

## BASKETMAKER II IN THE SOUTHERN CHUSKA VALLEY, NEW MEXICO\*

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### ABSTRACT

*The Basketmaker II occupation of the southern Chuska Valley, New Mexico, ca. 1000 B.C. to A.D. 150, is summarized. Settlement included open camps, pithouse habitations, and storage and burial sites. Subsistence was based on maize agriculture, gathered resources, and small mammals.*

### INTRODUCTION

Sometime between 1000 and 500 B.C. Basketmaker II maize agriculturists settled the southern Chuska Valley and Tohatchi Flats subregion of the San Juan Basin in northwest New Mexico (Cole, this volume, Figure 1). The earliest farmers established seasonal camps on or near valley floodplains watered by runoff from nearby uplands. Between 500 B.C. and A.D. 1, seasonal camps, cache locales, and pithouse residential sites were established in the valley. Maize was a significant component of the diet, although the variety grown is unknown. Gathered wild plant foods and small mammals also contributed substantially to the subsistence base. Multiple burials at a storage site indicate the beginnings of land tenure. Beads and pendants of seed, stone, and shell, including *Haliotis* sp. pendants from the Pacific coast, represent symbols of wealth or prestige. The residential sites were small hamlets, although larger sites may lie buried beneath the valley floor sediment. Between A.D. 50 and 150, the early farmers apparently left the region, most likely in response to deteriorating climatic conditions. By A.D. 500, farmers with a brownware ceramic tradition were settling the southern Chuska Valley, heralding the Early Brownware period and the arrival of Basketmaker III in the region.

The southern Chuska Valley is in the southwestern corner of the San Juan Basin. The Chuska Mountains and the Chaco Slope border the valley on the west and east, respectively; Tohatchi Flats and Twin Lakes are at the southern end, and a line between Narbona Pass and the Great Bend of the Chaco River arbitrarily defines the northern boundary. Low rises, ridges, mesitas, and cuestas punctuate the broad alluvium-filled valley. Rockshelters are rare and typically shallow. Large washes cross the valley floor and converge with Coyote Wash, a tributary of Chaco River. Elevations range from roughly 1,700 m along Coyote Wash in the north to 1,900 m on the elevated rises and valley margins near Twin Lakes on the south. The sparse vegetation is a mix of grasses and desert scrub, primarily *Atriplex* sp., *Sarcobatus* sp., *Chrysothamnus* sp., and *Gutierrezia sarothrae*. Pinyon-juniper woodland and higher elevation biotic

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resources are available in the adjacent foothills and mountains. The valley rainfall averages 7 to 12 in annually, largely due to the rain shadow effect of the Chuska Mountains. Precipitation in the mountains, however, averages 21 in and washes channel runoff to the valley creating an excellent setting for flood-plain agriculture.

Despite documentation of Basketmaker II sites elsewhere in the San Juan Basin (e.g., Henderson 1983; Irwin-Williams 1973; Simmons 1986; Vogler 1982), only one Basketmaker II site and no Archaic sites had been recorded in the southern Chuska Valley prior to 1990. In the early 1990s, eight Basketmaker II sites and two isolated features were excavated during the El Paso Natural Gas North System Expansion Project (NSEP) (Baugh et al. 1998; Kearns 2007b). More recently, SWCA, Inc. (Gilpin 2007a; Gilpin et al. 2007; Railey 2008) and the Office of Archaeological Studies (Lakatos 2011) excavated additional Basketmaker II sites prior to highway construction. Evidence of maize agriculture and an aceramic context are the primary criteria for identifying Basketmaker II sites in the study area. Most of the data are from six sites: LA 6444, LA 6448, LA 80419, LA 36302 and LA 32964 in Tohatchi Flats (Baugh et al. 1998; Gilpin 2007a; Kearns 2007b; Kilburn 2007; Lakatos 2011) and NM-H-51-55 near Sheep Springs (Railey 2008). Other Basketmaker II sites were investigated by these projects but the data are less precise (Table 1). Although the excavated sites document the Basketmaker II occupation of the southern Chuska Valley, significant portions of the archaeological record are hidden by up to 1.6 m of post-occupation sediment. As a consequence, Basketmaker II sites are difficult to identify and critical elements of the settlement pattern are undoubtedly underrepresented.

**TABLE 1. Excavated Sites With Basketmaker II Components, Southern Chuska Valley.**

Site Number	Site Type	Location, setting	Reference
LA 6444	Multiloci camp	Tohatchi Flats, valley floor	Freuden 1998b
LA 6448	Storage and burial locale	Tohatchi Flats, ridge	Kearns et al. 1998
LA 80391	Camp <sup>1</sup>	Tocito Wash, valley floor	Baugh 1998
LA 80392	Camp <sup>1</sup>	Tocito Wash, valley floor	McVickar 1998
LA 80393	Camp <sup>2</sup>	Tocito Wash, valley floor	Kearns 1998a
LA 80397	Camp <sup>1,2</sup>	Tocito Wash, valley floor	Korgel 1998
LA 80419	Habitation	Tohatchi Flats, valley floor	Freuden 1998a
LA 80434	Camp	Twin Lakes, ridge	Freuden 1998c
Discovery 32	Isolated hearth	Twin Lakes, valley floor	Kearns 1998b
Discovery 34	Isolated hearth and cist <sup>2</sup>	Twin Lakes, valley floor	Kearns 1998c
LA 36302	Camp	Tohatchi Flats, gentle slope	Kilburn 2007
LA 32964	Camp	Twin Lakes, low rise	Lakatos 2011
LA 32989	Camp <sup>3</sup>	Coyote Canyon, low ridge	Goodman 2007
NM-H-51-55	Habitation	Sheep Springs, low rise	Railey 2008

<sup>1</sup> Surface artifact scatter overlying buried Archaic component.

<sup>2</sup> Radiocarbon dates are comparable to other Basketmaker II date ranges but no cultigens were recovered from the limited testing.

<sup>3</sup> Basketmaker II component equivocal.

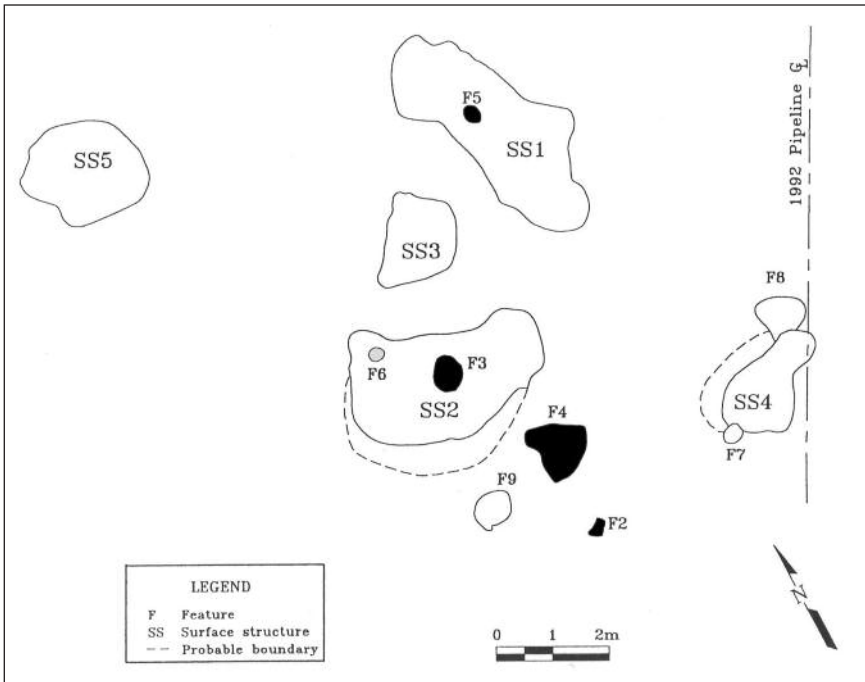
## SETTLEMENT

Six excavated sites, LA 6444, LA 6448, LA 80419, LA 32964, LA 36302, and NM-H-51-55, exemplify the Basketmaker II occupation of the southern Chuska Valley. The sites represent variations on three settlement types: agricultural camp, pithouse habitation, and storage or cache locale. None of the sites are in rockshelters. The site types appear to be complementary components of a single settlement system, and variation within types likely reflects situational responses to changing environmental and social conditions through time. A developmental trajectory from temporary camp to pithouse habitation, tentatively suggested following the NSEP (Kearns 2007b:4-21), may have occurred but is not wholly supported by radiocarbon dates. Also, the study area is a lowland setting and other components of the settlement system should be located in adjacent uplands.

### Agricultural Camps

Two Basketmaker II sites in the southern Tohatchi Flats, LA 6444 and LA 32964, are seasonal agricultural camps established near arable land. The Insulator Site, LA 6444, is on the valley floor and LA 32964 (NM-Q-18-123) is on a low rise. At LA 6444 three spatially separate camps are buried beneath 1.1 to 1.65 m of valley fill (Freuden 1998b). Ephemeral brush shelters are indicated by shallow (10 to 30 cm), circular, oval, and irregular depressions with charcoal-enriched fill. Two of the camps (Areas 1 and 4) have burned shelters with interior and exterior hearths and miscellaneous pits (Figure 1). In Area 1, superposition and tight spacing of six structures and eight extramural features indicates reuse of the camp and a milling slab on a structure floor indicates anticipated return. In Area 4, the spacing of the five structures suggests multiple social units and a burned pit in the fill of one structure indicates reuse of the locale (see Figure 1). The third camp (Area 2) contains two small shelters with interior pits but no hearths. Although most of the cultural debris at the camps is sheet trash, several artifact clusters may be activity areas (Freuden 1998b:262, 277). Maize pollen and macrobotanical remains are common at all three loci. Other botanical remains indicate exploitation of seeds from wild grasses and annuals and, at Area 1, pinyon nuts. In addition, bone fragments indicate hunting, primarily small mammals. Radiocarbon date ranges span a significant interval (1054 cal B.C. to cal A.D. 27) and indicate three potential periods of occupation, 800–600 B.C., 550–450 B.C., and ca. 400–100 B.C., although the co-occurrence of disparate date ranges in some features clouds interpretation (Freuden 1998b:299).

Site LA 32964, near Twin Lakes, is an agricultural camp where biotic resources, including maize and small mammals, were processed and where milling equipment and food resources were cached (Lakatos 2011). Basketmaker III/early Pueblo I and Pueblo II/early Pueblo III components are present but the Basketmaker II component, approximately 40 to 60 cm below the modern surface, dominates the excavated area. The Basketmaker II component includes 13 features in a roughly 200 m<sup>2</sup> area: one midden, six thermal altered pits (cooking facilities), one rock-lined pit, one slightly bell-shaped pit with a



**FIGURE 1. Map of Area 4 at LA 6444, a seasonal camp on the Tohatchi Flats valley floor (Modified from Freuden 1998b:Figure 9.29, used with permission). The dark shaded features are hearths and the open features are pits. Feature 6, lightly shaded, post-dates the occupation of Surface Structure 2.**

cached metate, two milling slab caches, and two rock clusters. No structures are evident but the midden indicates a more sustained occupation than at LA 6444. Despite a span of over 400 radiocarbon years (1060–740 to 520–340 cal B.C.), none of the features are superimposed (Lakatos 2011). The developed midden indicates site maintenance and patterned refuse disposal and the distribution of artifacts and faunal remains indicate other activities were also segregated at the site (Lakatos 2011). A concentration of features west of the midden is a discrete locus of food processing and caching and may indicate the former presence of sheltered space (possibly in the disturbed highway corridor immediately west), presaging the site structure at the habitation sites LA 80419 and NM-H-51-55 (see below).

A third probable camp, LA 36302 (NM-Q-19-66), is located on a gentle slope in the southern Tohatchi Flats (Gilpin 2007a; Kilburn 2007). Although the investigation was limited, most of the excavated portion of the site is Basketmaker II and interpreted as a camp or chipping station (Gilpin and Fox 2007:11). The assemblage (debitage, cores, flaked stone tool, milling equipment, jar lid, stone balls, and modified and unmodified concretions) is consistent with a camp designation. The Basketmaker II component includes eight features: four hearths, three shallow pits with charcoal-stained fill but no evi-

dence of in situ burning, and one large pit tentatively identified as a possible structure (Kilburn 2007). Maize pollen, cupules and kernels from pit fill, and the site setting near arable land indicate a potential agricultural camp function. The five radiocarbon dates from the site range from 755 cal B.C. to cal A.D. 245 with a minimum 2-sigma span of 365–170 cal B.C. (Gilpin 2007b).

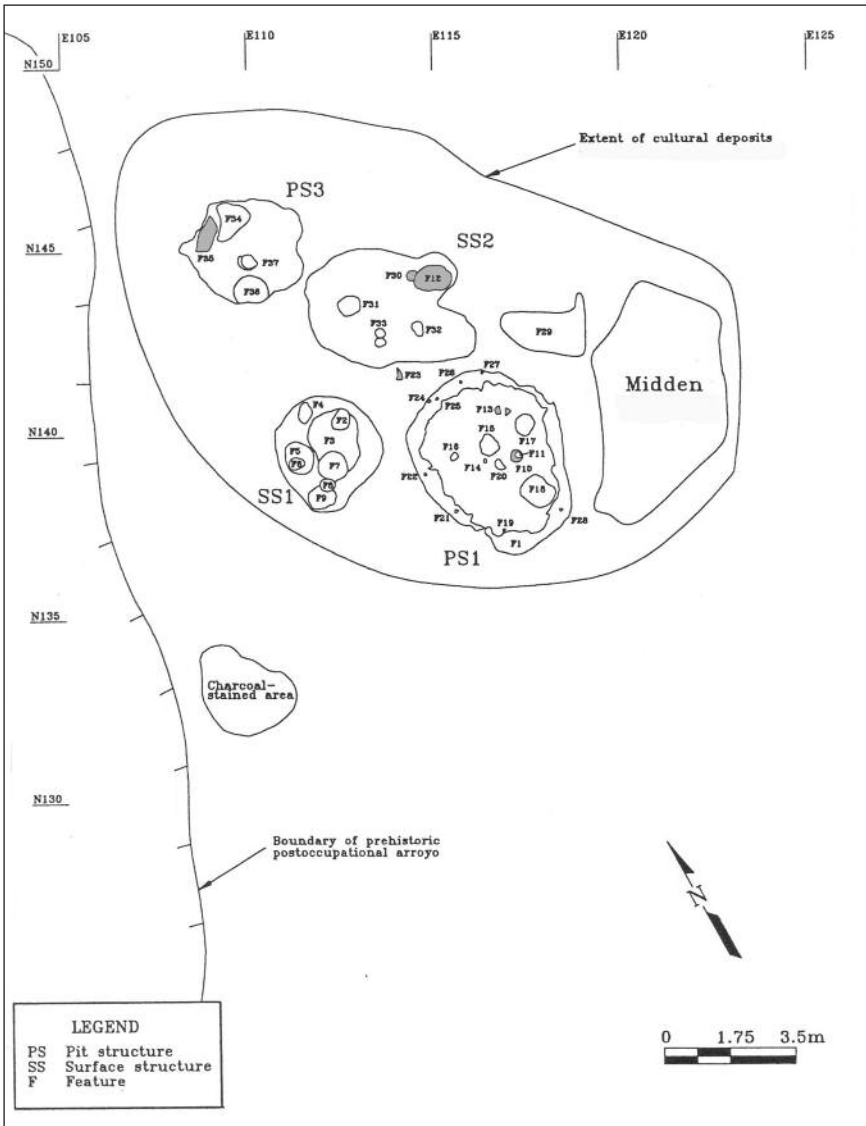
Sites LA 6444, LA 32964, and probably LA 36302 are seasonally occupied agricultural camps established near fields. Structures, where evident, are ephemeral brush shelters. The three areas at LA 6444 exemplify the valley floor version of the camps and LA 32964 is an example of a ridge or low rise setting. Agricultural products were supplemented with gathered plant resources and small game, primarily lagomorphs. Sites LA 6444 and LA 32964 were used repeatedly and milling equipment was left at both sites. Limited storage is indicated but the quantity of food resources that could have been cached was not great.

### **Habitation Sites**

More substantial habitation sites are exemplified by the Meat Milling Site, LA 80419, on the valley floor in Tohatchi Flats (Freuden 1998a) and the Sandy Rise Site, NM-H-51-55, on a low rise on the valley margin near Sheep Springs (Railey 2008). Multiple pit structures, middens, and extramural features occur at the sites and the investment in sheltered space and developed middens indicate a probable over-wintering component of the settlement system. Radiocarbon date ranges place the occupation of NM-H-51-55 at 400–200 B.C. and slightly later, 200 B.C.–A.D. 50, for LA 80419. A similar Basketmaker II pithouse habitation, LA 88526 (Site 423-158), is slightly east of the study area near Standing Rock (Redd et al. 1994). Three structures and an extramural activity area are documented at the site. Five radiocarbon assays from LA 88526 indicate occupation between 500 B.C. and A.D. 100, values comparable to those from NM-H-51-55 and LA 80419. One radiocarbon assay from LA 88526 indicates a possible earlier occupation (Redd et al. 1994).

At LA 80419, two pit structures, two surface structures, and a midden deposit cluster in a roughly 300 m<sup>2</sup> area (Figure 2). The larger pit structure is an oval room, 5 × 4.4 m and 43 cm deep. A bench with possible post holes surrounds the unprepared floor. A shallow-basin hearth is roughly centered on the floor and other floor features include pits and basins. Extensive animal burrowing obscures evidence of a roof support system. A superstructure is indicated by rabbitbrush, saltbush, and willow charcoal from fill immediately above the floor. The size of the structure would have accommodated a nuclear or small extended family. The labor invested in the construction indicates a greater anticipated length of use than the shelters at LA 6444 and probably cold weather habitation. Cultural debris in the fill indicates use of the structural depression for refuse disposal and continued occupation of the site.

The smaller pit structure at LA 80419, approximately 5 m north of the larger structure, is a round room about 3 m in diameter and 0.4 m deep with vertical walls. Charcoal in the fill may indicate a brush superstructure of saltbush, possibly supported by a willow and pinyon frame. Features on the unpre-



**FIGURE 2.** Map of LA 80419, a habitation site on the valley floor in Tohatchi Flats (Modified from Freuden 1998a:Figure 8.8, used with permission). The shaded features are hearths.

pared floor include surface burns along the northern side, a shallow-basin pit, and a storage pit. The relatively small size indicates use by a small social unit.

Two surface structures occur adjacent to the two pit structures at LA 80419 (see Figure 2). They are roughly oval to irregular, shallow-basin features. Both structures lack postholes but rodents may have destroyed any present. Charcoal in the fill indicates superstructures of saltbush or greasewood. The smaller, oval example has a floor area roughly 7.8 m<sup>2</sup> with seven shallow basins

of varying size and one slightly deeper pit. The larger example has a roughly 14 m<sup>2</sup> floor area with a small shallow-basin hearth, a shallow basin, two small pits, and one larger pit or cist. A rock-lined hearth (Feature 12) in the fill indicated reoccupation of the locale.

A midden, a dense accumulation of cultural debris east of the structures, is approximately 20.2 m<sup>2</sup> and up to 30 cm thick. The location and concentration of debris indicates site maintenance activities and an extended occupation. The variety of flaked and ground stone artifacts at LA 80419 is consistent with a habitation. Faunal remains are abundant (n = 14,674) and indicate a reliance on small mammals, particularly lagomorphs. Maize, while present, is not abundant but squash or gourd rind and pinyon nuts are common and a variety of annual seed resources are also present.

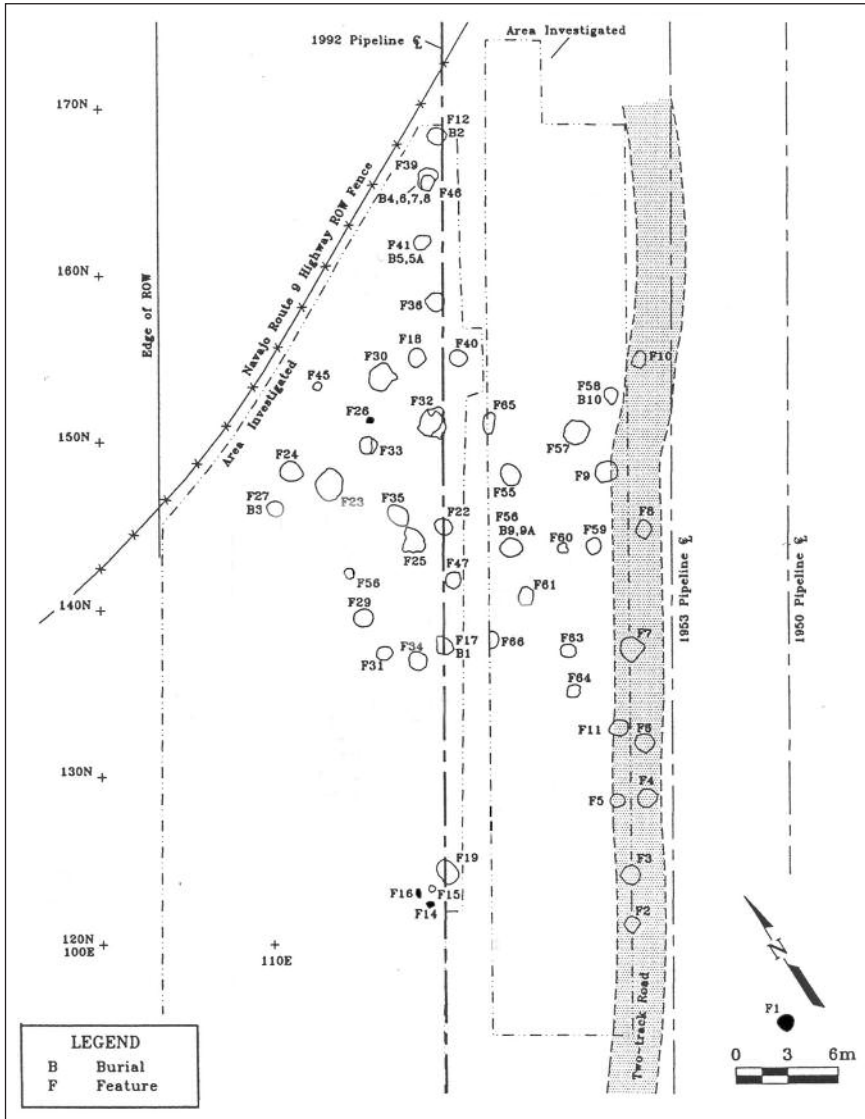
The Sandy Rise Site, NM-H-51-55, is a habitation near Sheep Springs that includes seven pit structures buried beneath at least 70 cm of sandy silt and silty sand (Railey 2008). The oval to circular structures are approximately 1.9 to 4.9 m in maximum dimension and 10 to 62 cm deep. There are interior hearths, and large sandstone slabs were recovered from the fill of most of the structures. Sheet middens are typically located east or southeast of the structures. Other features include a number of basin-shaped roasting pits and hearths or small roasting pits. At both NM-H-51-55 and LA 80419, extramural storage pits are absent and burned rock is common. Macrobotanical maize is relatively common but maize pollen is rare. Both sites have a variety of lithic artifacts indicative of food processing, craft, and maintenance activities and the projectile points are broad, corner- to side-notched forms. The quantity of debitage and stone tools is greater at NM-H-51-55 but the number of faunal specimens is significantly greater at LA 80419.

The habitation sites are probably over-wintering locales. They are, however, situated near arable land and were likely occupied during the growing season. Both LA 80419 and NM-H-51-55 appear to have been small hamlets occupied by only one or two families at any one time. Larger habitation sites may be hidden under valley floor sediment, a circumstance not too implausible given the relatively recent discoveries of large Early Agricultural period settlements in southern Arizona (e.g., Gregory 2001; Mabry 1998, 2008) and the time depth of maize agriculture on the Colorado Plateau (e.g., Gilpin 1994; Huber and Miljour 2004; Simmons 1986; Smiley 1994).

### **Storage Sites**

Although limited storage and caching are evident at camp and habitation sites, other sites are characterized by multiple storage facilities but lack evidence for sustained occupation. These open-air sites are comparable to the sheltered storage sites on the Rainbow Plateau (Geib and Spurr 2000:188) and the 1987 locus of the later open-air Oven Site in the Navajo Reservoir District (Hammack 1992). The Dog Leg Site, LA 6448, exemplifies the Basketmaker II storage or cache site type in the study area (Kearns et al. 1998). Site LA 6448 is situated on top of a gently rolling ridge in the southern Tohatchi Flats and overlooks broad alluvial valleys. The documented site area covers approxi-

mately 2,100 m<sup>2</sup> and contains 53 large storage cists, 3 hearths, 2 indeterminate pits, 2 charcoal stains, 12 human burials, and 15 ambiguous or noncultural features (Figure 3). Nine radiocarbon assays have a maximum 2-sigma range of 427 years (397 cal B.C. to cal A.D. 30) and potentially represent three periods of use: ca. 350–200 B.C., 200–100 B.C., and 100 B.C.–A.D. 0. The site is not a residential locale in a normative sense, and does not appear to be similar to



**FIGURE 3.** Map of LA 6448, a storage and burial locale on a ridge overlooking Tohatchi Flats (Modified from Kearns et al. 1998:Figure 10.4, used with permission). The open features are storage cists and the shaded features are hearths. The burials are within the respective cists.



habitation sites with large storage pits on the Rainbow Plateau (Geib and Spurr 2000, 2002) or later manifestations in the Navajo Reservoir District (Eddy 1966:215–216). Although some camping probably accompanied the processing and storage activities, no structures were encountered and the low diversity artifact assemblage from non-feature context is relatively small. The 32 excavated cists are all large, fired pits, 0.42 to 1.8 m deep. Large sandstone slabs, slab fragments, and occasional milling stones occur in 18 of the cists. Some of the milling stones are apparently cached items but others and most of the slabs are probably capstones. Conservative estimates of the cist volumes range from 0.11 to 1.17 m<sup>3</sup>. The cists are most likely maize roasting and storage facilities. Macrobotanical maize remains occur in 32 features and maize pollen is documented from 13 of the 14 cists where samples were analyzed. Other botanical remains include gourd or squash rind, and seeds from a number of wild grasses and annuals.

The site is also a cemetery. Eight cists at LA 6448 used as tombs for 12 human burials represent the earliest evidence of mortuary behavior in the southern Chuska Valley (Flores and Kearns 1996). The individuals include both sexes and range in age from infants to adults. Grave goods, including mineral or pigment specimens and jewelry, crosscut age and sex groups. The jewelry includes beads and pendants of exotic stones, *Haliotis* sp. shell from the Pacific coast, and *Olivella* sp. shell. Beads manufactured from juniper seeds and puccoon (*Lithospermum* sp.) seeds are also associated with the burials. To date, no human burials have been found at other Basketmaker II sites in the study area. The number of burials, grave goods, and consistent use of large storage pits as tombs indicate an established mortuary complex.

Isolated, slab-lined storage facilities are comparable components of Basketmaker II settlement. The features are typically large, slab-lined cists or bins that are evident on low rises and open valley floor settlements away from camp or habitation sites. Their occurrence probably indicates nearby agricultural fields and field-side work areas. Diagnostic projectile points and the absence of sherds indicate a Basketmaker II affiliation. They occur as single features or in small groups of two or three, unlike the clustered storage pits at LA 6448; although one unexcavated site along Tocito Wash, LA 80389, has remnants of multiple sandstone slab cists (Kearns 1991:208–212). An excavated example, Discovery 34, is a large slab-lined cist buried approximately 1.4 m below the modern ground surface in an open valley setting near Twin Lakes (Kearns 1998c). The cist, discovered in a pipeline trench, is not associated with a cultural deposit. A 2-sigma range of 799–516 cal B.C. dates a probable hearth approximately 15 cm above the cist. Although the cist underlies the hearth, the construction technique, depth, and position relative to a nearby isolated hearth, Discovery 32, argue for a Basketmaker II origin. No maize pollen or macrobotanical remains are associated with the cist. Two abraded sandstone slab fragments (cist elements?) are the only lithic artifacts. Three sherds recovered during the excavation are not associated with the features but are part of a general light scatter of cultural debris common in the Tohatchi Flats-Twin Lakes area (Kearns 1991).

Discovery 32 is an isolated hearth 0.57 km from Discovery 34 and buried under 1.1 m of valley fill (Kearns 1998b). A 2-sigma radiocarbon date range of 54 cal B.C.-cal A.D. 94 is from saltbush charcoal in the hearth. No artifacts are associated with the hearth but one maize cupule is included in the flotation sample. The site is not a storage locale but may indicate a short term camp, field-side activity area, or other special use locale.

## **SUBSISTENCE**

The Basketmaker II occupants of the southern Chuska Valley were committed farmers who exploited a variety of wild plant resources and hunted small mammals. Maize is present in 88 percent of the 101 flotation samples analyzed for NSEP and in 83 percent of the 41 macrobotanical samples (Kearns 2007b). Maize is also a common constituent at the other excavated Basketmaker II sites in the study area (Kilburn 2007; Lakatos 2011; O'Laughlin 2008). Unfortunately, preservation is poor and the type, row number, cob size, and other attributes are unknown. Cucurbits (squash or gourds) are another potential domesticated resource conspicuous (27.7 percent) in the NSEP samples (Kearns 2007b) and a possible cucurbit was found at NM-H-51-55 (O'Laughlin 2008). Wild plant foods are also a significant component of the Basketmaker II diet. A variety of wild annual and grass seed resources (e.g., goosefoot, pigweed, bugseed, tansy mustard, sunflower, and Indian rice grass) along with pine nuts, yucca, cactus fruits, lemonade berry, and groundcherry occur in flotation samples and as macrobotanical remains (Kearns 2007b; Lakatos 2011; O'Laughlin 2008). The taxa are from valley floor and upland settings and indicate collection from late spring through fall. Although not a food resource, a single example of tobacco from Basketmaker II contexts at LA 80434 is the earliest occurrence in the study area (Freuden 1998c:523–524).

Hunting also contributed significantly to the Basketmaker II diet. A variety of animal taxa are represented by bone fragments at the NSEP sites and to a lesser extent in the collections from LA 32964 and NM-H-51-55 (Kearns 2007b; Lakatos 2011; O'Laughlin 2008; Walth 2008). Although some of the faunal remains are intrusive (e.g., prairie dogs at LA 6448), the highly fragmented or burned condition of a large proportion indicates a cultural origin. Small mammals, primarily rabbits and hares but also including a variety of rodents, dominate the collections. Large and medium mammals are uncommon. Large game hunting was apparently not a routine practice or meat was stripped from the carcass at the kill. Only one carnivore, a black-footed ferret, is included in the assemblages and is probably intrusive (Kearns et al. 1998:443). Although not numerous, bone and eggshell from a variety of large and small birds are also present in the collections. The remains presumably represent birds taken as food and for feathers. Most of the faunal specimens are small, highly fragmented pieces of bone. This modification was probably the result of meat milling or the pulping/pulverizing of whole or partial small animals as a preparation technique (Michelsen 1967).

## MATERIAL CULTURE

Stone artifacts, largely because of the lack of sheltered sites, dominate the Basketmaker II material culture inventory from the southern Chuska Valley. The flaked stone assemblage represents an expedient core and flake technology supplemented by a curated biface technology (Kearns 1999, 2007b; Railey et al. 2008; Wenker 2011). The tool kit is characterized by opportunistic unidirectional and multidirectional cores, utilized flakes, and informal scraping tools but includes other manufacturing and maintenance implements (cobble hammerstones, pecking stones), bifaces, projectile points, and drills. Most of the flaked stone tools are nondiagnostic items similar to utilitarian tools from other temporal periods. The projectile points are the most diagnostic artifact and include corner-notched, triangular dart points with broad, C-shaped notches similar to the San Pedro style; triangular, corner-notched points with

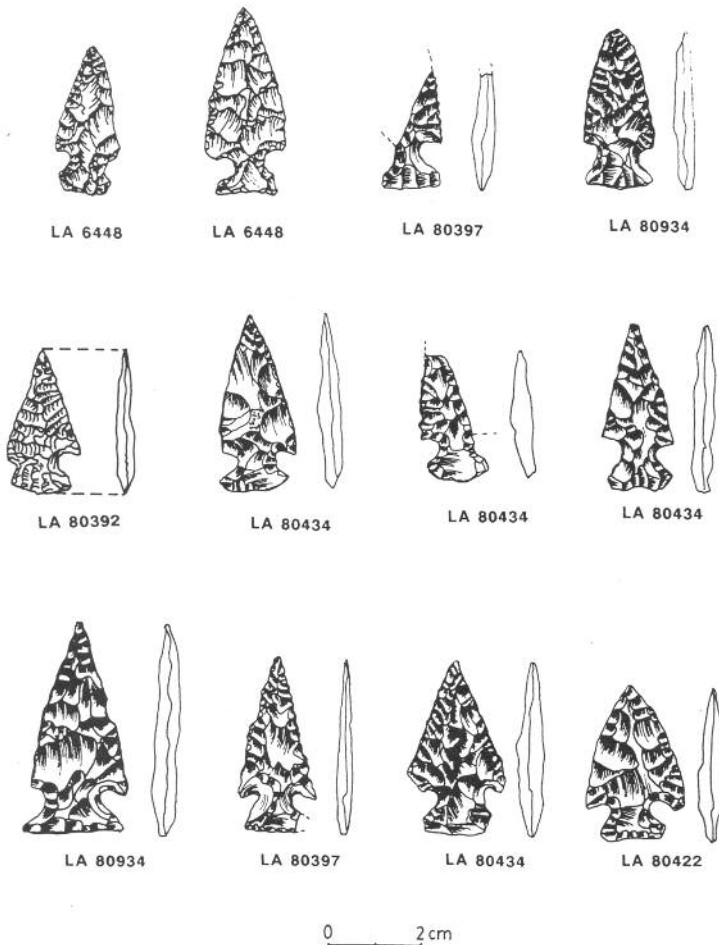
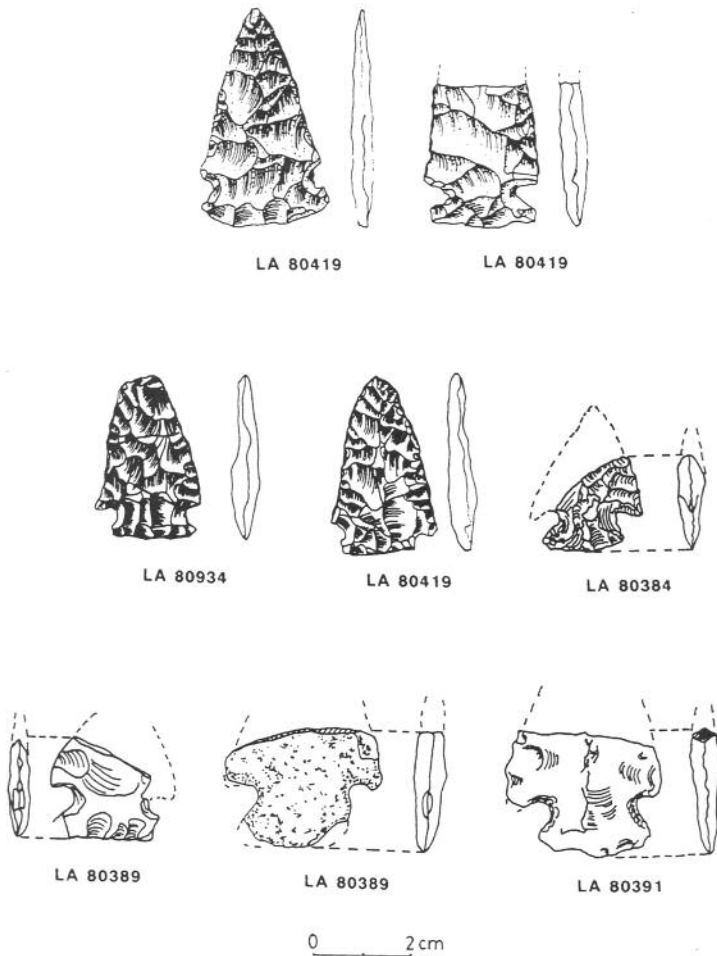


FIGURE 4. Basketmaker II corner-notched projectile points from the southern Chuska Valley (Kearns 2007b:Figure 4.34, used with permission).



**FIGURE 5. Broad side- and corner-notched Basketmaker II projectile points from the southern Chuska Valley (Kearns 2007b:Figure 4.35, used with permission).**

diagonal, parallel-sided notches; and broad corner- to side-notched forms (Figures 4 and 5). It is uncertain if the styles indicate dissimilar origins or functional differences. Although some overlap is evident, point styles vary among the sites. At LA 6448 and LA 32964, most of the points are reminiscent of the San Pedro style (Kearns et al. 1998:422; Wenker 2011:Figure 5.32) while the points at NM-H-51-55 and LA 80419 are the broader corner- to side-notched form (Freuden 1998a:201; Railey et al. 2008:246). The latter examples may have served as knives and the association with habitation sites may reflect function, not origin. The points from LA 80434, a multicomponent Archaic and Basketmaker II site near Twin Lakes (Freuden 1998c:546-547), include both San Pedro style and broad corner- and side-notched forms.

The Basketmaker II ground stone inventory is comprised of milling equipment, miscellaneous shaped stone slabs including circular disks (“pot

lids”) and probable architectural elements, lapstones, polishing stones, stone balls, jewelry, and minerals or pigment (Kearns 1999, 2007b; Railey et al. 2008). Milling equipment is common and includes basin and slab milling stones and trough metates used with shaped and unshaped handstones and manos. The shaped stone slabs and pot lids are new additions to the artifact inventory and presumably indicate increased reliance on storage. Modified and unmodified minerals or pigments are another Basketmaker II artifact type and include a variety of probably exotic materials (azurite, hematite, limonite, malachite, kaolin, turquoise). Stone beads, pendants, and inlay pieces from Basketmaker II sites indicate a display of wealth or status not evident in the Archaic material inventory. Two types of stone bead are represented, disk beads with flat to triangular sections and circular or subspherical beads with round, globular, or cylindrical sections (Kearns et al. 1998). The latter beads are a distinctive Basketmaker II type (Jernigan 1978:156, Figure 70) and resemble beads recovered from the Durango shelters (Morris and Burgh 1954:Figure 97).

Jewelry items of shell and bone are also part of the Basketmaker II inventory (Kearns 2007b). These include simple spire-loped and barrel-shaped *Olivella* sp. beads and disk beads possibly made from clam shell. Shell pendants are manufactured from *Haliotis* sp. and include oval and oblong forms. Tube and ring beads manufactured from small mammal long bone are also a distinctive addition to the Basketmaker II jewelry inventory (Griffitts 1999; Walth 2008).

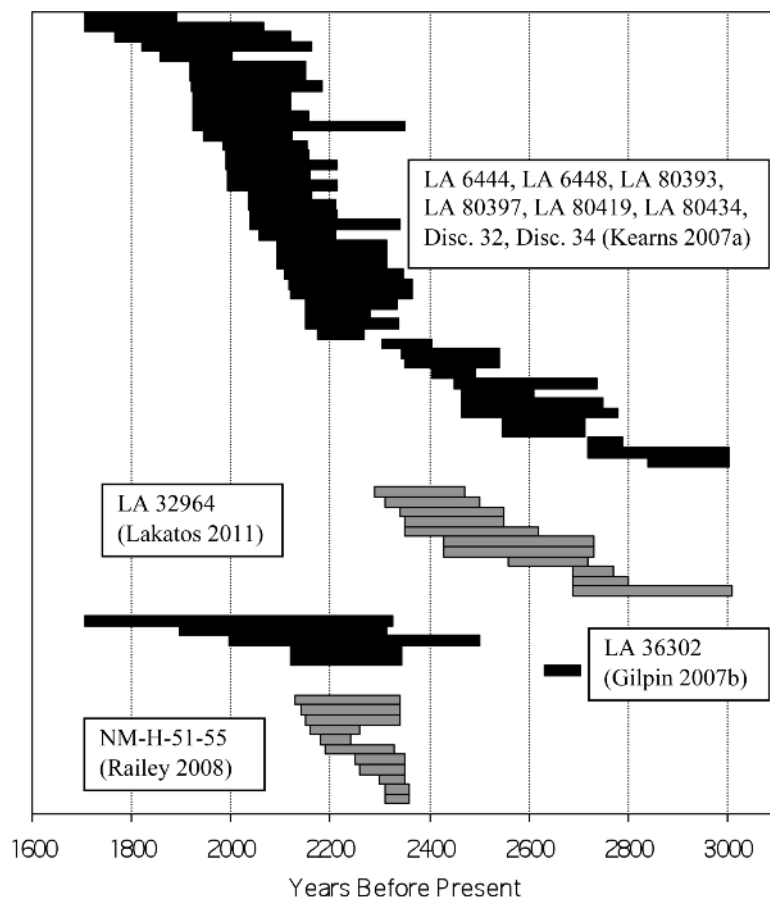
Perishable artifacts are rare and include beads made from seeds. Two types of seed beads, juniper (*Juniperus* sp.) and pucoon or gromwell (*Lithospermum* sp.) were recovered from burials at LA 6448 (Kearns et al. 1998). The seeds are perforated for suspension and the juniper specimens include examples with minimal grinding and heavily ground, barrel-shaped beads.

## CHRONOLOGY

The Basketmaker II occupation of the southern Chuska Valley is conservatively placed between 1000 B.C. and A.D. 150 (2950–1800 B.P.). The timing is based on 74 radiocarbon dates from nine sites and two isolated features (Figure 6). The radiocarbon samples, primarily woody shrubs and maize, produced 2-sigma date ranges between 1060–740 cal B.C. and cal A.D. 61–245. One anomalous date, cal A.D. 387–647, from LA 80419 is inconsistent with the other nine dates from the site and is not included.

A pre-500 B.C. (2450 B.P.) Basketmaker II occupation is currently indicated by eight radiocarbon dates from LA 32964, three of which have 2-sigma date ranges that predate 740 cal B.C. and five have means that predate 500 cal B.C. (Lakatos 2011). The three other samples from LA 32964 date between 600 and 350 cal B.C. (Lakatos 2011). Five dates from LA 6444, one from LA 80393, one from Discovery 34, and one early outlier from LA 36302 are also indicative of occupation of the valley prior to 500 B.C. (Gilpin 2007b; Kearns 2007a). A similar outlier date from LA 88526 (1004–664 cal B.C.) evidences an early Basketmaker II occupation near Standing Rock (Redd et al. 1994). Conflicting date ranges at LA 6444 had injected some uncertainty over the

## Basketmaker II Calibrated 2-Sigma Radiocarbon Date Ranges, Southern Chuska Valley



**FIGURE 6. Basketmaker II calibrated 2-sigma radiocarbon date ranges from the southern Chuska Valley.**

beginning date for the Basketmaker II after the NSEP (Kearns 2007b:4–21) but the dates from LA 32964 bolster the argument for a pre-500 B.C. occupation. Also, if correct, an uncalibrated date of  $2579 \pm 60$  B.P. (UCI 300) from Area 2 at LA 6444 (Freuden 1998b) approximates Simmons' (1986) uncalibrated date of  $2720 \pm 270$  B.P. from LA 18091 east of Chaco Canyon as the oldest directly dated maize in the San Juan Basin.

The Basketmaker II occupation of the study area apparently peaked between 400 and 50 B.C. (2350–2000 B.P.) (Figure 6). Five of the NSEP sites have date ranges during this interval (Kearns 2007a) and NM-H-51-55 has a relatively tight suite of dates between 400 and 200 B.C. (Railey 2008). Site LA 36302 has a broader range, 755 cal B.C. to cal A.D. 245, but the five samples have a minimum 2-sigma date range of 365–170 cal B.C. (Gilpin 2007b). Six of

seven dates from LA 88526, a Basketmaker II habitation site near Standing Rock, have 2-sigma date ranges between 757–234 cal B.C. and 200 cal B.C.–cal A.D. 80 and are indicative of occupation during this period (Redd et al. 1994).

One aceramic site, NM-Q-14-47, contained two probably Archaic projectile points and one of two obsidian flakes from the site returned a hydration date of A.D. 83±154 (Gilpin 2007b:716–717; Goodman 2007). Although the obsidian hydration date is within the Basketmaker II era, it is tenuous evidence for a discrete component (Gilpin 2007a:64).

The end of the Basketmaker II occupation in the study area is equivocal. Seven of 74 radiocarbon assays have 2-sigma date ranges that extend beyond cal A.D. 50 (1900 B.P.) but only two have means that postdate cal A.D. 50, and only one (cal A.D. 61–245 from LA 80419) is solidly within the early Christian era (see Figure 6). All of the sites with late dates have earlier age ranges and sometime from A.D. 50 to 150 is considered a realistic estimate for the end of the Basketmaker II occupation in the southern Chuska Valley.

Regarding the end of Basketmaker II, Gilpin (2007a:84–88, 197–198) assigns three sites in the study area to a late Basketmaker II Early Brownware period, A.D. 150–500. The three sites, LA 2547 (NM-Q-13-64), NM-Q-13-65, and NM-Q-13-51, are in the southeast corner of the study area. The designations are based on the presence of early, undecorated brownware ceramics. Hammack (1964) excavated LA 2547, a multicomponent site, and identified the plainware sherds as Navajo. Most of the sherds are, however, early brownware and Lino Gray and I assigned the site to the early Basketmaker III period (i.e., A.D. 500–600) based on comparison with LA 2506, the type site for the early Basketmaker III Muddy Wash phase in the study area (Kearns 2007c). In a reanalysis of LA 2547, Hasbargen (2007) and Gilpin (2007a:84–88) cite a late Basketmaker II origin for the ceramics and assign 18 arrow points from the site to the 1800s Navajo component. Gilpin (2007a:84–88) assigns an unexcavated nearby site, NM-Q-13-65, to the same interval based on a largely plain brownware assemblage. He also identifies an early brownware component at NM-Q-13-51, a predominantly Basketmaker III-Pueblo I site farther east, where 14 polished brownware sherds are among 83 sherds recovered during testing (Gilpin 2007a:84–88). Although I believe the brownware sherds and possibly the arrow points are more indicative of early Basketmaker III, there are no absolute dates from these sites and the distinction between a late Basketmaker II brownware horizon and the early Basketmaker III occupation in Tohatchi Flats is ambiguous and requires clarification. Gilpin's designation of the interval A.D. 150–500 as the Early Brownware period may be appropriate but does not negate the potential for a prolonged occupational hiatus in the study area during that time.

## PHASE ASSIGNMENT

Based on data from the NSEP, I proposed two phases for the Late Archaic and Basketmaker II period in the study area (Kearns 2007a, 2007b). The interval bridging the transition from Late Archaic to Basketmaker II, ca. 1300–500 B.C., was designated the Ear Rock phase. This tentative designation

was based on scant data and applied to sites that lacked evidence of maize agriculture (Kearns 2007a:3–22, 2007b:4–12). Sites with maize dating between 800/500 B.C. and A.D. 150 were assigned to the Figueredo phase, although 400 B.C. was suggested as a more accurate estimate for the beginning of the phase (Kearns 2007b:4–21). The phase distinction was an attempt to differentiate the Late Archaic and Early Agriculture manifestations (Huckell 1996) in the study area. The absence of discrete evidence for use of the study area from roughly A.D. 150 to 500 precluded a phase designation for this interval.

The use of limited data to designate an early Basketmaker II phase is not without precedent (e.g., Reed 1999:38) but the Ear Rock phase designation has led to some confusion. Lakatos (2011) assigns the 800–300 B.C. Basketmaker II occupations at LA 32964 to the Ear Rock phase, despite the presence of maize. Gilpin (2007a:76) proposes use of the Ear Rock phase designation for the interval between 1500/1000 B.C. and 500 B.C. in the eastern Basketmaker II region. The designation is based on early dates for agriculture at Salina Springs, Lukachukai, and Three Fir Shelter to the west (Gilpin 1994; Smiley 1994) and LA 18091 to the east (Simmons 1986). Following Matson (2006:159–160), if the distinction between the Ear Rock and Figueredo phases is the relative dependence on agriculture, the former would be equivalent to the “Pre-Pottery Formative” Basketmaker I and the latter equivalent to the “Pre-Pottery Formative” Basketmaker II. Radiocarbon dates place Basketmaker II groups in the southern Chuska Valley prior to 500 B.C. and there is a possibility that the Basketmaker II use of camps predates the use of pit houses. The current data are not, however, sufficient to distinguish pre- and post-500 B.C. farmers as distinctly different. The Ear Rock phase should be considered provisional until data are available that clearly differentiate a Late Archaic-Early Basketmaker II adaptation (Pre-Pottery Formative Basketmaker I) from the Figueredo phase adaptation (Pre-Pottery Formative Basketmaker II) in the southern Chuska Valley. The phase designation conundrum is not restricted to the southern Chuska Valley sequence (Matson 2006:156–157). Currently, I assign the sites in the study area that date between ca. 1000 B.C. and A.D. 150 and have evidence for maize agriculture or distinctive storage facilities to the Figueredo phase. Also, limited activity sites dating to this interval should not have to contain maize to be components of the same settlement system.

## **SUMMARY**

The Basketmaker II occupation of the southern Chuska Valley is conservatively placed between 1000 B.C. and A.D. 150 and less conservatively between 800 B.C. and A.D. 1. The Basketmaker II groups in the study area were maize farmers who also grew squash or gourds, gathered wild plant resources, and hunted small mammals. The associated projectile points are varied but large corner- and side-notched points predominate. Food processing, manufacturing, and maintenance artifacts include basin milling slabs and incipient trough metates, handstones and manos, cores, hammerstones, pecking stones, bifaces, drills, scrapers, and expedient tools made on flakes. Stone balls,



shaped stone slabs (architectural elements) and disks (“pot lids”), and pigment and mineral specimens are also part of the material culture. Jewelry items of seed, stone, shell, and bone are a conspicuous addition to the material culture and evidence a display of wealth or status not documented at Archaic sites in the study area.

The settlement system includes temporary camps and pithouse habitations that are potentially complementary components of a pattern of seasonal residence. Occupation of field-side farming camps during the growing season and pithouse habitations during the winter may have been the norm. This pattern probably changed through time in response to climatic and social conditions. The use of camps may have preceded use of pithouse habitations and some pithouse sites adjacent to arable land may have been occupied year round. Some aspects of the settlement system are probably not currently represented by the data. The study area is a lowland setting and other components of the settlement system are probably located in the adjacent uplands. Also, low-visibility resource procurement locales and special use sites are likely part of the settlement system and, with other potential settlement types, may be buried under valley fill. At both camp and pithouse sites, the size of the social units was small, no more than one to three nuclear or extended families at any one time. The pithouse habitation sites generally lack large storage pits and food reserves may have been stored in baskets or nets. Caching or storage of large quantities of surplus food was, however, an important strategy that occurred at locations other than the residential sites. Although large, fired pits and slab-lined bins may have been used to store surplus agricultural produce for winter consumption, it is equally plausible that surplus food resources were transferred to over-wintering sites after the harvest and large pits or bins were constructed near fields to store seed for the next season and enough food to carry the farmers until wild and cultivated foods became available.

Human burials are first encountered during this period. The burials are found in the large storage pits, a trait shared with other Basketmaker II sites (e.g., Guernsey 1931; Guernsey and Kidder 1921; Kidder and Guernsey 1919; Morris and Burgh 1954). The appearance of burials and the use of large storage pits as burial vaults may denote the beginnings of land tenure. Exotic goods, primarily jewelry and minerals, are also present and indicate participation in far reaching exchange systems. Although the quantity and character of burial goods varies, the differences cross-cut age and sex and are not indicative of distinct status differentiation.

An increase in the number of sites indicates a larger population in the southern Chuska Valley during the Basketmaker II period than the preceding Archaic period (Kearns 2007a, 2007b). The deeply buried setting of sites from both periods, however, precludes accurate assessment of population density. Repeated use of the same locales by Basketmaker II groups is indicated by the superposition of structures at some camps, the presence of storage facilities and cached milling equipment, human burials, accumulated cultural debris, and extended radiocarbon date ranges. Reuse of site locations is more evident at Basketmaker II sites than at Archaic sites and likely reflects more restricted

mobility. Although some exotic lithic materials (e.g., obsidian, Narbona Pass chert, Zuni Mountains spotted yellow-brown chert, and various minerals) are present in Basketmaker II contexts, the relative paucity of non-local lithic materials also indicates reduced mobility or provincial settlement. The low proportion of the exotic lithic materials and the distances represented by obsidian and shell artifacts indicate indirect acquisition via exchange. The variety of exotic lithic materials and the relative quantity of imported marine shell artifacts evidences participation in well-developed exchange networks.

The Basketmaker II occupation has been assigned to the Figueredo phase of a proposed sequence for the southern Chuska Valley (Kearns 2007a). Temporal placement of the Figueredo phase is based primarily on a suite of 74 radiocarbon assays from nine sites and two isolated features. The 2-sigma date ranges indicate an initial settling of the study area by Basketmaker II farmers between 1000 and 500 cal B.C. The occupation is most solidly dated between 500 B.C. and A.D. 50, a period that is the temporal equivalent of the White Dog phase in northeastern Arizona (Matson 1991, 2006) and the Animas and Archuleta phases in the eastern Basketmaker II region (Charles et al. 2006). Currently, evidence of a Late Basketmaker II occupation in the southern Chuska Valley between ca. A.D. 50/150 and 500 is equivocal. The current data indicate the study area was largely abandoned as a residential locale during this interval. This time period is roughly equivalent to the Los Pinos phase in the Navajo Reservoir District and Durango area, the Grand Gulch Phase in southeast Utah, and the Lolomai phase on Black Mesa, Arizona (Matson 1991:123). The proposed settlement hiatus would have coincided with a major arroyo-cutting episode and a severe drought beginning in the third century A.D. (Euler et al. 1979; Dean et al. 1985). The hiatus also coincides with the period when Basketmaker II populations spiked in better watered upland settings (e.g., Berry 1982; Eddy 1961; Hovezak and Sesler 2006; Matson 1991; Matson et al. 1988; Morris and Burgh 1954; Potter 2008; Sesler and Hovezak 2002; Smiley 1985, 1994, 1997) and is an apparent early manifestation of elevational relocation by Colorado Plateau farmers in response to climatic and hydrologic stress.

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