacial till. Galena is
nearly 1/2 of the assemblage. If we include Silurian, Platteville, and Prairie du Chien cherts as locally available, the total is over 94 percent local. Although there are no documented prehistoric quarries in the immediate vicinity of the site, it is likely that most of the chert at the site comes from relatively nearby.

Only five of the stone tools recovered were manufactured of nonlocal raw materials. These nonlocal raw materials include Hixton Silicified Sandstone, Maquoketa Formation chert, and three unknown types of chert. Hixton Silicified Sandstone is found at a single location known as Silver Mound in Jackson County, Wisconsin (Behm 1997). Maquoketa Formation chert was originally classified as Silurian Type 2 chert (Morrow 1985). The primary outcrop location of this chert type is located on the Door County peninsula (Morrow 1985). The unknown types of chert could possibly be chert cobbles that were transported by glaciers, but this is not a certainty.

The local nature of the raw material is also suggested by the relatively high number of tools with cortex remaining on the surface—80 (63%) of tools show at least some portion

<p>| Table 3.12 Raw material frequencies at Carajou Point. |</p>
<table>
<thead>
<tr>
<th>Raw Material Type</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Galena Chert</td>
<td>57</td>
<td>45.6</td>
</tr>
<tr>
<td>Platteville Formation Chert</td>
<td>22</td>
<td>17.6</td>
</tr>
<tr>
<td>Silurian Chert</td>
<td>23</td>
<td>18.4</td>
</tr>
<tr>
<td>Shikokpe/Prairie du Chien Chert</td>
<td>7</td>
<td>5.6</td>
</tr>
<tr>
<td>Oneota/Prairie du Chien Chert</td>
<td>8</td>
<td>6.4</td>
</tr>
<tr>
<td>Unknown Chert</td>
<td>3</td>
<td>2.58</td>
</tr>
<tr>
<td>Hixton Silicified Sandstone</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Bariboo Quartzite</td>
<td>2</td>
<td>1.6</td>
</tr>
<tr>
<td>Maquoketa Formation Chert</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Unidentified chert</td>
<td>3</td>
<td>2.4</td>
</tr>
<tr>
<td>Unidentified quartz</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Total</td>
<td>125</td>
<td>100</td>
</tr>
</tbody>
</table>
of the tool with cortex. Putting this together with the debris analysis, it suggests multiple stages of tool manufacture from small, locally available cobbles. The quality of raw material used for tools at the site was moderately good. Nearly 25% of the material was rated good, or high quality, and another 54% was rated medium. Only 21% was rated poor quality material.

<table>
<thead>
<tr>
<th>Quality</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>31</td>
<td>24.8</td>
</tr>
<tr>
<td>Fair</td>
<td>66</td>
<td>54.4</td>
</tr>
<tr>
<td>Poor</td>
<td>26</td>
<td>20.8</td>
</tr>
<tr>
<td>Totals</td>
<td>125</td>
<td>100</td>
</tr>
</tbody>
</table>

A total of 55 (44%) of the stone tools that were recovered at the Carcajou Point site were heat treated, and an additional 2 (1.6%) were possibly heat altered. Raw materials were often heat treated to improve the knapability of the stone (Whittaker 1994). Bifaces were by far heat treated the most often, while cores and utilized flakes were rarely heat treated. A chi square analysis of the correlation between heat alteration and artifact form is statistically significant (probability =.035).

<table>
<thead>
<tr>
<th>Tool Type</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edge Only</td>
<td>8</td>
<td>59.74</td>
</tr>
<tr>
<td>Unifaces</td>
<td>3</td>
<td>75.0</td>
</tr>
<tr>
<td>Bifaces</td>
<td>41</td>
<td>37.5</td>
</tr>
<tr>
<td>Multifaces</td>
<td>3</td>
<td>20.0</td>
</tr>
<tr>
<td>Nonfacial</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>14.29</td>
</tr>
<tr>
<td>Totals</td>
<td>55</td>
<td>49.14</td>
</tr>
</tbody>
</table>
The raw material patterns have implications for artifact use and site function. Overall, raw material quality is relatively good (cf. Plencner and Jeske, this volume). In addition, the occupants used heat alteration frequently. Ultimately, this use of heat alteration with the good and fair quality material results in a reasonably high quality raw material for artifact manufacture. The high quality of material is reflected in the large numbers of curated versus expedient tools from the site: bifaces recovered from the site: 68% of tools are bifaces, while only 14% are edge only. A total of 31% are hafted or possibly hafted tools. Consistent with heat alteration and high energy input, these tools are used up before they are thrown away: over 54% of tools are broken, and a high level of reworking is evident—nearly 17% of tools show evidence for reworking and reuse. A number of bifaces have been used as bipolar cores, and other bipolar cores are present in the assemblage. A total of 36% of tools show no cortex remaining, while 46% show less than 50% cortex, and only 18% with more than 50% cortex. All together, the site indicates a raw material utilization pattern of relatively high energy input into artifact manufacture, then extensive use of tools before considering them spent and discarding them.

**Projectile Point Chronology** Excavations yielded materials from Paleoindian, Archaic, and Woodland periods. Four points represent the late Paleoindian or early Archaic occupation of the site (Figure 3.29). One point is a Hi-Lo point, reworked to a nubbin, while two are lanceolate types reminiscent of the Plainview and one probably fits into the Dalton taxon. Both Plainview are well made, the Dalton is less refined and the Hi-Lo is poorly refined. The Hi-Lo point was found within the fill of Feature 13, while
one Plainview was recovered at or near the interface of that feature and the sandy matrix.
. The Dalton-ish point was found approximately one m from Feature 13 at a depth
equivalent to the middle level of the feature, 65 cm below ground surface (Figures 3.5-
3.6). Feature 13 also yielded a cylindrical bifacial tool, at least two bipolar cores (one
refit), and a burin-like tool. A broken hammerstone was also recovered from the feature,
as was a small amount of FCR.

Feature 13 has provided an AMS radiocarbon date of A.D. 600-680, which together
with the points found stratigraphically and horizontally near the pit suggests that the pit
was dug into a Late Paleoindian stratum, and the artifacts were either scavenged by the
Late Woodland occupants of the site, or were accidental inclusions in the fill.
Alternatively, the pit is actually a Late Paleoindian/Early Archaic pit, as suggested by
the tool contents, and Late Woodland habitation debris was introduced into the pit fill
via disturbance—either cultural or natural. It will take a return visit to the site to
specifically examine the stratigraphic relationship of features and soil strata.

A base of another lanceolate point with collateral flaking was found in Feature 02-15
(Figure 3.29). This feature has a radiocarbon date of 1980-1740 B.C., which places it in
the later range of the Middle Archaic (Stoltman 1997). The relationship of the point
morphology to the Middle Archaic date is unclear. It is possible that the point base,
which we have typed as a variation of Plainview, is another type of lanceolate point.
The base is on the small end of the accepted range of variation for Plainview points, so
this possibility must be seriously considered. The Early Archaic is also represented by
one example of a Fox Valley Truncated point from midden deposits in Block Two.
Figure 3.29 Late Paleoindian/Early Archaic points. Left to Right: Variation of Dalton, Plainview, Plainview and Hi-Lo.

Morphologically Middle to Late Archaic points come from both feature and midden proveniences. A Corner Notched point, with characteristics similar to what Justice (1995) describes for Vosburg points, and a large retouched flake tool came from Feature 12, in Block 1 (Figure 3.30). Vosburg points are differentiated from the similar Matanzas points by a more distinctive corner notch and a trianguloid blade. The date of circa 2890-2620 BC is consistent with the Vosburg point (Justice 1990).

A Matanzas point and a portion of a contracting stemmed point were recovered from Feature 10, in Block 1. A series of points with weak corner to side notching and bases that follow a continuum of slightly convex to straight to concave. These points are similar in some ways to Brewerton eared, Madison side notched, Reigh or Matanzas
points, but do not fall comfortably in either taxon. We have provisionally called these Carcajou Notched points, taking into consideration Stoltman’s (1997:123) caveat about Middle Archaic taxonomy in Wisconsin (Figure 3.31). Several of these points are reworked into other tool forms such as drills. One of these, a.k.a. the Concorde, comes from Feature 02-6, and we believe it was scavenged and recycled during the Late Woodland period occupation (Figure 3.31).

A large, t-shaped drill (Figure 3.32) and a Bottleneck stemmed point come from non feature contexts, but stratigraphically are probably associated with Feature 02-12. The site also produced a copper socketed spear point and five copper awls. These tools are consistent with the dates from Features 02-12, 02-14, and 02-15, but actually were recovered in Block 02, rather than in association with the dated features (Figure 3.33).

Two Madison triangular points and a small, refined corner notched point similar to a small Raccoon Creek point (or a Honey Creek point in western Wisconsin) were recovered (Figure 3.34). The Late Woodland points come from the top 30 cm of the site, except for Feature 02-06, and 13 which have yielded Madison Cord Marked sherds as well as a heavily reworked contracting stemmed point. The Presence of the reworked stemmed point in Feature 02-06 suggests the possibility for an Early of Middle Woodland component, but not pottery or radiocarbon evidence supports this conclusion. It is also likely that the stemmed point was also scavenged and deposited in a Late Woodland pit feature. Future work at the site will help to define stratigraphy, feature context and artifact contextual relationships.
Figure 3.30  Middle Archaic Vosburg-like point.

Figure 3.31  Weakly notched points; provisionally Kelly Notched points.
Figure 3.32  Heavily reworked Kelly Notched point.

Figure 3.33  Archaic T-drill.
Figure 3.34  Five copper awls and a socketed spear point.

Figure 3.35  Late Woodland Points.  Left: Heavily reworked Madison Triangular; Right: Honey Creek or Raccoon Creek point.
Summary and Conclusions

The three week investigation during the summer of 2003 at the Kelly North Tract of Carcagou Point is just the first step in our work at the site, and provides many more questions than answers. It is clear that the Kelly North Tract at Carcagou Point requires additional, significant, long-term research. The current land owner, Mr. Thomas Kelly, has signaled his interest in our continuing research at the site. The site has much more to tell us about early occupation of southeastern Wisconsin. We do know the following:

1) Significant, intact Middle Archaic habitation deposits, including features, exist at the site. These intact deposits are unique in southeastern Wisconsin and contain lithic, cuprous, faunal, and floral data that will provide information on Middle Archaic tool technology, economics, subsistence, settlement, and chronology. Future work at the site has the potential to provide a tremendous increase in our understanding of Wisconsin prehistory.

2) There is an underlying Late Paleoindian/Early Archaic component at the site. What we do not know is now much deflation, bioturbation, and other natural processes in the loose, sandy soil matrix has affected these deposits. The exploratory nature of the 2003 work was inadequate to answer this problem. Future work must be geared towards the explicit recovery of detailed stratigraphic associations and the pedogenic and geomorphologic processes that have been most important in forming the site.
3) There is a Late Woodland habitation component to the site. Although the ceramic and lithic material associated with Late Woodland culture is confined to the top 30 cm of the site, a number of features that are clearly Late Woodland in origin were dug down into Archaic and perhaps even Paleoindian deposits. The resulting mixing of materials in the sandy matrix is a problem that needs much more attention in future work at the site.

4) Lithic data suggest that the Archaic occupants of the site relied on locally available, moderately good quality material that they improved by heat alteration. They then produced and used a heavily curated lithic tool assemblage that included a significant amount of reworking and reusing of tools as well as a bipolar manufacturing strategy. Combined with the relatively high density of pit features, these data suggest that it is highly likely that the inhabitants of the site were relatively sedentary, and that the site represents a long-term base camp similar to Koster Horizon 6 (Brown and Vierra 1983; Carlson 2003; Cook 1978).

5) Floral and faunal analyses, although not fully complete, indicate that a wide spectrum diet was eaten at the site. A variety of animals are represented from the Middle Archaic features, including turtle, fish, small mammal, and bird bone (Chrisie Hunter 2003, personal communication). In addition, nutshell found in the features includes a high proportion of hazel nut (Kathryn Egan-Bruhy, 2003, personal communication). These (very preliminary) findings are consistent with Middle Archaic deposits at sites such as Koster (Brown and Vierra 1983).