A PRE-HISPANIC CHIEFDOM IN BARINAS, VENEZUELA

EXCAVATIONS AT GAVÁN-COMPLEX SITES

VOLUME 2

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CHAPTER 7

EXCAVATIONS AT B97 (POTRERO DE ELIAS)

The site of Potrero de Elías (B97) is located 0.22 km southwest of B12 (fig. 1.3), perched on the edge of a *banco* (river bluff) that overlooks the eastern *vega* (floodplain) of the Caño Mitiao Hondo. The northern edge of the site is delimited by an old streambed (*madrevieja*). We identified B97 as a second-tier Gaván-complex site during our regional survey (Redmond and Spencer, 2007). The site covered an estimated 5.0 ha at its peak occupation during the Late Gaván phase (A.D. 550–1000). During our surface survey we recorded two earthen mounds (fig. 7.1). The larger of the two is Mound A, which is oval in shape and measures 50 × 35 m at the base. Mound A reaches a height of 2.5 m above the surrounding plain. Attached to the southeastern side of Mound A is a ramp, 7.5 m wide, which extends about 50 m to the southeast and provides access to the mound's top surface, which measures 12 × 6.5 m. Mound B is located 100 m northwest of Mound A. Mound B is circular in plan view, with a basal diameter of 30 m. Mound B is 0.85–1.00 m in height, with a top surface that measures 5 × 5 m. There were no house mounds visible on the surface at B97, in contrast to B12 where they were abundant.

B97 was located much closer to the first-tier center of B12 than the four other sites we identified as second-tier centers (fig. 1.3). As we were mapping B12 and B97, we wondered whether we should consider them two separate sites, or different sectors of the same site. In the end, we chose the former option, largely because we noticed that all the surface evidence of occupation at B12 (sherds, house mounds) was contained within the oval earthwork, leaving a little more than 200 m of unoccupied space between the southwestern leg of B12's oval earthwork and the northeastern edge of B97. We also noted that Calzada F, the earthen causeway that departed from the southwestern leg of B12's oval earthwork (fig. 6.2), led directly to B97, crossing the site about 20 m south of Mound B and terminating at the edge of the *banco* (fig. 7.1). We suspect that the original motivation behind the construction of this causeway linking B12 and B97 (and ultimately the B97 *banco*) had much to do with B97's location on the edge of the largest expanse of prime *vega* (alluvial floodplain) in the area (fig. 7.2), access to which would have been important to the inhabitants of both B12 and B97 (fig. 7.3).

Elsewhere, we have noted that the *vega* soils are more fertile and easier to till than the surrounding savanna clays, which extend to the north and south of the shaded area that marks the *vega* in figure 7.2 (Redmond and Spencer, 2007: 19–21; Spencer et al., 1994). In contrast to the savanna, which is dominated by grasses (*Trachypogon vestitus*) and low, twisted trees (*Curatella americana*) and shrubs (*Byrsonima verbascifolia*), the *vega* zone supports a gallery forest with a variety of tree species, including *Pterocarpus podocarpus*, *Spondias mombin*, *Ceiba pentandra*, *Platymiscium pinnatum*, *Sterculia apetala*, and *Acrocomia sclerocarpa* in the higher parts, such as the *bancos*, while

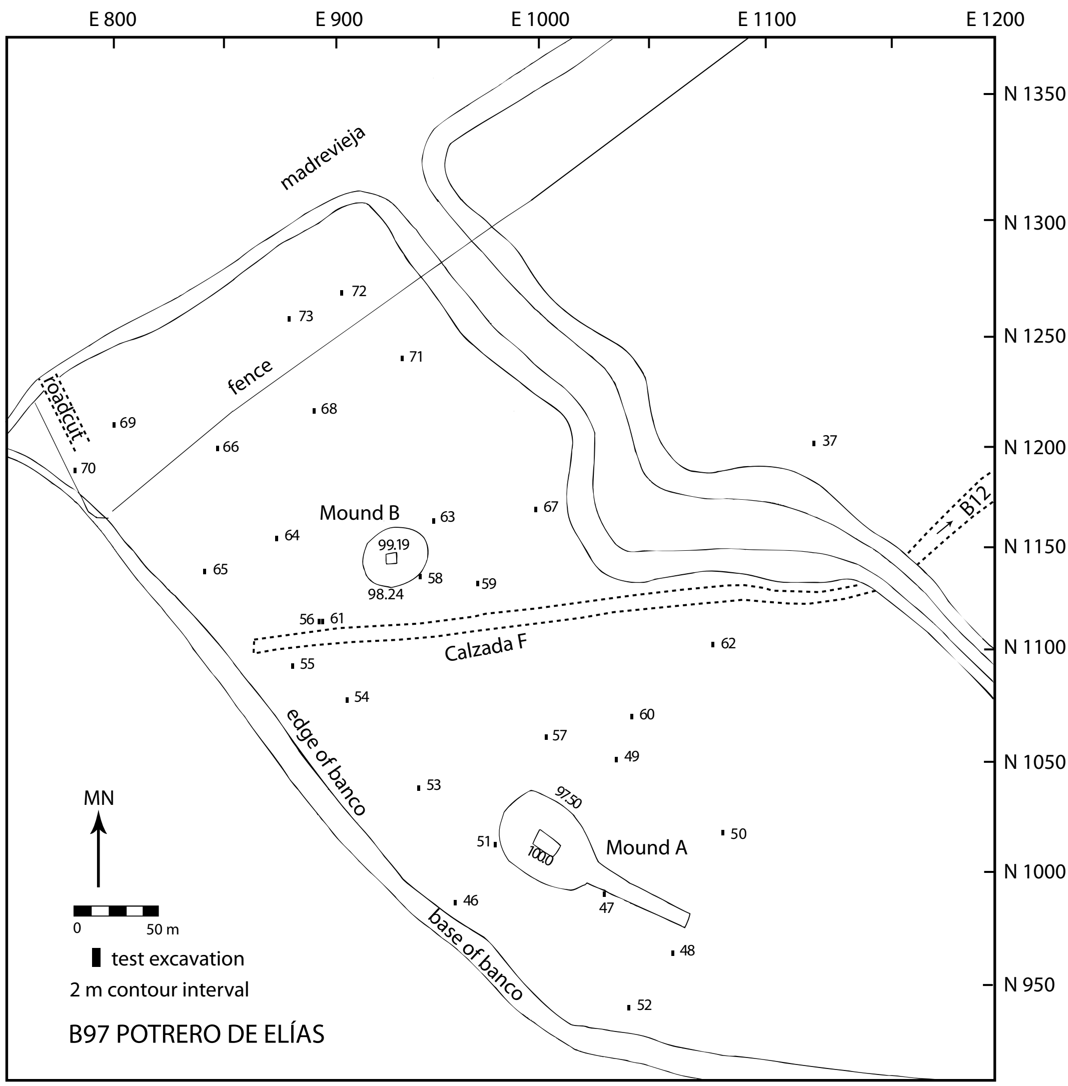

Figure 7.1. Topographic map of Potrero de Elías (B97) showing the locations of the mounds, labeled with letters, and the numbered test excavations; a guide to north and east grid coordinates is also presented.

such species as *Pithecellobium saman*, *Anacardium excelsum*, *Attalea maracaibensis*, and *Roystonea* sp. are more commonly seen in the lower sectors of the *vega* (Silva et al., 1971: 68; Sarmiento et al., 1971: tabla 2). Sarmiento (1984: 162) noted that, in comparison to the savanna soils, the gallery forest soils of the llanos "have 33% more nitrogen; almost double the base saturation; 80% more exchangeable potassium; five times more exchangeable calcium, and 13% to 15% more cation exchange capacity and extractable phosphorus."

The major problem with the *vega* soils from an agriculturalist's viewpoint is seasonal flooding. One way that the prehistoric inhabitants dealt with this challenge was by constructing drained-field facilities, a reasonably well-preserved example of which we found at B27, 3 km southeast of B97 and

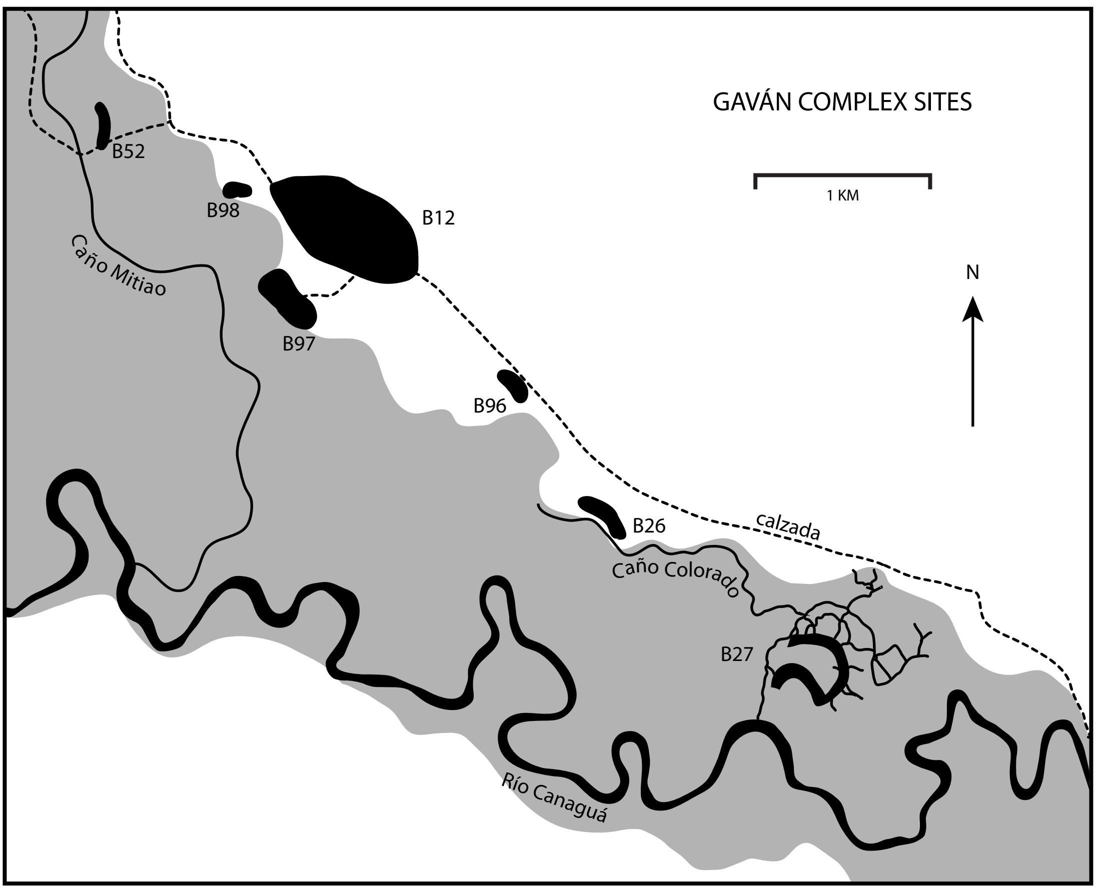

Figure 7.2. Map of the Gaván locality showing the first-tier regional center (B12), the second-tier site of B97, a number of third-tier village sites (B98, B96, B26), and the drained-field facility (B27); B52 is another possible drained-field site. Dashed lines show causeways (*calzadas*). Shaded area marks the *vega* (floodplain) zone.

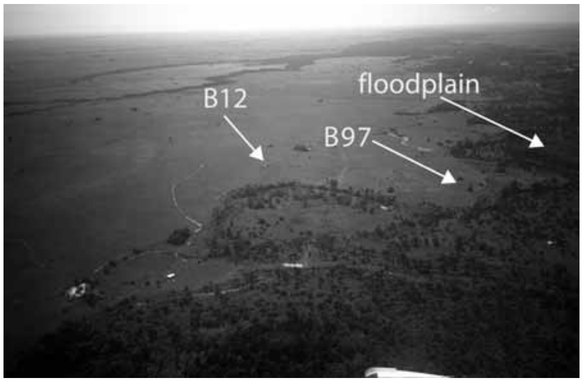

Figure 7.3. Aerial view of the Gaván locality, showing the locations of B12, B97, and the adjacent floodplain, looking southeast.

Figure 7.4. View from the *banco* edge along the northwestern side of B97, looking northeast toward B12. Mound A of B12 protrudes above the distant horizon in the center of the photo, while the smaller Mound B of B97 is barely visible in the center-right foreground. A line of cattle can be seen trudging across the savanna between B97 and B12.

B12 (fig. 7.2). In chapter 8, we describe B27 and the fieldwork we conducted there. At the site of B52, about 1.25 km northwest of B97, we recorded a long earthen ridge in the *vega* zone that we think may have been part of a drained-field facility, a possibility that should be evaluated with additional fieldwork (Redmond and Spencer, 2007: 241). Several informants told us that remnants of drained fields (like those still preserved at B27) were visible in the *vega* zone south and southwest of B97 until a decade or so before our fieldwork, when they were obliterated with earthmoving equipment by a landowner by the name of Gavilán during his efforts to cultivate rice (which apparently were not successful). Although we were unable to find archaeological evidence of drained fields in this area, we were inclined to give credence to these informant reports in light of the unequivocal drained fields at B27 that had been initially reported to us by the same informants. But, regardless of whether there were drained fields in the *vega* adjacent to B97, that vast alluvial zone would surely have been critical to the subsistence of the people at B97 and B12. Accordingly, we were not surprised to observe that Calzada F provided a direct connection between B12 and the *vega*, passing through the heart of B97. We were reminded of the proximity of B97 to B12 whenever we glanced over to the latter site and saw its largest earthen construction, Mound A, looming over the savanna (fig. 7.4).

TEST-PIT PROGRAM

Our grid system for B97 was designed so that every excavation unit would have a unique grid designation in the overall system. We established a central datum point atop Mound A, with a grid coordinate of N1000/E1000 and an elevation of 100 m. As in the case of B12, we constructed the grid system so the true origin of the grid (N0000/E0000) lay to the southwest of B97; thus the entire site lay within the northeast quadrant of the Cartesian coordinate system. All of our grid designations could thus be expressed in terms of the distance (in m) north and east of the arbitrary origin, while all elevations would be determined relative to the datum point atop Mound A.

During February of 1986, we excavated a total of 28 test pits (T.46–T.73) at B97, each of them 1 × 2 m in area. All but one of these pits were laid out according to our Probability-4 sampling strategy. The site was divided into strata measuring 50 × 50 m on a side, and the north and east coordinates for the southwest corner of each test pit were drawn from a table of random numbers (Arkin and Colton, 1963, table 25). With four test pits per ha, the sampling fraction of this Probability-4 strategy was 0.08%. In addition to the 27 Probability-4 pits, we excavated T.61, a judgmental pit that was an expansion of T.56, which we carried out to recover the entirety of a human burial (Burial 5) that had been partially exposed in T.56.

After selecting the grid coordinates for southwest corners of the test pits from the table of random numbers, we located the actual points in the field by plotting the point on our site map and then sending an assistant out with a stadia rod along the appropriate bearing, then fine-tuning the rod position by communicating with the assistant over walkie-talkies. When the grid point of the test pit's southwest corner was located, we drove in a stake and took a ground surface elevation reading with the alidade. Elevations in the succeeding excavation were then

Figure 7.5. Photograph of *metate* fragment (on left) found on surface at N930/E997 (B97-179), and *mano* (on right) excavated in Level 2 of T.47 (B97-180). The raw material of both was a metamorphic conglomerate (R. Sifontes, personal commun., 1989).

recorded as depth below the surface (DBS) from the surface elevation at the southwest corner of the test pit; a conversion to the overall site elevation system could be quickly carried out if needed.

As we describe each provenience (usually an excavation level 1 × 2 m in area and 20 cm thick) from each test pit, we make reference to accompanying test-pit profile drawings and, where appropriate, excavation plans and artifact drawings. Tables of data on ceramics and other artifacts (tables 7.1, 7.2) appear after the test-pit descriptions.

Before proceeding to our discussion of the individual test pits at B97, we first take note of four surface collections of nonceramic artifacts that we recovered before or during our excavation program. Provenience B97-22 (table 7.2) contained two stone artifacts that we found while surveying the site: a fragment of a mortar (made of sandstone) weighing 347 g, and a fragment of a slate (or phyllite) pendant weighing 7 g. Provenience B97-179 (table 7.2) consisted of a single *metate* fragment weighing 2020 g, made of a metamorphic conglomerate; we found it on the surface at (approximately) grid square N930/E997. Figure 7.5 is a photograph of this *metate* fragment (on the left), accompanied by a *mano* (on the right) that we excavated in

Level 2 of T.47, to be described shortly. Provenience B97-182 (table 7.2) comprised one slate (phyllite) pendant fragment weighing 5 g (fig. 7.6); we found it on the surface at (approximately) N955/E976. Provenience B97-215 (table 7.2) consisted of two stone artifacts from the surface: an amphibolite pestle fragment weighing 277 g, and an amphibolite axe fragment weighing 50 g.

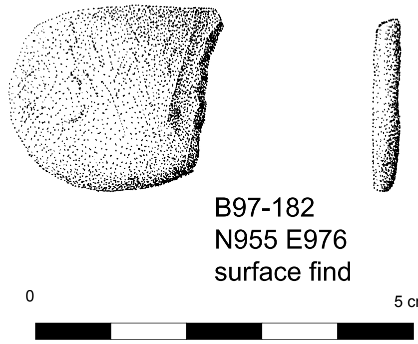

Figure 7.6. Illustration of polished stone (slate or phyllite) pendant fragment (surface find; N955/E976; B97-182).

T.46 was at N978–979/E954, about 40 southwest of Mound A, and within 10 m of the edge of the *banco* overlooking the broad *vega* (fig. 7.1). The ground surface elevation at the southwest corner of the pit was 97.57 m. We excavated three levels: Level 1 (B97-176; 0–0.20 m DBS), Level 2 (B97-178; 0.20–0.40 m DBS), and Level 3 (B97-189; 0.40–0.60 m DBS) (tables 7.1, 7.2). The profile drawing of the test pit's west face (fig. 7.7) shows three stratigraphic layers. Layer A was a gray-brown silty topsoil with no cultural materials that extended from the ground surface—which sloped downward in an undulating fashion from north to south, with a top level starting at 0 m DBS on the northern side and descending to about 0.05 m DBS on the southern side. The bottom of Layer A met the top of Layer B along an undulating interface that sloped from about 0.13 m DBS on the northern end of the profile to 0.19–0.20 m DBS on the southern end. Layer B was a dark brown silty deposit, harder than Layer A, with cultural materials; it extended from the bottom of Layer A to where it met Layer C, along an interface that sloped upward. In addition, a rectangular depression of Layer B extended into Layer C, running from N1979.34 to N1979.86 and reaching a depth of 0.57 m DBS (fig. 7.7). We interpreted this rectangular depression as an extension of Layer B into Layer C because it had a soil matrix identical to that of Layer B, and it also had cultural materials like Layer B. Layer C was a yellow-gray clayey deposit that lacked cultural materials. Layer C extended from the bottom of Layer B down to where we terminated the T.46 excavation, along a bottom depth that sloped downward from 0.60 m DBS on the northern side to 0.70 m DBS on the southern side.

Level 1 (B97-176; 0–0.20 m DBS) included all of Layer A and the top 1–7 cm of Layer B (fig. 7.7). All the cultural materials recovered in Level 1 came from Layer B. We excavated a total of 1965 sherds, of which 172 were diagnostics (table 7.1). Among the sherds were nine sherds weighing 35 g that we classified as misfired sherds or kiln wasters (table 7.1), which are described in more detail in appendix F. Six of these nine misfired sherds featured spalled, cracked surfaces; one sherd had a blowout (caused by an explosion during firing, probably the result of insufficient drying before firing), one sherd had a pitted surface; and one sherd was deformed (appendix F). We also recovered 118 fragments of chipped stone, of which 109 were chert (43

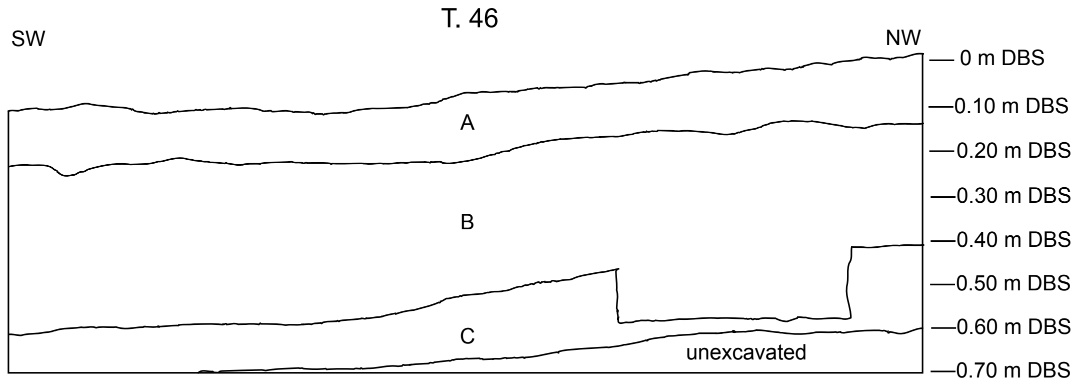

Figure 7.7. Profile drawing of the west face profile of T.46.

Figure 7.8. View of excavation in progress at T.47. Behind T.47 rises Mound A, upon which a barely visible Spencer is mapping with the alidade and plane table (looking northwest).

utilized and 66 nonutilized), five were quartz, and four were sandstone (table 7.2). We also found one ground stone *mano* fragment weighing 387 g (table 7.2). We excavated a total of 30 pieces of burned daub weighing 89 g; stick impressions were noted on three fragments weighing 4 g (table 7.2). Finally, we noted one fragment of a plastic shoe sole, which was not surprising in an excavation level that started at the ground surface.

Level 2 (B97-178; 0.20–0.40 m DBS) lay entirely within Layer B (fig. 7.7). Our excavation of this level yielded a total of 5266 sherds, of which 616 were diagnostics (table 7.1). A total of 87 misfired sherds or kiln wasters weighing 676 g were recovered in this level (table 7.1; see also appendix F). Sixty of these 87 misfired sherds had spalled, cracked surfaces; five had blowouts; 27 had pitted surfaces; and two were deformed (appendix F). We also found 218 fragments of chipped stone, of which 200 were chert (62 utilized and 138 nonutilized), 15 were quartz, one was sandstone, and one was amphibolite (table 7.2). We recovered two grinding-stone fragments of indeterminate form weighing 768 g (table 7.2). In addition, we found a total of 55 fragments of burned daub weighing 210 g; stick impressions were found on seven fragments weighing 15 g (table 7.2). We also recovered four ceramic figurine limb fragments weighing 32 g (table 7.2).

Level 3 (B97-189; 0.40–0.60 m DBS) included the bottom 10–15 cm of Layer B and the top 5–10 cm of Layer C (fig. 7.7). The excavator noted that cultural material was found mostly in the top 10 cm of this level. We excavated a total of 2018 sherds, of which 303 were diagnostics (table 7.1). We also recovered 93 fragments of chipped stone, of which 86 were chert (30 utilized and 56 nonutilized), two were quartz, and five were sandstone (table 7.2).

In general, T.46 is notable not only for the relatively high frequency of sherds it produced, but also for the impressive number (96 in all) of misfired sherds or kiln wasters. As appendix F reveals, T.46 yielded the highest frequency of misfired sherds or kiln wasters of all our test pits at Gaván-complex sites. Assuming that misfired vessels would have been discarded not far from the production site, it is reasonable to conclude that ceramics were being fired in the vicinity of T.46, on the edge of the settlement, overlooking the *vega*.

T.47 was at N982–983/E1024, along the southern base of the ramp that extended to the southeast from Mound A (fig. 7.1). The ground surface elevation at the southwest corner of the test pit was 97.49 m. In figure 7.8, workmen are shown excavating T.47, with Mound A in the background. We excavated four levels here: Level 1 (B97-177; 0–0.20 m DBS), Level 2 (B97-180; 0.20–0.40 m DBS), Level 3 (B97-181; 0.40–0.60 m DBS), and Level 4 (B97-183; 0.60–0.80 m DBS) (tables 7.1, 7.2). The profile drawing of the east face of the test pit shows three stratigraphic layers (fig. 7.9). Layer A was a gray-brown silty deposit that lacked cultural materials. The top of Layer A was the fairly level ground surface; the bottom of the layer sloped downward from north to south, going from 0.08 m DBS on the pit's northern end to 0.30 m DBS on its southern side. Layer B was dark brown-black clay with cultural materials; the excavator noted that it looked like a midden deposit. Layer B extended from the bottom of Layer A to where it met the top of Layer C along an interface that gently undulated between 0.62 m DBS and 0.70 m DBS.

Layer C was tan clay without cultural materials; it went from the bottom of Layer B to 0.80 m DBS, where we terminated the excavation of this test pit.

Level 1 (B97-177; 0–0.20 m DBS) lay mostly within Layer A, the sterile topsoil, but it also included the top 6–8 cm of Layer B in the northern half of the test pit (fig. 7.9). Here we excavated a total of 306 sherds; 51 of them were diagnostics (table 7.1). We also recovered four pieces of chert (two utilized and two nonutilized), as well as 11 pieces of burned daub weighing 71 g (table 7.2).

Level 2 (B97-180; 0.20–0.40 m DBS) lay mostly within Layer B in the northern half of the test pit; in the southern half, it included the bottom 10 cm of Layer A and the top 10 cm of Layer B (fig. 7.9). We excavated a total of 829 sherds, of which 136 were diagnostics (table 7.1). We also recovered nine pieces of chert (four utilized and five nonutilized) as well as a *mano* (fig. 7.5) that weighed 3900 g (table 7.2). The raw material of this *mano* was a metamorphic conglomerate (R. Sifontes, personal commun., 1989). In addition, we found a polished stone axe fragment (fig. 7.10) weighing 165 g (table 7.2); the raw material was identified as igneous gabbro from the Sierra Nevada Formation (R. Sifontes, personal commun., 1989). We also excavated a total of 19 pieces of burned daub weighing 100 g; stick impressions were found on one piece weighing 17 g (table 7.2). And we recovered one coin envelope of charcoal from this level.

Level 3 (B97-181; 0.40–0.60 m DBS) lay entirely within Layer B (fig. 7.9). We excavated a total of 407 sherds, of which 49 were diagnostics (table 7.1). We also recovered one piece of utilized chert (table 7.2), and one coin envelope of charcoal. A pollen sample (#54) from this level was analyzed by Milagro Rinaldi, who determined that it contained: (1) a low frequency of *yopo* (*Piptadenia peregrina*), a probable hallucinogen; and (2) a very low frequency of *quinoa* (*Chenopodium quinoa*), a grain (appendix C).

Level 4 (B97-183; 0.60–0.80 m DBS) included the bottom 2–10 cm of Layer B and the top 10–18 of Layer C, which lacked cultural materials (fig. 7.9). We excavated a total of 48 sherds, of which nine were diagnostics (table 7.1). We also recovered one ground-stone pestle fragment weighing 47 g, made of amphibolite (table 7.2). We saved one coin envelope of animal bone and one coin envelope of charcoal.

T.48 was at N954–955/E1056, about 15 m south of the southeastern end of the ramp that leads off to the southeast from the top of Mound A (fig. 7.1). The ground surface elevation at the southwest corner of the pit was 97.38 m. We excavated two levels here: Level 1 (0–0.20 m DBS), which lacked cultural materials, and Level 2 (B97-187; 0.20–0.40 m DBS). The profile drawing of the pit's west face shows three stratigraphic layers (fig. 7.11). Layer A was gray silty topsoil that lacked cultural materials; it extended from the ground surface to about 0.10–0.12 m DBS. Layer B was a hard, yellow-brown clayey deposit with very sparse cultural material; it ran from the bottom of Layer A to where it met Layer C at about 0.28–0.30 m DBS. Layer C was hard, yellow-brown clay that lacked cultural materials; it ran from the bottom of Layer B to 0.40 m DBS, where we ended the excavation.

Level 1 (0–0.20 m DBS) comprised all of Layer A and the top 10 cm of Layer B. It produced no cultural materials.

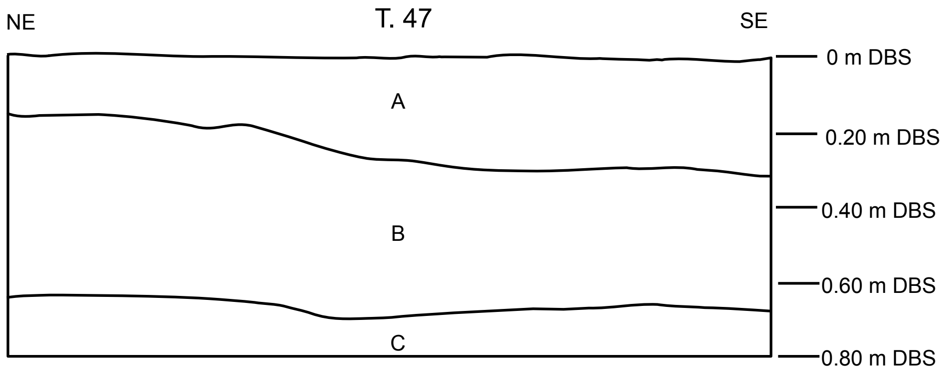

Figure 7.9. Profile drawing of the east face of T.47.

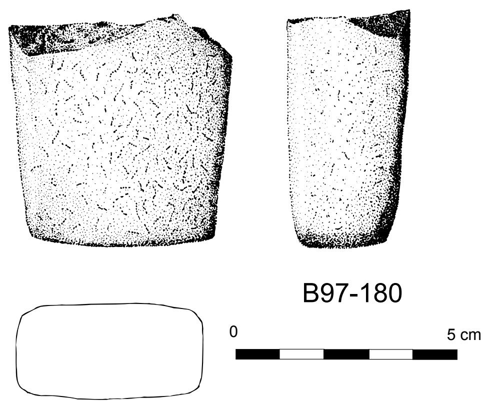

Figure 7.10. Illustration of polished stone (igneous "gabbro") axe (B97-180).

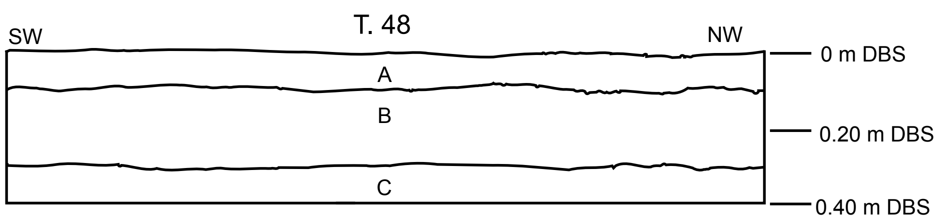

Figure 7.11. Profile drawing of the west face of T.48.

Level 2 (B97-187; 0.20–0.40 m DBS) included the bottom 10 cm of Layer B and the top 10–12 cm of Layer C (fig. 7.11). The excavator noted that Level 2 yielded sparse cultural materials: just a few "miserable, worn sherds from 20–30 cm DBS in a deposit that otherwise looks sterile; at the very edge of the occupation, probably." We recovered a total of 15 sherds, of which only two were diagnostics (table 7.1). This pit does, in fact, seem to be located near the edge of B97's occupation, which is interesting in view of the pit's position near the end of the Mound A ramp. This ramp clearly leads from the top of Mound A to B97's southeastern eastern edge and not toward the site's center; this is quite different from the ramp on B12's Mound A, which does lead from the top of the mound to the center of the site (see fig. 6.2). Why does the ramp at B97's Mound A not lead to the site's center? It is noteworthy that its orientation would have facilitated access to the top of Mound A not by the site's inhabitants but rather by people approaching B97 from B12. We hypothesize that the ramp reflected a close linkage between B97's Mound A and the regional center of B12 and, in so doing, served as a material expression of B97's subordinate position relative to B12. This hypothesis would also be consistent with the path of Calzada F, which originated at B12 and passed through the heart of B97 on its way to the *banco*, providing a direct connection between the edge of the rich alluvial plain and the regional center of B12 (figs. 7.1, 7.2).

T.49 was at N1044–1045/E1030, about 40 m northeast of the base of Mound A (fig. 7.1). The ground surface elevation at the top southwest corner of the pit was 97.65 m. We excavated two levels: Level 1 (B97-190; 0–0.20 m DBS) and Level 2 (B97-191; 0.20–0.40 m DBS) (tables 7.1, 7.2). The profile drawing of the pit's north face shows three stratigraphic layers (fig. 7.12). Layer A was a gray clayey deposit that lacked cultural materials; it extended from the ground surface to where it met the top of Layer B, along an undulating interface that varied from 17 cm to 20 cm in depth. Layer B was a gray-brown silty-clayey soil with cultural materials; it extended from the bottom of Layer A to where it met the top of Layer C at 23–26 cm DBS. Layer C was yellow-gray clay that lacked cultural materials; it ran from the bottom of Layer B to about 0.36 m DBS, where we terminated the excavation of this pit.

Level 1 (B97-190; 0–0.20 m DBS) included all of Layer A and up to 3 cm of the top of Layer B (fig. 7.12). We excavated a total of 63 sherds, of which 11 were diagnostics (table 7.1). We also recovered four pieces of chert (one utilized, three nonutilized).

Level 2 (B97-191; 0.20–0.40 m DBS) included the bottom 3–6 cm of Layer B and the top 10–13 cm of Layer C (fig. 7.12). We excavated a total of 192 sherds, of which 20 were diagnostics (table 7.1). We also recovered 11 pieces of chipped stone, of which 10 were chert (three utilized, seven nonutilized) and one was sandstone; and we found six pieces of burned daub weighing 23 g (table 7.2).

T.50 was at N1020–1021/E1079, about 50 m northeast of the end of the Mound A ramp (fig. 7.1). The ground surface elevation at the southwest corner of the pit was 97.43 m. We excavated two levels here: Level 1 (B97-184; 0–0.20 m DBS) and Level 2 (0.20–0.30 m DBS), the latter of which had no cultural materials. The profile drawing of the pit's west face shows two layers (fig. 7.13). Layer A was a gray-brown silty deposit with sparse cultural materials; it extended from the ground surface to where it met Layer B, along an interface that undulated between 17 cm and 20 cm. DBS. Layer B was tan clay with reddish-brown inclusions; it lacked cultural materials. Layer B extended from the bottom of Layer A to about 30 cm DBS, where we ended the excavation of this pit.

Level 1 (B97-184; 0–0.20 m DBS) included all of Layer A and the top 0–3 cm of Layer B (fig. 7.13). We excavated a total of 13 sherds, of which four were diagnostics (table 7.1).

T.51 was at N1006–1007/E972, less than 2 m from the base of Mound A (fig. 7.1). The ground surface elevation at the southwest corner of the pit was 98.25 m. Figure 7.14 is a photograph of the pit during excavation, looking eastward toward Mound A. We excavated four levels here: Level 1 (B97-192; 0–0.20 m DBS), Level 2 (B97-193; 0.20–0.40 m DBS), Level 3 (B97-194; 0.40–0.60 m DBS), and Level 4 (B97-205; 0.60–0.80 m DBS), (tables 7.1, 7.2). The profile drawing of the pit's west face shows five layers (fig. 7.15). Layer A was a grayish-brown sandy topsoil that lacked cultural material. Its top edge extended from the ground surface, which sloped from 0 m DBS on the northern side of the pit to about 0.10 m on the pit's southern side. Its bottom edge met the top of Layer B at about 0.14 m DBS on the northern end of the pit, sloping downward to 0.25 m DBS on the southern end. Layer B was dark gray sandy clay, soft in texture, with abundant cultural material. It extended from the bottom of Layer A to where it met the top of Layer C along an interface that sloped downward, from 0.25 m DBS on the northern end to 0.40 m DBS on its southern end. Layer C was a grayish-yellow clayey deposit with cultural material. Cross sections of four possible postmolds can be seen in the profile drawing. We suggest these postmolds are evidence that Mound A was ringed by a fence, perhaps to prevent access to the top of the mound from the sides. If so, then the ramp that extended southeast from the top of Mound A would have been the only way to ascend the mound. And, since that ramp starts not at the center of B97 but at the edge of the site, on the side facing B12, we hypothesize that this restricted access to Mound A might have favored not B97's inhabitants but rather persons who approached the site from the east and who may have been more closely linked to B12, a mere 0.22 km away. Layer C extended from the bottom of Layer B to the top of Layer D, which it met along an interface that sloped from 0.40 m DBS on the northern end of the pit to 0.55 m DBS on the southern end. Layer D was dark gray clay with what the excavator called "considerable" cultural material. Layer D extended from the bottom of Layer C to the top of Layer E, which it met along a southward-sloping interface that reached a depth of 0.53 m DBS on the northern end and 0.70 m DBS on the southern end. Layer D was gray-yellow clay that lacked cultural materials. It extended from the bottom of Layer D to about 0.80 m DBS, where we terminated the excavation of this pit.

Level 1 (B97-192; 0–0.20 m DBS) included all of Layer A and the top 6 cm of Layer B on the pit's northern end, though it did not include any of Layer B in the southern half of the level (fig. 7.15). The cultural materials that were recovered all came from the northern half of the level. Here we excavated a total of 168 sherds, of which 32 were diagnostics (table 7.1). We also recovered 11 pieces of chipped stone, of which 10 were chert (five utilized, five nonutilized) and one was

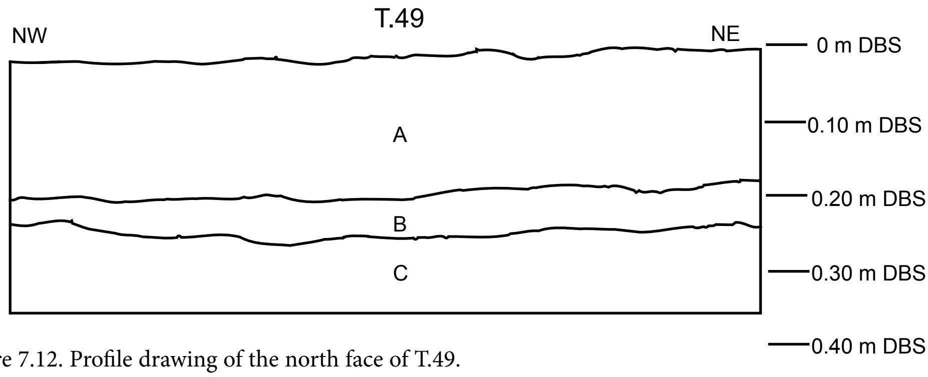

Figure 7.12. Profile drawing of the north face of T.49.

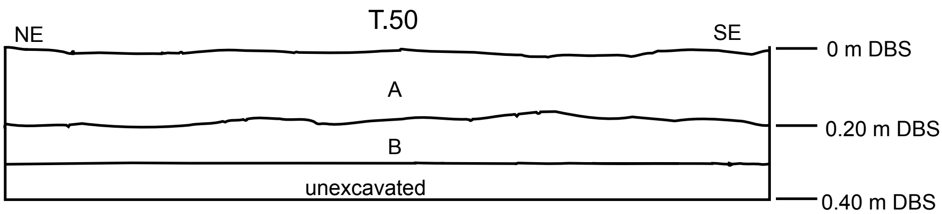

Figure 7.13. Profile drawing of the west face of T.50.

Figure 7.14. View of T.51 during excavation, looking east toward Mound A.

sandstone (table 7.2). We also found a total of three pieces of burned daub weighing 24 g; stick impressions were noted on one piece weighing 6 g (table 7.2).

Level 2 (B97-193; 0.20–0.40 m DBS) included the bottom 5–15 cm of Layer B in the northern half of the level; the southern half of the level included the bottom 0–5 cm of Layer A and then the top 15–25 cm of Layer B (fig. 7.15). We excavated a total of 1319 sherds, of which 247 were diagnostics (table 7.1). We also recovered 87 pieces of chipped stone, of which 76 were chert (17 utilized, 59 nonutilized), two were quartz, seven were sandstone, and one was amphibolite (table 7.2). We also recovered one *mano* fragment weighing 63 g, and five pieces of burned daub weighing 11 g (table 7.2).

Level 3 (B97-194; 0.40–0.60 m DBS) included all of Layer D and the top 7 cm of Layer E on the northern end of the level; the southern end of the level mostly corresponded to Layer C, although the top few centimeters of Layer D were also included (fig. 7.15). We excavated a total of 1612 sherds, of which 250 were diagnostics (table 7.1). We also recovered 35 pieces of chipped stone, of which 25 were chert (eight utilized, 17 nonutilized), eight were quartz, and two were sandstone (table 7.2). We also found three pieces of burned daub weighing 19 g (table 7.2).

Level 4 (B97-205; 0.60–0.80 m DBS) lay entirely within Layer E (which lacked cultural materials) on the northern half of the level, though on the southern half of the level it included most of Layer D and the top 10 cm of Layer E. Cultural materials were only found in the southern half of the level, associated with Layer D. We excavated a total of 36 sherds, of which six were diagnostics (table 7.1).

T.52 was at N928–929/E1035, about 50 m south of the Mound A ramp and about 12 m N of the *banco* edge (fig. 7.1). The ground surface elevation at the southwest corner of the pit was 97.23 m. We excavated two levels, Level 1 (B97-185; 0–0.20 m DBS) and Level 2 (0.20–0.30 m DBS), the lower of which had no cultural materials (tables 7.1, 7.2). The profile drawing of the pit's west face shows two stratigraphic layers (fig. 7.16). Layer A was a gray-brown silty deposit with sparse cultural material; it extended from the ground surface to where it met the top of Layer B along an edge that varied between 16 cm and 20 cm DBS. Layer B was a tan-colored clay that lacked cultural materials; it extended from the bottom of Layer A to 30 cm DBS, where we ceased excavation. In the northwestern corner of the pit we found a chunk of burned daub that was embedded in the clay at the interface between Layer A and Layer B (fig. 7.16).

Level 1 (B97-185; 0–0.20 m DBS) corresponded largely to Layer A, though it contained the top 4 cm of Layer B on the southern end of the level (fig. 7.16). We excavated a total of one nondiagnostic sherd (table 7.1). We also recovered 13 pieces of burned daub weighing 73 g (table 7.2).

T.52 is similar to T.48 and T.50 in that they all yielded few artifacts and were located at the easternmost edge of the occupied area at B97.

T.53 was at N1032–1033/E936, about 50 m northwest of Mound A and 40 northeast of the *banco* edge (fig. 7.1). The elevation of the ground surface at the southwest corner of the pit was 98.29 m. We excavated four levels: Level 1 (B97-195; 0–0.20 m DBS), Level 2 (B97-196; 0.20–0.40 m DBS), Level 3 (B97-197; 0.40–0.60 m DBS), Level 4 (B97-

198; 0.60–0.70 m DBS) (tables 7.1, 7.2). The profile drawing of the pit's south face shows five stratigraphic layers (fig. 7.17). Layer A was a dark gray silty topsoil that lacked cultural materials; it extended from the ground surface to where it met the top of Layer B at about 9 cm DBS. Layer B was a light gray-brown silty deposit with brown flecks; it yielded cultural material and extended from the bottom of Layer A to where it met the top of Layer C along a zigzag edge that varied between 30 cm DBS and 48 cm DBS (fig. 7.17). Layer C was a light gray silty-sandy deposit that may represent a runoff channel, perhaps caused by a major flooding incident in antiquity. Layer C was about 10–12 cm thick and contained sparse cultural material; it extended from the bottom of Layer B to where it met Layer D along a zigzag edge that varied between 40 cm DBS and 60 cm DBS. Layer D was a hard, dark gray-brown clayey deposit with cultural material; it extended from the zigzagged bottom of Layer C to where it met the top of Layer E at 65 cm DBS. Layer E was yellow-brown clay that lacked cultural materials; it extended from the bottom of Layer D to 70 cm DBS, where we ended the excavation of this pit.

Level 1 (B97-195; 0–0.20 m DBS) included all of Layer A and the top 10–11 cm of Layer B (fig. 7.17). Cultural materials were recovered only in Layer B. We excavated a total of 120 sherds, of which 25 were diagnostics (table 7.1). We also recovered 16 pieces of chipped stone, of which 15 were chert (five utilized, 10 nonutilized) and one was quartz (table 7.2).

Level 2 (B97-196; 0.20–0.40 m DBS) lay almost entirely within Layer B; it overlapped a small portion of Layer C in the easternmost part of the level (fig. 7.17). We excavated a total of 114 sherds, of which 28 were diagnostics (table 7.1). We also recovered 15 pieces of chipped stone, of which 11 were chert (four utilized, seven nonutilized), two were quartz, and two were sandstone (table 7.2). We found one piece of burned daub that weighed 2 g (table 7.2).

Level 3 (B97-197; 0.40–0.60 m DBS) included portions of the bottom of Layer B, nearly all of the zigzagging Layer C, and parts of the top of Layer D (fig. 7.17). We excavated a total of 630 sherds, of which 129 were diagnostics (table 7.1). We also recovered 26 pieces of chipped stone, of which 21 were chert (three utilized, 18 nonutilized), four were quartz, and one was sandstone (table 7.2). We also found one grinding stone fragment of uncertain form; it was a piece of modified sandstone weighing 57 g (table 7.2).

Level 4 (B97-198; 0.60–0.70 m DBS) included the bottom 5 cm of Layer D and the top 5 cm of Layer E (fig. 7.17); cultural material was found only in Layer D, except for what was recovered in Feature 3, a trash-filled pit that was intrusive into Layer E, which we excavated separately and thus will be described below. In Level 4, we excavated a total of 218 sherds, of which 49 were diagnostics (table 7.1). We also recovered eight pieces of chipped stone, of which seven were chert (two utilized, five nonutilized) and one was quartz (table 7.2). We saved one coin envelope of animal bone.

Feature 3 (B97-203) was a pit filled with trash and rocks in the northeast corner of T.53 (fig. 7.18). Although we encountered it while digging Level 4, we decided to excavate Feature 3 separately. The feature measured approximately 60 × 40 cm in area (fig. 7.19). The grid coordinates of the feature were: N1033.40–1034.00/E936.60–937.00. The

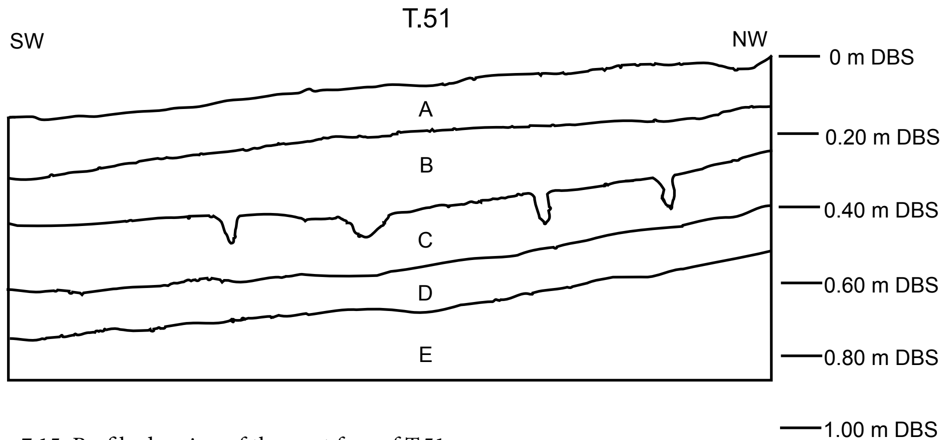

Figure 7.15. Profile drawing of the west face of T.51.

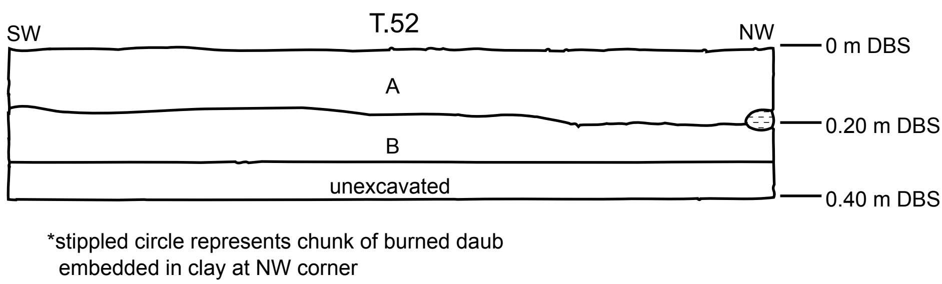

Figure 7.16. Profile drawing of the west face of T.52.

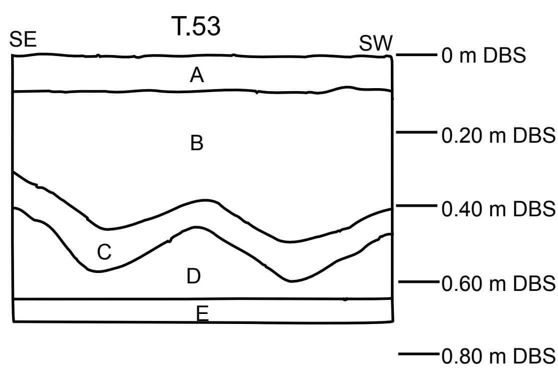

Figure 7.17. Profile drawing of the south face of T.53.

Figure 7.18. View of Feature 3, a pit filled with rocks and trash at the bottom of T.53; shown during excavation (facing north). The feature intrudes from Layer D into Layer E.

top depth of the feature ranged from 55 cm DBS to 70 cm DBS, while the bottom depth ranged from 70 cm DBS to 80 cm DBS. The matrix of the feature was described by the excavator as a “dark, middenlike deposit.” Feature 3 intruded from Layer D into the top 10–15 cm of Layer E in T.53’s northeastern corner (fig. 7.20). We excavated all of Feature 3 as a single provenience, recovering a total of 577 sherds, of which 97 were diagnostics (table 7.1), a relatively high density of ceramics for the associated volume (roughly 0.15 m^3). We also found five pieces of chipped stone, of which two were nonutilized fragments of chert and three were quartz (table 7.2). We recovered one fragment of polished stone; this was a polishing pebble made of quartzite schist (table 7.2). The raw material derived from the Mucuchachí Formation or the Sierra Nevada Formation in the Venezuelan Andes (R. Sifontes, personal commun., 1989). We saved one coin envelope of animal bone, and we made note of numerous flecks of charcoal encountered during the course of excavating this feature.

In general, T.53 appears to provide evidence of an early occupation at B97 (associated with Layer D and Feature 3) that was evidently obliterated, or at least seriously damaged, by a flooding episode (associated with Layer C’s zigzag appearance on the pit’s south face). After the flooding, occupation resumed in this locale, as evidenced by Layer B.

T.54 was at N1074–1075/E904, about 35 m south of Calzada F and 40 m northeast of the *banco* edge (fig. 7.1). The ground surface elevation at the southwest corner of the pit was 98.48 m. We excavated four levels: Level 1 (0–0.20 m DBS), which yielded no cultural material, Level 2 (B97-186; 0.20–0.40 m DBS), Level 3 (B97-188; 0.40–0.60 m DBS), and Level 4 (B97-199; 0.60–0.75 m DBS) (tables 7.1, 7.2). The profile drawing of the pit’s west face shows four stratigraphic layers (fig. 7.21). Layer A was a gray-brown silty deposit that lacked cultural material; it extended from the ground surface to where it met the top of Layer B along an interface that ranged between 20 and 25 cm DBS. Layer B was a grayish-brown fine silty deposit with cultural material; it extended from the bottom of Layer A to where it met the top of Layer C along an undulating interface that varied between 42 and 55 cm DBS. Layer C was a fine, light sandy de-

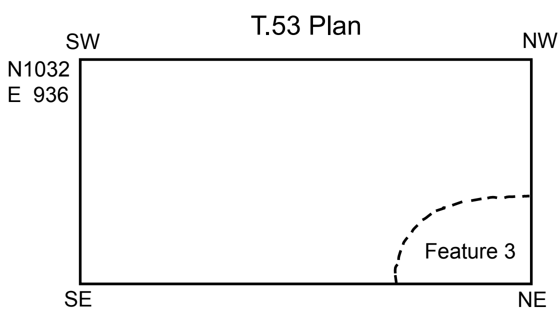

Figure 7.19. Plan of Feature 3, T.53.

posit with small reddish-brown inclusions; it contained very sparse cultural material. Layer C extended from the bottom of Layer B to where it met Layer D along a very wavy surface that ranged between 50 cm and 65 cm DBS. We think it likely that Layer C resulted from a flooding incident. Layer D was tan-colored clay with reddish-brown inclusions; it lacked cultural material. Layer D extended from the bottom of Layer C to about 75 cm DBS, where we terminated the excavation of this pit. Because no cultural materials were found beneath Layer C, we suspect that the flooding incident that produced Layer C occurred before this locality was inhabited.

Level 1 (0–0.20 m DBS) lay entirely within Layer A and did not yield any cultural material.

Level 2 (B97-186; 0.20–0.40 m DBS) included the bottom 0–5 cm of Layer A and the top 15–20 cm of Layer B (fig. 7.21). We excavated a total of 284 sherds, of which 57 were diagnostics (table 7.1). We also recovered 34 pieces of chipped stone, of which 31 were chert (14 utilized, 17 nonutilized), two were quartz, and one was sandstone; it is notable that 12 of the 14 pieces of utilized chert were classified as flakes (table 7.2). In addition, we found eight pieces of burned daub weighing 23 g (table 7.2). We saved one coin envelope of charcoal.

Level 3 (B97-188; 0.40–0.60 m DBS) included the bottom 2–15 cm of Layer B, most of Layer C, and, especially in the southern half of the level, the uppermost 4–10 cm of Layer D (fig. 7.21). We excavated a total of 114 sherds, of which 34 were diagnostics (table 7.1). We also recovered 18 pieces of chipped stone, of which 17 were chert (four utilized, 13 nonutilized) and one was sandstone (table 7.2). We saved one coin envelope of charcoal.

Level 4 (B97-199; 0.60–0.75 m DBS) lay mostly within Layer D, though it did include the bottom 5 cm of Layer C, most notably where Layer C dips down in the northern half of the level (fig. 7.21). We excavated one nondiagnostic sherd (table 7.1) and one piece of burned daub weighing 2 g (table 7.2). We also saved one coin envelope of charcoal.

T.55 was at N1090–1091/E878, about 10 m south of Calzada F and 20 m northeast of the *banco* edge (fig. 7.1). The ground surface elevation at the southwest corner of the pit was 98.47 m. We excavated four levels: Level 1 (B97-200; 0–.20 m DBS), Level 2 (B97-201; 0.20–0.40 m DBS), Level 3 (B97-202; 0.40–0.60 m DBS), and Level 4 (B97-209; 0.60–0.75 m DBS) (tables 7.1, 7.2). The profile drawing of the pit's west face shows four stratigraphic layers (fig. 7.22). Layer A was a brown silty loam that lacked cultural materials; it extended from the ground surface to about 15 cm DBS, where it met the top of Layer B. Layer B was a silty grayish-brown deposit with cultural material; it extended from the bottom of Layer A to where it met Layer C along an interface that varied between 36 and 44 cm DBS. Layer C was a fine white sandy deposit that contained very sparse cultural material; it extended from the bottom of Layer B to where it met Layer D along a zigzagging interface that varied between 45 and 64 cm DBS. We think it likely that Layer C resulted from a flooding incident, as we have suggested for Layer C in several other tests pits at the site. Layer D was hard, tan-colored clay that lacked cultural material; it extended from the bottom of Layer C to 75 cm DBS, where we ended the excavation of this pit.

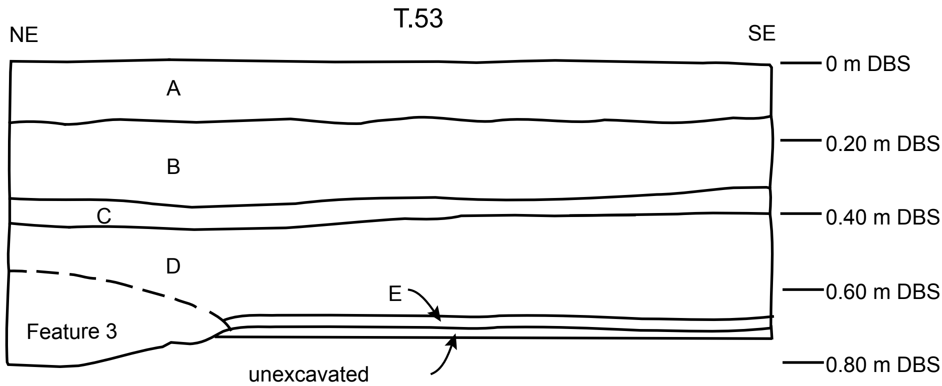

Figure 7.20. Profile drawing of the east face of T.53, showing Feature 3.

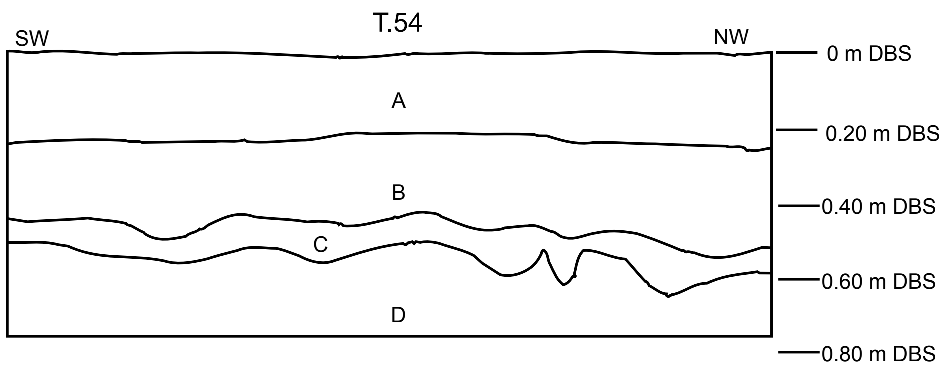

Figure 7.21. Profile drawing of the west face of T.54.

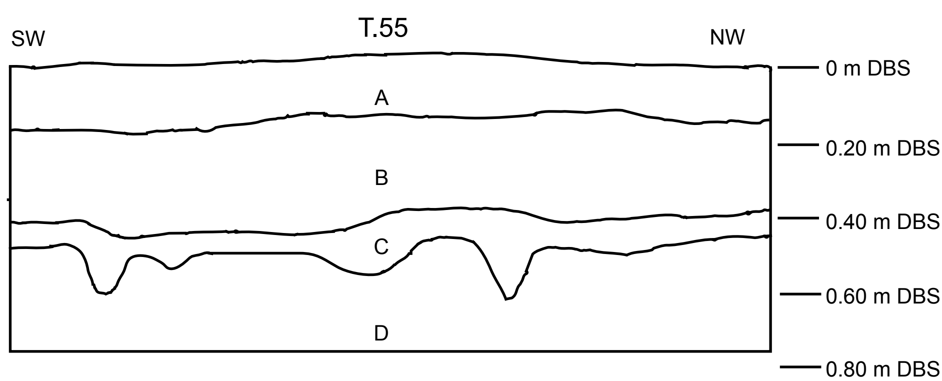

Figure 7.22. Profile drawing of the west face of T.55.

Level 1 (B97-200; 0–0.20 m DBS) included all of Layer A and the top 5 cm of Layer B (fig. 7.22). We excavated a total of 39 sherds, of which six were diagnostics (table 7.1). We also recovered 11 pieces of chipped stone, of which nine were chert (four utilized, five nonutilized), one was quartz, and one was sandstone (table 7.2). And we found one piece of daub weighing 7 g (table 7.2).

Level 2 (B97-201; 0.20–0.40 m DBS) lay almost entirely within Layer B, although it included up to 4 cm of Layer C between N1091.00 and N1091.40 (fig. 7.22). We excavated a total of 305 sherds, of which 63 were diagnostics (table 7.1). Among these were five kiln wasters (table 7.1; appendix F). Four of the kiln wasters had spalled, cracked surfaces and one of them featured a blowout (appendix F). We also recovered 65 pieces of chipped stone, of which 59 were chert (11 utilized, 48 nonutilized), two were quartz, three were sandstone, and one was amphibolite (table 7.2). We saved two coin envelopes of charcoal, which was more than from most levels at B97.

Level 3 (B97-202; 0.40–0.60 m DBS) included nearly all of Layer C and the upper 15 cm of Layer D, except in those parts where Layer C dipped down to roughly 60 cm DBS (fig. 7.22). We excavated a total of 93 sherds, of which 20 were diagnostics (table 7.1). We found one kiln waster, which exhibited a spalled, cracked surface (table 7.1; appendix F). We also recovered 35 pieces of chipped stone, of which 34 were chert (15 utilized, 19 nonutilized) and one was quartz (table 7.2). We found one figurine fragment weighing 24 g (table 7.2). Its form was not clear, but we are fairly certain that it was not anthropomorphic; it might have been a representation of a quadrupedal animal, possibly a dog (fig. 7.23). One coin envelope of charcoal was also saved.

Level 4 (B97-209; 0.60–0.75 m DBS) lay almost entirely in Layer D, although it included a bit of the part of Layer C that dipped down below 60 cm DBS (fig. 7.22). We excavated a single nondiagnostic sherd (table 7.1) and saved one coin envelope of charcoal.

The discovery of six kiln wasters in T.55 implies that ceramics were being produced nearby. It is noteworthy that T.55 lies near the *banco* edge, as does T.46, another test pit that produced numerous kiln wasters. But, T.55 is also very close to the end of Calzada F, which runs from the *banco* edge through the middle of B97 and ultimately to B12, less than a quarter-kilometer to the east. We are therefore tempted to hypothesize that ceramics were among the products (including agricultural produce from the *vega*) that were sent along Calzada F from B97 to the regional center of B12.

T.56 was at N1112–1113/E893, about 5 m north of Calzada F and about 50 m northeast of the *banco* edge (fig. 7.1). The ground surface elevation at the southwest corner of the pit was 98.39 m. We excavated four levels: Level 1 (B97-204; 0–0.20 m DBS), Level 2 (B97-206; 0.20–0.40 m DBS), Level 3 (B97-211; 0.40–0.60 m DBS), and Level 4 (B97-214; 0.60–0.70 m DBS) (tables 7.1, 7.2). In Level 4, we uncovered a human skull, at 69 cm DBS, along the east wall of the test pit at N1113.20/E894.00. It seemed likely that the rest of the body extended to the east, so we opened another 1 × 2 m test pit (T.61) immediately adjacent to T.56. In doing so, we did find the rest of the skeleton, which we labeled Burial 5. A description of Burial 5 will be presented with the discussion of T.61, following our treatment of T.56, as well as in appendix A. We saved the skull of Burial 5 as provenience B97-217, separately from the rest of the artifacts in Level 4 (B97-214). The further excavation of Burial 5, after excavating the overburden from the upper levels of T.61, was also saved as B97-217.

The profile drawing of the west face of T.56 shows four stratigraphic layers (fig. 7.24). Layer A was a gray silty topsoil that lacked cultural materials; it extended from the ground surface to about 15 cm DBS, where it met the top of Layer B. Layer B was a gray silty deposit with brown flecks and dark inclusions; it contained cultural material. Layer B extended from the bottom of Layer A to where it met the top of Layer C, along a notably jagged interface that varied from 28 cm DBS to 50 cm DBS. We suspect that this jagged interface resulted from a flooding event in prehistory, as we have suggested for similar deposits in several other test pits at B97. Layer C was tan-brown clay with cultural material; it extended from the bottom of Layer B to where it met Layer D along an interface that varied between 55 cm DBS and 65 cm DBS. Layer D consisted of hard yellow-brown clay that lacked cultural material; it extended from the bottom of Layer C to 70 cm DBS, where we ended the excavation of this pit.

Level 1 (B97-204; 0–0.20 m DBS) included all of Layer A and the top 5 cm of Layer B (fig. 7.24). We excavated one nondiagnostic sherd (table 7.1).

Level 2 (B97-206; 0.20–0.40 m DBS) lay almost entirely within Layer B, though it included the tops of the seven "peaks" of the jagged edge between Layer B and Layer C (fig. 7.24). We excavated a total of 845

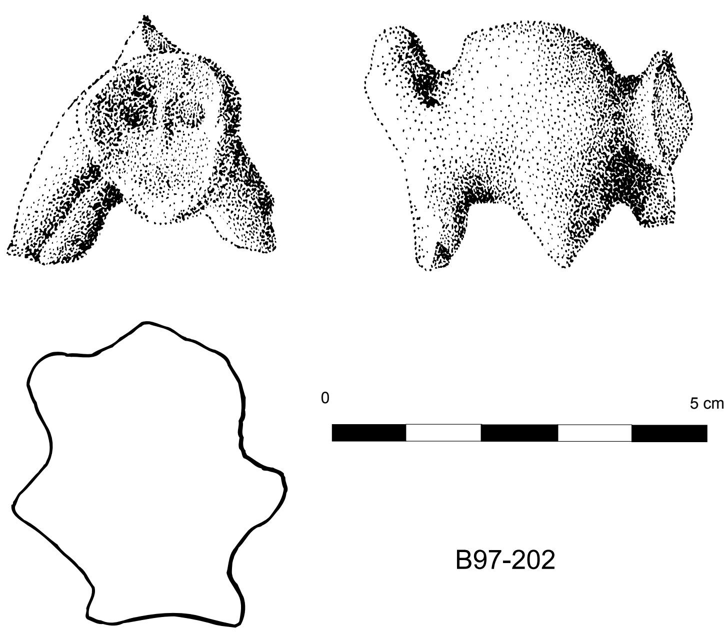

Figure 7.23. Illustration of ceramic figurine, perhaps a dog (B97-202).

sherds, of which 136 were diagnostics (table 7.1). Five sherds were classified as misfired sherds or kiln wasters (table 7.1); all five had spalled, cracked surfaces (appendix F). These finds are concordant with the misfired sherds recovered in T.55, which lay just across Calzada F (fig. 7.1), providing a further evidence that ceramics were being fired in this locality, near the end of Calzada F and near the edge of the *banco*. We also recovered a total of 80 pieces of chipped stone, of which 75 were chert (22 utilized, 53 nonutilized), four were sandstone, and one was amphibolite (table 7.2). We also found two pieces of burned daub weighing 87 g, and one figurine fragment (a limb) weighing 14 g (table 7.2). We saved one coin envelope of charcoal.

Level 3 (B97-211; 0.40–0.60 m DBS) mostly lay within Layer C, although it included the bottom portions of the six "valleys" of the jagged interface between Layer B and Layer C, as well as the top 5 cm of a small part of Layer D (fig. 7.24). We excavated a total of 325 sherds, of which 67 were diagnostics (table 7.1). We found one sherd that we classified as a misfired sherd or kiln waster (table 7.1); it displayed a spalled, cracked surface (appendix F). We also recovered 22 pieces of chipped stone, of which 21 were chert (10 utilized, 11 nonutilized) and one was sandstone (table 7.2). And we found one piece of burned daub weighing 5 g (table 7.2).

Level 4 (B97-214; 0.60–0.70 m DBS) lay mostly within Layer D, which lacked cultural material, although it included the bottom 5 cm of so of Layer C in the northern half of the level (fig. 7.24). We excavated a total of 35 sherds, of which two were diagnostics (table 7.1). We also recovered one piece of nonutilized chert (table 7.2). As noted above, we also located a human skull at 69 cm DBS, along the east wall of the test pit at N1113.20/E894.00. We saved this skull as part of provenience B97-217, to which we later added more material when we expanded our excavation here by opening up T.61, adjacent to the east side of T.56.

T.61 was at N1112–1113/E894, adjacent to T.56 and likewise situated about 5 m north of Calzada F and 50 m east of the *banco* edge (fig. 7.1). The ground surface elevation at the southwest corner of the pit was 98.39 m. This pit represents an expansion of T.56 and was therefore a judgmental pit (not Probability 4 like all the other test pits at B97). The purpose of the expansion was to recover all of Burial 5, the skull of which was found in T.56. We excavated four levels in T.61: Level 1 (B97-213; 0–0.20 m DBS), Level 2 (B97-218; 0.20–0.40 m DBS), Level 3 (B97-219; 0.40–0.60 m DBS), and Level 4 (B97-217; 0.60–0.70 m DBS) (tables 7.1, 7.2). Level 4 represented the provenience recovered while excavating Burial 5 (see appendix A). The profile drawing of the pit's east face shows four stratigraphic layers (fig. 7.25). Layer A was a gray silty topsoil that lacked cultural material; it extended from the ground surface to where it met the top of Layer B along a well-defined edge that varied only slightly in depth, between 15 cm and 18 cm DBS. Layer B was a gray silty deposit with brown flecks and inclusions; it contained cultural material. We suspect that the top of Layer B was a living surface, perhaps a house floor. Layer B extended from the bottom of Layer A to the top of Layer C, along an edge that varied greatly, from 30 cm DBS to 50 cm DBS. Layer C was tan-brown clay with cultural material; it extended from the bottom of Layer B to the top of Layer D, along an edge that varied between 50 and 70 cm DBS.

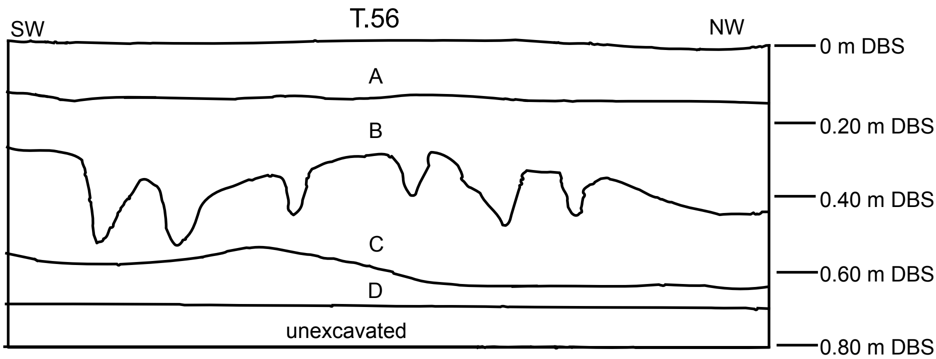

Figure 7.24. Profile drawing of the west face of T.56.

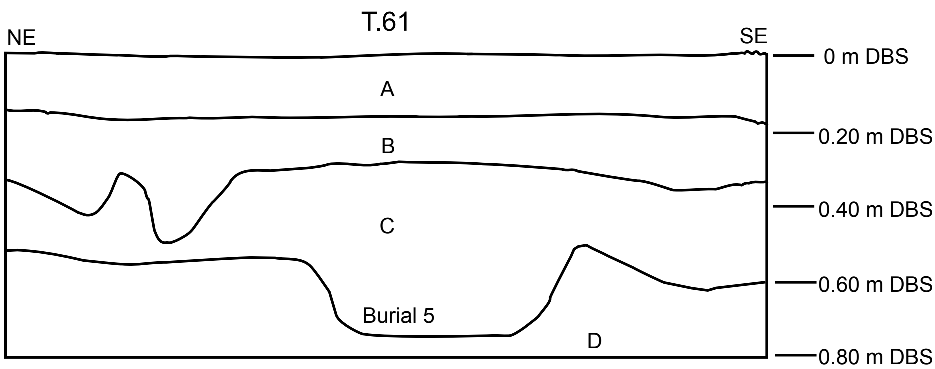

Figure 7.25. Profile drawing of the east face of T.61.

Layer C included the burial pit for Burial 5, which had been excavated into Layer D. Layer D was yellow clay that lacked cultural materials. We continued down to 70 cm DBS in Layer D in order to complete the excavation of Burial 5.

Level 1 (B97-213; 0–0.20 m DBS) included all of Layer A and the top 3–5 cm of Layer B (fig. 7.25). We excavated a total of 121 sherds, of which 15 were diagnostics (table 7.1). We also recovered 17 pieces of chipped stone, of which 14 were chert (three utilized, 11 nonutilized), one was quartz, and two were sandstone (table 7.2). The relatively high ratio of nonutilized chert to utilized chert may be evidence that the working of chert occurred in this locality.

Level 2 (B97-218; 0.20–0.40 m DBS) included most of Layer B and the top 5–10 cm of Layer C (fig. 7.25). We excavated a total of 1109 sherds, of which 161 were diagnostics (table 7.1). We found one sherd that we classified as a misfired sherd or kiln waster; it showed evidence of a blowout (table 7.1). We also recovered 88 pieces of chipped stone, of which 76 were chert (14 utilized, 62 nonutilized), one was quartz, nine were sandstone, and two were amphibolite (table

7.2). We found seven pieces of burned daub weighing 14 g (table 7.2). We saved one coin envelope of bone and one coin envelope of charcoal.

Level 3 (B97-219; 0.40–0.60 m DBS) mostly lay within Layer C, although it included up to 10 cm of Layer D, on either side of the Burial 5 pit (fig. 7.25). We excavated a total of 524 sherds, of which 92 were diagnostics (table 7.1). We found one misfired sherd or kiln waster, with evidence of a blowout (table 7.1). We also recovered 40 pieces of chipped stone, of which 37 were chert (10 utilized, 27 nonutilized), one was sandstone, and two were amphibolite (table 7.2). We found one polished-stone celt fragment weighing 57 g; the raw material was identified as schist-quartzite from either the Mucuchachí Formation or the Sierra Nevada Formation (table 7.2). We also excavated 10 pieces of burned daub weighing 16 g (table 7.2). We saved one coin envelope of bone and one coin envelope of charcoal.

Level 4 (B97-217; 0.60–0.70 m DBS) pertained to the excavation of Burial 5, whose grave pit represented an extension of Layer C down into Layer D (fig. 7.25). We did not find any funerary offerings associated with Burial 5, so the artifacts recovered in this provenience were simply those encountered during our excavation of Burial 5. We excavated a total of 225 sherds, of which 39 were diagnostics (table 7.1). We also recovered 16 pieces of chipped stone, of which 15 were chert (four utilized, 11 nonutilized) and one was sandstone (table 7.2). We also found six pieces of burned daub weighing 18 g; stick impressions were found on one piece weighing 3 g (table 7.2). We saved one coin envelope of shell and two coin envelopes of charcoal. We also saved two boxes and three bags of human bone, all of which pertained to Burial 5.

Burial 5 was a single adult, interred in an extended, supine position, its head oriented to the northwest, with its face looking southwest (fig. 7.26). The hands were evidently placed or joined together before interment, although we are not prepared to say that they were bound, as one might expect if the individual had been a captive. That the hands were placed together in front of the body, not behind, would seem inconsistent with a captive hypothesis, as would the fact that Burial 5 was clearly interred in a simple pit dug into the underlying clay (figs. 7.27–7.28). The crossed hands of Burial 5 might represent the position of a deceased individual whose body was carried in a hammock to the grave and buried therein, similar to the positions of the Lucayan-Taíno burials recovered at the Ostionoid period (A.D. 600–1500) site of Preacher's Cave in the Bahamas, wrapped in plaited mats with the hands crossed (Schaffer et al., 2012). The artifacts associated with Burial 5 are consistent with what we would expect to find in a domestic context. It is possible that Burial 5 was interred beneath a house floor; as we suggested earlier, the top of Layer B might represent such a living surface. A complete description of Burial 5 is provided in appendix A.

T.57 was at N1056–1057/E997, about 35 m north of Mound A and 70 m south of Calzada F (fig. 7.1). The ground surface elevation at the southwest corner of the pit was 97.70 m. We excavated four levels: Level 1 (B97-207; 0–0.20 m DBS), Level 2 (B97-208; 0.20–0.40 m DBS), Level 3 (B97-216; 0.40–0.60 m DBS), and Level 4 (B97-221; 0.60–0.80 m DBS) (tables 7.1, 7.2). The profile drawing of the pit's east face shows four stratigraphic layers (fig. 7.29). Layer A was a soft, gray clay that mostly lacked cultural materials, which only appeared in the bottom 5 cm of the layer; it extended from the ground surface to where it met the top of Layer B along an edge that varied between about 19 cm and 23 cm DBS. Layer B was gray-brown clay with much cultural material; it extended from the bottom of Layer A to where it met the top of Layer C along an interface that varied between 40 cm and 44 cm DBS. Layer C was a dark gray clay with cultural material; it extended from the bottom of Layer B to where it met the top of Layer D, along an edge that varied mostly between 47 cm and 55 cm DBS, except for a place, at N1057.32–N1057.48, where it penetrated more deeply into Layer D, reaching a depth of 65 cm DBS. Layer D was yellow-gray clay that lacked cultural materials; it extended from the bottom of Layer C to about 70 cm DBS, where we terminated the excavation of this test pit.

Level 1 (B97-207; 0–0.20 m DBS) lay almost entirely within Layer A, although it included the top 3–4 cm of Layer B at N1056.40 (fig. 7.29). We excavated a total of 292 sherds, of which 43 were diagnostics (table 7.1). Among them were three sherds that we clas-

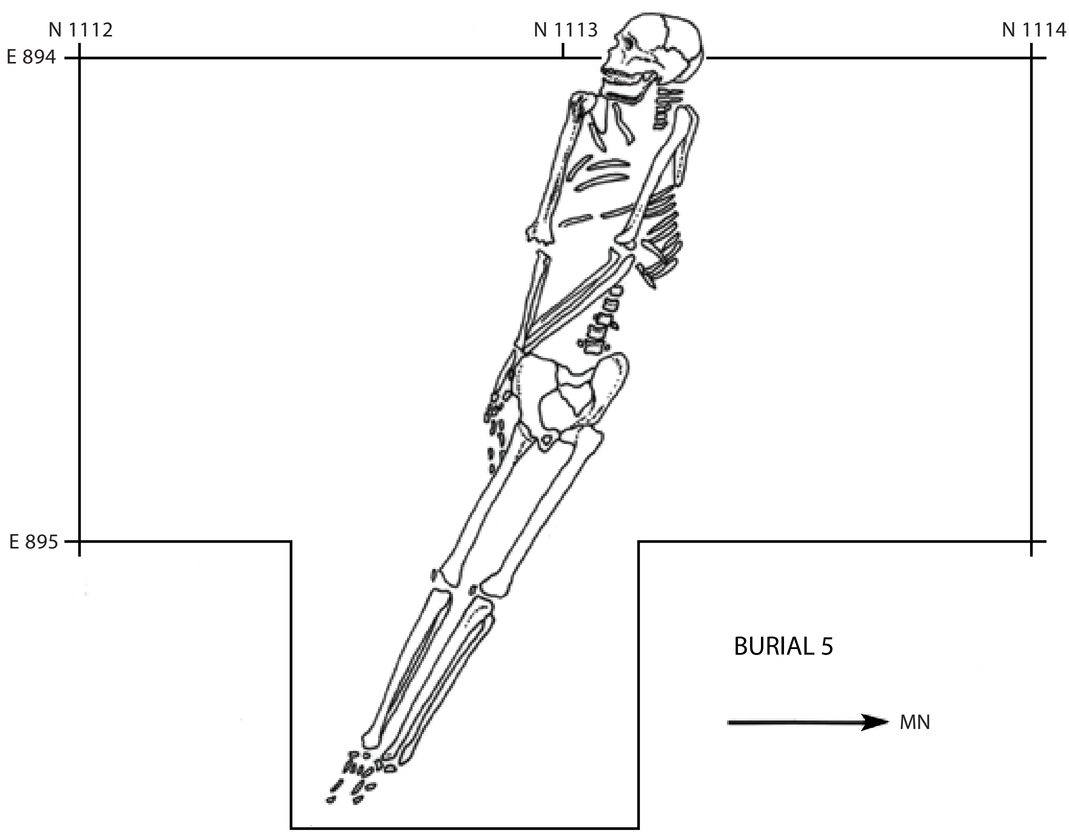

Figure 7.26. Drawing of Burial 5.

Figure 7.27. View of Burial 5 being drawn in situ; the edge of the grave pit is clearly visible (looking east).

sified as misfired sherds or kiln wasters; two of them exhibited spalled, cracked surfaces and one of them had a blowout (table 7.1; appendix F). In addition, we recovered 22 pieces of chert (eight utilized, 14 nonutilized), as well as 48 pieces of burned daub weighing 422 g (table 7.2).

Level 2 (B97-208; 0.20–0.40 m DBS) lay mostly within Layer B, although it included the bottom 3–4 cm of Layer A (fig. 7.29). We

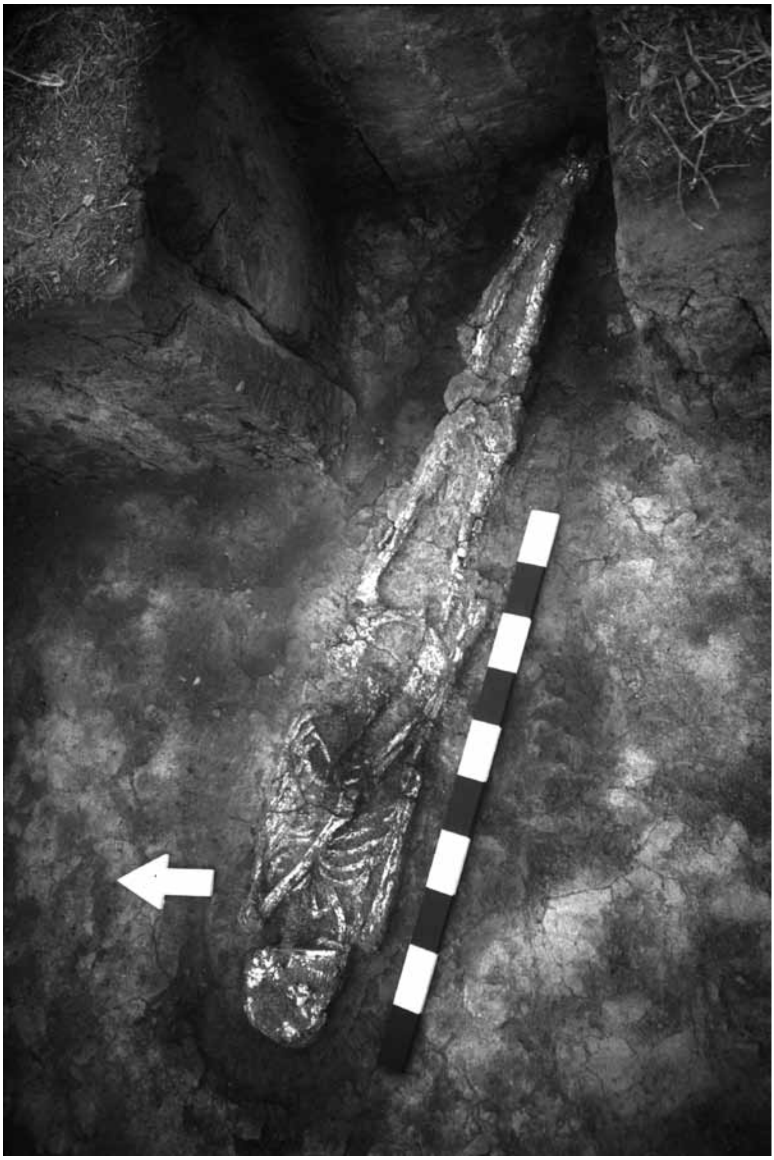

Figure 7.28. View of Burial 5 after exposure; note the edge of the grave pit.

excavated a total of 3607 sherds, of which 441 were diagnostics, a relatively high density of sherds (table 7.1). We also recovered 99 pieces of chipped stone, of which 89 were chert (36 utilized, 53 nonutilized), two were quartz, six were sandstone, and two were amphibolite (table 7.2). We found one fragment of a polished stone axe or celt, the raw material of which was amphibolite, probably from the Sierra Nevada Formation (table 7.2). In addition, we recovered 107 pieces of burned daub weighing 526 g (table 7.2). And, we found a figurine fragment weighing 223 g; a head and torso are shown, along with appliquéd breasts, probably indicating that the figurine's gender was female (fig. 7.30).

Level 3 (B97-216; 0.40–0.60 m DBS) included all of Layer C and the top 5–10 cm of Layer D; only a small part of Layer C protruded below 60 cm DBS (fig. 7.29). We excavated a total of 2196 sherds, of which 209 were diagnostics (table 7.1). We also recovered 27 pieces of chipped stone, of which 20 were chert (five utilized, 15 nonutilized), six were quartz, and one was sandstone (table 7.2). We found two pieces of polished stone. One of them was of indeterminate form and of uncertain material (table 7.2). The other was a slate pendant weighing 3 g (fig. 7.31); the raw material probably originated in the Mucuchachí Formation (table 7.2). We also found 41 pieces of burned daub weighing 327 g (table 7.2).

Level 4 (B97-221; 0.60–0.70 m DBS) lay mainly within Layer D, although Layer C's 8 cm dip into Layer D was also part of this provenience (fig. 7.29). We excavated a total of 133 sherds, of which 26 were diagnostics (table 7.1). We also recovered one piece of utilized chert and 35 pieces of burned daub weighing 169 g (table 7.2). Since Layer D lacked cultural materials, all of these artifacts surely came from the small, intrusive portion of Layer C that was included in this level.

T.58 was at N1132–1133/E943, at the southeast basal edge of Mound B (fig. 7.1). The ground surface elevation at the pit's southwest corner was 98.24 m. We excavated three levels: Level 1 (0–0.20 m DBS), which yielded no cultural materials; Level 2 (B97-210; 0.20–0.40 m DBS); and Level 3 (B97-212; 0.40–0.60 m DBS) (tables 7.1, 7.2). The profile drawing of the pit's west face shows four stratigraphic layers (fig. 7.32). Layer A was a gray silty topsoil that lacked cultural material; it extended from the ground surface to where it met the top of Layer B at 20 cm DBS. Layer B was gray clay with brown inclusions and cultural materials; it probably represents a deposit that underlay the actual mound construction. Layer B extended from the bottom of Layer A to where it met the top of Layer C at 35–40 cm DBS. Layer C was brown-gray clay with sparse cultural material; it probably represents a submound deposit. Layer C extended from the bottom of Layer B to where it met the top of Layer D at 46–50 cm DBS. Layer D was yellow-brown clay that lacked cultural materials; it extended from the bottom of Layer C to 60 cm DBS, where we stopped the excavation of this test pit.

Level 1 (0–0.20 m DBS) consisted entirely of Layer A; no cultural materials were found.

Level 2 (B97-210; 0.20–0.40 m DBS) fell almost entirely within Layer B, though it included the top 5 cm of Layer C at the southern end of the level (fig. 7.32). We excavated a total of 1499 sherds, of which 218 were diagnostics (table 7.1). We also recovered 128 pieces of chipped stone, of which 118 were chert (32 utilized, 86 nonutilized), three were quartz, six were sandstone, and one was amphibolite (table 7.2). We also found 10 pieces of burned daub weighing 37 g (table 7.2). We saved one coin envelope of charcoal.

Level 3 (B97-212; 0.40–0.60 m DBS) included most of Layer C and the top 10 cm or so of Layer D (fig. 7.32). We excavated a total of 88 sherds, of which 10 were diagnostics (table 7.1). We also found one piece of uti-

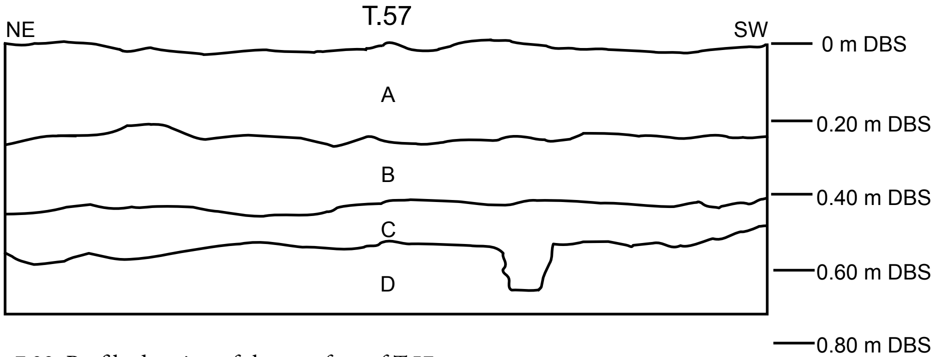

Figure 7.29. Profile drawing of the east face of T.57.

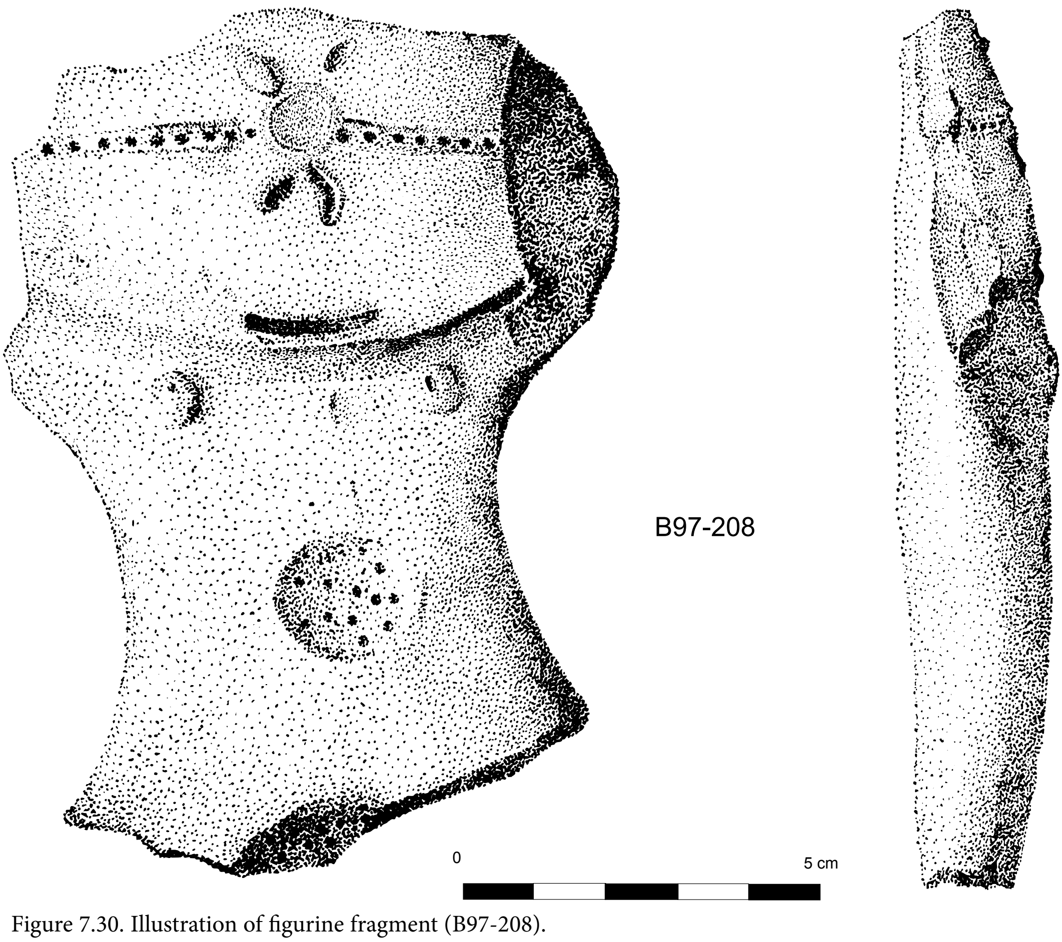

Figure 7.30. Illustration of figurine fragment (B97-208).

lized chert (table 7.2) and we saved one coin envelope of charcoal.

T.59 was at N1128–1129/E970, about 15 m north of Calzada F and 30 m southeast of Mound B (fig. 7.1). The ground surface elevation at the pit's southwest corner was 97.93 m. We excavated four proveniences: Level 1 (B97-221; 0–0.20 m DBS), Level 2 (B97-228; 0.20–0.40 m DBS), Level 3 (B97-231; 0.40–0.60 m DBS), and Feature 4 (B97-232) (tables 7.1, 7.2). Feature 4 was a trash-filled pit that was excavated down into sterile clay. The profile drawing of the pit's west face shows four stratigraphic layers in addition to Feature 4 (fig. 7.33). Layer A was a gray silty topsoil that lacked cultural materials; it extended from the ground surface to where it met the top of Layer B at 12–18 cm DBS. Layer B was a dark gray-brown silty deposit with brown inclusions and considerable cultural material; it extended from the bottom of Layer A to where it met Layer C at around 30 cm DBS. Layer C was a brownish-gray clayey deposit with inclusions and moderate amounts of cultural material; it extended from the bottom of Layer B to where it met the top of Layer D at 50 cm DBS (in the northern half of the level) and the top of Feature 4 (in the southern half of the level. Layer D was yellow-brown clay that lacked cultural materials; it extended from the bottom of Layer C to 60 cm DBS, where we terminated the excavation of the northern half of the pit. Feature 4 was a pit that was effectively an extension of Layer C down into Layer D, reaching a maximum depth of 75 cm DBS. Feature 4 contained a dark gray clayey deposit with middenlike cultural debris.

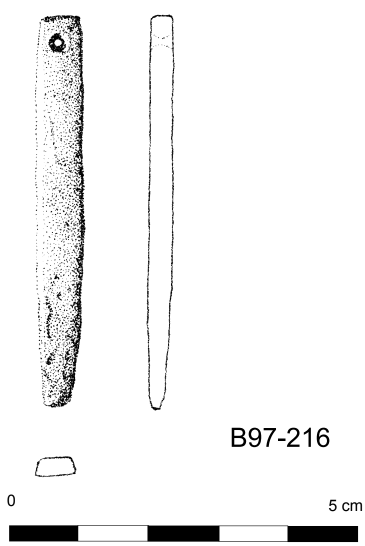

Figure 7.31. Illustration of slate pendant (B97-216).

Level 1 (B97-227; 0–0.20 m DBS) included all of Layer A and the top 2–8 cm of Layer B (fig. 7.33). We excavated a total of 199 sherds, of which 30 were diagnostics (table 7.1).

Level 2 (B97-228: 0.20–0.40 m DBS) contained the bottom 10 cm of Layer B and the top 10 cm of Layer C (fig. 7.33). We excavated a total of 4561 sherds, of which 460 were diagnostics (table 7.1). We also recovered 64 pieces of chipped stone, of which 56 were chert (17 utilized, 39 nonutilized), two were quartz, and six were sandstone (table 7.2). We found one piece of polished stone weighing 7 g; this was a possible axe or celt fragment made of sandstone (table 7.2). In addition, we excavated four pieces of burned daub weighing 90 g (table 7.2). We noted one burned rock.

Level 3 (B97-231; 0.40–0.60 m DBS) included the bottom 10 cm of Layer C and the top 10 cm of Layer D; we excavated Feature 4 separately (fig. 7.33). We excavated a total of 430 sherds, of which 43 were diagnostics (table 7.1). We also recovered two pieces of nonutilized chert (table 7.2). We found a celt fragment weighing 22 g; it was made of slate or phyllite (table 7.2).

Feature 4 (B97-232) was a trash-filled pit that represented an extension of Layer C down into the sterile clay of Layer D (figs. 7.33–7.34). We excavated a total of 111 sherds, of which 11 were diagnostics (table 7.1). We also recovered two pieces of utilized chert and two pieces of burned daub weighing 2 g (table 7.2). We saved one coin envelope of animal bone and one coin envelope of charcoal.

T.60 was at N1064–1065/E1037, about 60 m south of Calzada F and 65 m northeast of Mound A (fig. 7.1). The ground surface elevation at the southwest corner of the pit was 97.65 m. We excavated two levels: Level 1 (B97-222; 0–0.20 m DBS) and Level 2 (B97-224; 0.20–0.40 m DBS) (tables 7.1, 7.2). The profile drawing of the pit's west face shows three stratigraphic layers (fig. 7.35). Layer A was a light gray clay with no cultural materials; it extended from the ground surface to where it met the top of Layer B along an interface that varied between 18 cm and 25 dm DBS. Layer B was a gray-brown clay with cultural materials; it extended from the bottom of Layer A to where it met Layer C along

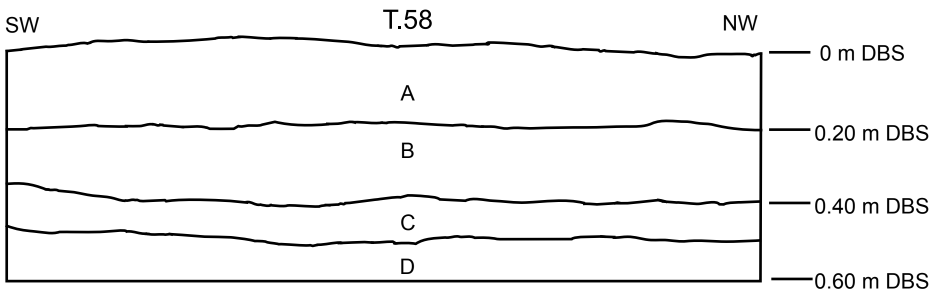

Figure 7.32. Profile drawing of the west face of T.58.

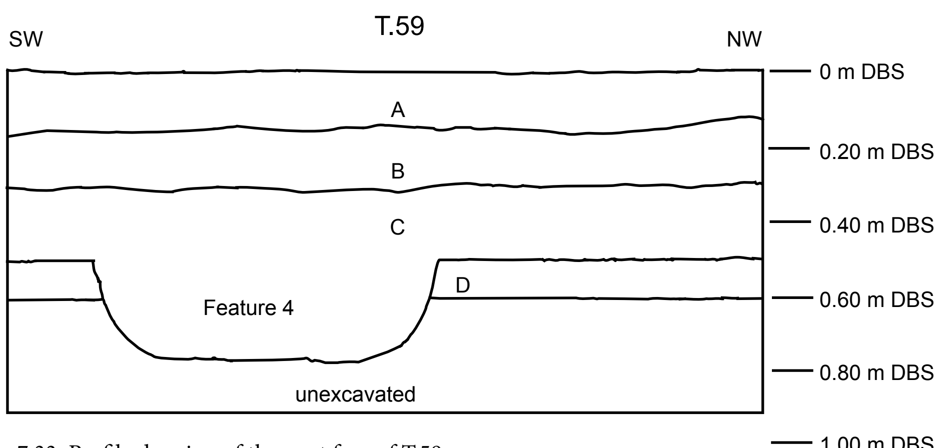

Figure 7.33. Profile drawing of the west face of T.59.

an edge that sloped downward from 30 cm DBS on the northern side of the level to about 40 cm DBS on the southern end. Layer C was gray clay without cultural materials; it extended from the bottom of Layer B to where we terminated the excavation of this pit.

Level 1 (B97-222; 0–0.20 m DBS) included all of Layer A, and the top 8 cm or so of Layer B on the northern half of the level (fig. 7.35). We excavated a total of 481 sherds, of which 63 were diagnostics (table 7.1). We also recovered 16 pieces of chipped stone, all chert (seven utilized, nine nonutilized), one schist-quartzite bead fragment weighing 42 g, and 10 pieces of burned daub weighing 23 g (table 7.2).

Level 2 (B97-224; 0.20–0.40 m DBS) included most of Layer B and the top 10 cm of Layer C in the northern half of the level (fig. 7.35). We excavated a total of 328 sherds, of which 40 were diagnostics (table 7.1). We also recovered 11 pieces of chipped stone, of which 10 were chert (two utilized, eight nonutilized) and one was sandstone (table 7.2). In addition, we found 16 pieces of burned daub weighing 53 g (table 7.2).

T.62 was at N1098–1099/E1076, about 20 m south of Calzada F, near the eastern edge of the site (fig. 7.1). The ground surface elevation at the southwest corner of the pit was 97.42 m. We excavated two levels: Level 1 (B97-226; 0–0.20 m DBS) and Level 2 (B97-223; 0.20–0.40 m DBS) (tables 7.1, 7.2). The profile drawing of the pit's west face shows three stratigraphic layers (fig. 7.36). Layer A was a light gray, hard clay that lacked cultural materials; it extended from the ground surface to about 15–18 cm DBS, where it met the top of Layer B, in the northern half of the level, and the top of Layer C, in the southern half of the level. Layer B was a yellow-brown clay deposit with cultural materials; it extended from the bottom of Layer A to about 26 cm DBS, where it met the top of Layer C in the northern half of the level. Layer C was a yellow clay that lacked cultural materials; it extended from the bottom of Layer A, in the southern half of the level, and the bottom of Layer B, in the level's northern half, to 40 cm DBS, where we stopped the excavation of this pit.

Level 1 (B97-226; 0–0.20 m DBS) included all of Layer A and the top 2–3 cm of Layer B in the northern half of the level (fig. 7.36). We excavated a total of eight nondiagnostic sherds (table 7.1). We also recovered two pieces of chert, one utilized and one nonutilized (table 7.2).

Level 2 (B97-223; 0.20–0.40 m DBS) included all but the top 2–3 cm of Layer B in the northern half of the level; it also included the top 17–18 cm of Layer C in the northern half of the level (fig. 7.36). In the southern half of the level, all of this provenience fell within Layer C. We excavated a total of 50 sherds, of which 11 were diagnostics (table 7.1). We also excavated 10 pieces of chert, of which six were utilized and four were nonutilized (table 7.2).

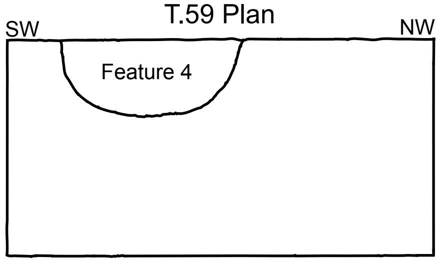

Figure 7.34. Plan view drawing of Feature 4, T.59

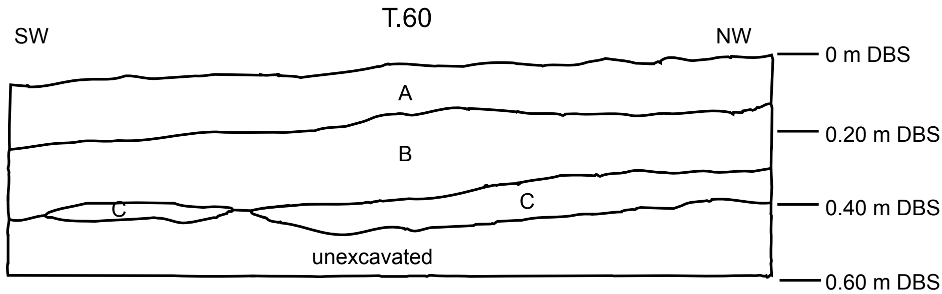

Figure 7.35. Profile drawing of the west face of T.60.

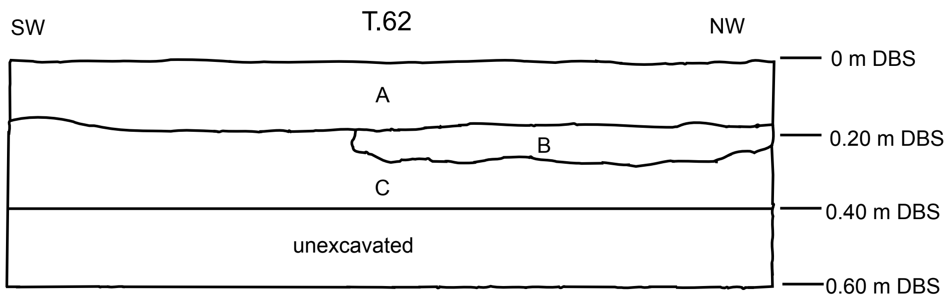

Figure 7.36. Profile drawing of the west face of T.62.

Overall, this pit produced little cultural material, which suggests that it lay near the eastern edge of the occupation at B97.

T.63 was at N1158–1159/E947, about 10 m northeast of Mound B (fig. 7.1). The ground surface elevation at the southwest corner of the pit was 97.85 m. We excavated three levels: Level 1 (B97-229; 0–0.20 m DBS), Level 2 (B97-230; 0.20–0.40 m DBS), and Level 3 (B97-235; 0.40–0.60 m DBS) (tables 7.1, 7.2). The profile drawing of the pit's west face shows four stratigraphic layers (fig. 7.37). Layer A was a gray clay, soft in texture, that lacked cultural materials; it extended from the ground surface to where it met the top of Layer B, along an interface that varied between 15 cm and 25 cm DBS. Layer B was a gray-brown clay deposit with abundant cultural materials; it extended from the bottom of Layer A to where it met the top of Layer C, along an edge that varied from 30 cm and 41 cm DBS. Layer C was a yellowish-gray clay that lacked cultural materials; it extended from the bottom of Layer B to 50 cm DBS where we stopped excavation (in the southern half of the level) and to the top of Layer D (in the northern half of the level), along an edge that varied between 48 and 55 cm DBS. Layer D was a sandy-clayey zone that lacked cultural materials.

Level 1 (B97-229; 0–0.20 m DBS) mostly contained Layer A, though it included up to 5 cm from the top of Layer B in the northern half of the level (fig. 7.37). We excavated a total of 985 sherds, of which 116 were diagnostics (table 7.1). Among them were two sherds that we classified as misfired sherds or kiln wasters; one exhibited pitted surfaces and the other had a blowout (table 7.1; appendix F). We also recovered 11 pieces of chert, of which three were utilized and eight were nonutilized (table 7.2). We saved one coin envelope of charcoal.

Level 2 (B97-230; 0.20–0.40 m DBS) mainly contained Layer B, although in the southern half of the level the provenience also included the bottom 5 cm of Layer A and the top 10 cm of Layer C (fig. 7.37). Cultural materials were very abundant. We excavated a total of 13,913 sherds, of which 1171 were diagnostics (table 7.1). Among them were 64 sherds that we classified as misfired sherds or kiln wasters (table 7.1). Spalled, cracked surfaces were observed on 21 of these sherds, two had evidence of blowouts, and 41 sherds had pitted surfaces (appendix F). The extraordinary density of sherds in this level, and the many examples of misfiring, make it abundantly clear that ceramics were being produced in the vicinity of T.63. We also recovered 35 pieces of chipped stone, of which 32 were chert (10 utilized, 22 nonutilized), one was sandstone, and two were amphibolite (table 7.2). We recovered two grinding stone fragments; one of them was a sandstone fragment of indeterminate form weighing 200 g, the other was a metamorphic conglomerate grinding slab fragment that weighed 1640 g and had been blackened by soot (table 7.2). We found one piece of a polished stone ornament of indeterminate form, weighing just 1 g and made of phyllite (table 7.2). And we recovered three pieces of burned daub weighing 43 g (table 7.2).

Level 3 (B97-235; 0.40–0.60 m DBS) contained mainly Layer C and Layer D, although the excavator noted that the provenience also contained a bit of Layer B at the northern end of the level (fig. 7.37). We excavated a total of 102 sherds, of which eight were diagnostics (table 7.2).

T.64 was at N1152–1153/E873, about 50 m northwest of Mound B (fig. 7.1). The ground surface elevation at the southwest corner of the pit was 98.37 m. We excavated three levels: Level 1 (B97-236; 0–0.20 m DBS), Level 2 (B97-237; 0.20–0.40 m DBS), and Level 3 (B97-241; 0.40–0.60 m DBS) (tables 7.1, 7.2). The profile drawing of the pit's west face shows four stratigraphic layers (fig. 7.38). Layer A was a gray silty topsoil that lacked cultural materials; it extended from the ground surface to where it met the top of Layer B at 15–18 cm DBS. Layer B was a gray-brown clay with brown inclusions and cultural material; it extended from the bottom of Layer A to where it met the top of Layer C, along an edge that varied in depth from 35 cm DBS, at the southern end of the level, to 43 cm DBS, at the northern end. Layer C was a dark brownish-gray clay deposit with inclusions and cultural material; it extended from the bottom of Layer B to where it met Layer D along an edge that varied in depth from 60 to 64 cm DBS. Layer D was yellow-brown clay without cultural materials; it extended from the bottom of Layer C to 70 cm DBS, where we terminated the excavation of this pit.

Level 1 (B97-236; 0–0.20 m DBS) included all of Layer A and the top 3–5 cm of Layer B (fig. 7.38). We excavated a total of nine sherds, of which three were diagnostics (table 7.1). We also recovered two pieces of utilized chert (table 7.2).

Level 2 (B97-237; 0.20–0.40 m DBS) lay almost entirely within Layer B, although it included the top 5 cm of Layer C at the far southern end of the level (fig. 7.38). We excavated a total of 701 sherds, of which 128 were diagnostics (table 7.1). Among them were five sherds that we classified as misfired sherds or kiln wasters; all five exhibited pitted surfaces (table 7.1; appendix F). We also recovered 12 pieces of chert (four utilized, eight nonutilized) and 33 pieces of burned daub weighing 60 g (table 7.2). We saved one coin envelope of charcoal.

Level 3 (B97-241; 0.40–0.60 m DBS) contained mostly Layer C, although the bottom 3 cm or so of Layer B were also included in the northern part of the level (fig. 7.38). Also, in the southern half of the level, cultural materials were found to a depth of 63 cm DBS; they were included in this provenience as well. Although Layer D, which lacked cultural materials, was excavated down to 70 cm DBS, we consider Level 3 to contain materials only from Layer B and Layer C, not from Layer D. We excavated a total of 275 sherds, of which 26 were diagnostics (table 7.1). One of these was classified as a misfired sherd or kiln waster; it had a pitted surface (table 7.1; appendix F). We also recovered three pieces of chert, one of them utilized and the other two nonutilized (table 7.2). We also found a fragment of a serpentinite pendant weighing 5 g (table 7.2; fig. 7.39). In

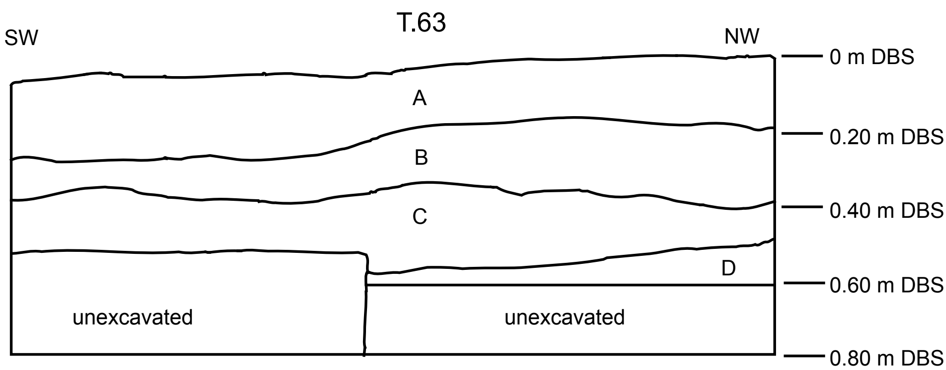

Figure 7.37. Profile drawing of the west face of T.63.

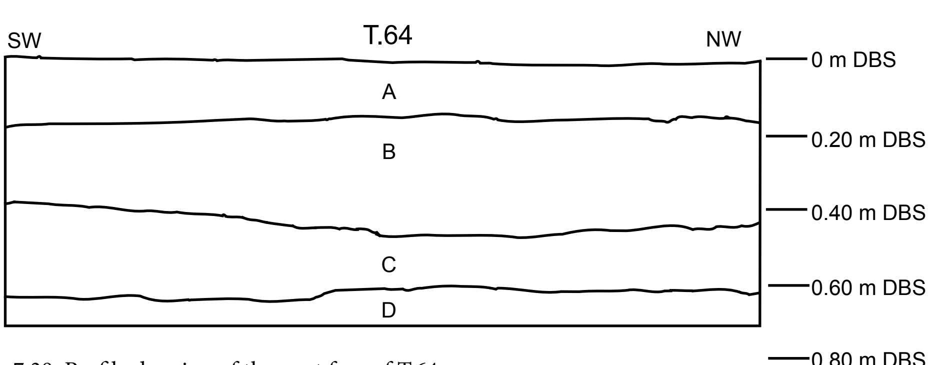

Figure 7.38. Profile drawing of the west face of T.64.

addition, we excavated six pieces of burned daub weighing 17 g (table 7.2). We saved one coin envelope of charcoal.

T.65 was at N1138–1139/E839, about 20 m east of the *banco* edge and 50 m northwest of the western end of Calzada F (fig. 7.1). The ground surface elevation at the southwest corner of the pit was 98.45 m. We excavated three levels: Level 1 (B97-238; 0–0.20 m DBS), Level 2 (B97-239; 0.20–0.40 m DBS), and Level 3 (B97-240; 0.40–0.60 m DBS) (tables 7.1, 7.2). The profile drawing of the pit's east face shows five stratigraphic layers (fig. 7.40). Layer A was a light gray topsoil that lacked cultural materials; it extended from the ground surface, which slanted downward from south to north, to where it met the top of Layer B, along an interface that also sloped downward, from 12 cm DBS on the south side to 20 cm DBS on the north side. Layer B was orange-brown clay with cultural materials; it extended from the bottom of Layer A to where it met the top of Layer C, along an undulating edge, which we suspect was produced by floodwaters in antiquity. The bottom of Layer B sloped downward from 22 cm DBS on the south side to 30 cm DBS on the north side. Layer C was gray-brown clay with cultural materials; it extended from the bottom of Layer B to where it met the top of Layer D, along an edge that sloped downward, from 39 cm DBS on the south side to about 50 cm DBS on the north side. Layer D was dark gray clay with cultural materials; it extended from the bottom of Layer C to where it met Layer E along an edge that sloped downward from 50 cm DBS on the south side to roughly 65 cm DBS on the north side. Layer E was yellow clay that lacked cultural materials; it extended from the bottom of Layer D to where we ceased excavation, along a surface that descended from 60 cm DBS on the south side to about 74 cm DBS on the north side.

Level 1 (B97-238; 0–0.20 m DBS) included all of Layer A, and the top 8 cm or so of Layer B on the south side of the level (fig. 7.40). We excavated a total of 49 sherds, of which five were diagnostics (table 7.1). We also recovered 19 pieces of chipped stone, of which 17 were chert (seven utilized, 10 nonutilized), one was quartz, and one was sandstone (table 7.2).

Level 2 (B97-239; 0.20–0.40 m DBS) included portions of Layer B, mostly in the northern half of the level, and Layer C, mainly in the southern half (fig. 7.40). We excavated a total of 1061 sherds, of which 113 were diagnostics (table 7.1). Among them was one example of a misfired sherd or kiln waster; it had a spalled, cracked surface (table 7.1; appendix F). We also recovered 130 pieces of chipped stone, of which 124 were chert (25 utilized, 109 nonutilized), three were quartz, two were sandstone, and one was amphibolite (table 7.2). We found five pieces of burned daub weighing 3 g (table 7.2).

Level 3 (B97-240; 0.40–0.60 m DBS) included Layer D and Layer E at the southern end of the level, and the bottom 10 cm of Layer C and Layer D at the northern end (fig. 7.40). We excavated a total of 2881 sherds, of which 363 were diagnostics (table 7.1). Among them were two sherds that we classified as misfired sherds or kiln wasters; they exhibited spalled, cracked surfaces (table 7.1; appendix F). We also recovered 70 pieces of chipped stone, of which 63 were chert (21 utilized, 42 nonutilized), two were quartz, four were sandstone, and one was amphibolite (table 7.2). We found one sandstone pestle fragment weighing 412 g (table

7.2). In addition, we excavated an especially fine example of a polished stone celt or axe weighing 76 g (fig. 7.41); it was made from a siliceous rock of recent volcanic origin, possibly from a geyser, and was probably not originally from the Venezuelan Andes, but rather from the Perijá Mountains (west of Lake Maracaibo) or from Colombia (R. Sifontes, personal commun., 1989). We found 10 pieces of burned daub weighing 49 g; stick impressions were noted on one piece weighing 5 g (table 7.2). We saved one coin envelope of charcoal.

T.66 was at N1196–1197/E847, about 80 m northeast of the *banco* edge, and 10 m southeast of the barbed-wire fence near the northwestern edge of the site (fig. 7.1). The ground surface elevation at the southwest corner of the pit was 98.44 m. We excavated three levels: Level 1 (B97-242; 0–0.20 m DBS), Level 2 (B97-243; 0.20–0.40 m DBS), and Level 3 (B97-244; 0.40–0.50 m DBS) (tables 7.1, 7.2). The profile drawing of the pit's west face shows four stratigraphic layers (fig. 7.42). Layer A was a gray topsoil with no cultural materials; it extended from the ground surface to 12–14 cm DBS, where it met the top of Layer B. Layer B was a light gray silty deposit with brown inclusions and cultural materials; it extended from the bottom of Layer A to where it met the top of Layer C, along an edge with multiple erosion channels that varied between 28 and 38 cm DBS. These erosion channels likely resulted from flooding in antiquity, as we have seen in several other test pits at B97. Layer C was a dark gray-brown clayey deposit with brown inclusions and substantial cultural materials, including what the excavator described as "large sherds." Layer C extended from the bottom of Layer B to where it met the top of Layer D at 44–45 cm DBS. Layer D was yellow-brown clay without cultural materials; it extended from the bottom of Layer C to 50 cm DBS, where we terminated the excavation of this pit.

Level 1 (B97-242; 0–0.20 m DBS) included all of Layer A, and the top 6–8 cm of Layer B (fig. 7.42). We excavated a total of 28 sherds, of which five were diagnostics (table 7.1). We also recovered three pieces of chipped stone, of which two were chert (one utilized, one nonutilized) and one was quartz (table 7.2).

Level 2 (B97-243; 0.20–0.40 m DBS) contained the bottom half of Layer B and the top half of Layer C (fig. 7.42). We excavated a total of 2929 sherds, of which 379 were diagnostics (table 7.1). Among them were nine sherds that we classified as misfired sherds or kiln wasters; all of them exhibited spalled, cracked surfaces (table 7.1; appendix F). We also recovered 98 pieces of chipped stone, of which 87 were chert (24 utilized, 63 nonutilized), nine were sandstone, and two were amphibolite (table 7.2). We also recovered one *mano* fragment made of sandstone

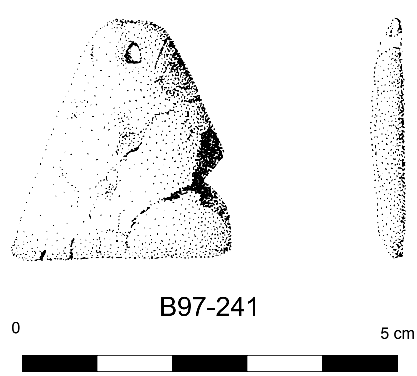

Figure 7.39. Illustration of serpentinite pendant (B97-241).

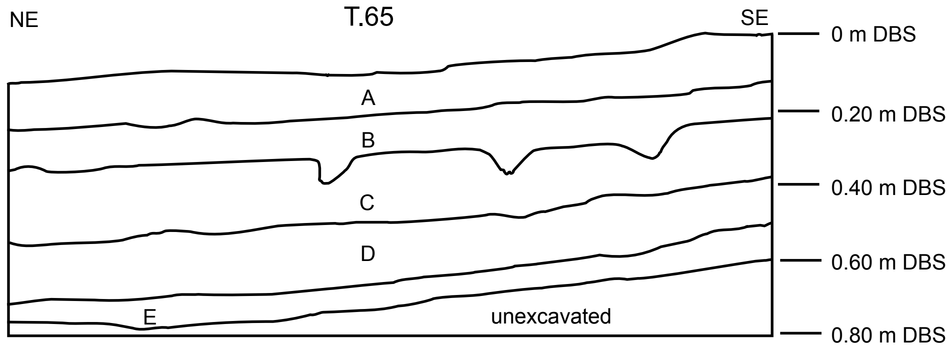

Figure 7.40. Profile drawing of the east face of T.65.

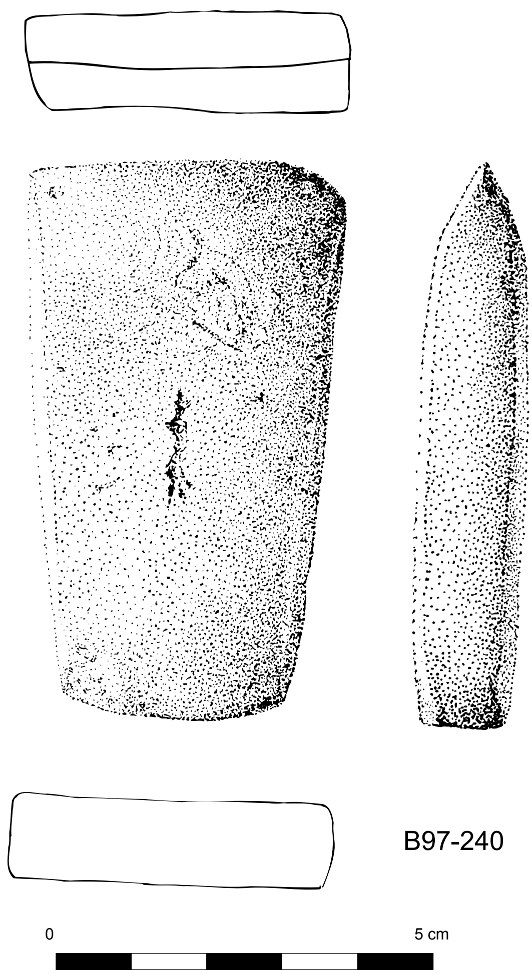

Figure 7.41. Illustration of polished stone celt or axe (B97-240).

weighing 290 g (table 7.2). In addition, we found six pieces of burned daub weighing 32 g (table 7.2). We recovered a figurine head fragment weighing 32 g (table 7.2; fig. 7.43).

Level 3 (B97-244; 0.40–0.50 m DBS) included the bottom 5–6 cm of Layer C and the top 4–5 cm of Layer D (fig. 7.42). We excavated a total of 117 sherds, of which 17 were diagnostics (table 7.1). We also recovered 16 pieces of chipped stone, of which 15 were chert (five utilized, 10 nonutilized), and one was sandstone (table 7.2). In addition, we found three pieces of burned daub weighing 7 g; stick impressions occurred on one piece weighing 5 g (table 7.2). We saved one coin envelope of charcoal.

T.67 was at N1162–1163/E999, about 60 m north of Calzada F and near the far eastern end of the site (fig. 7.1). The ground surface elevation at the southwest corner of the pit was 97.70 m. We excavated two levels: Level 1 (B97-234; 0–0.20 m DBS) and Level 2 (B97-233; 0.20–0.40 m DBS) (tables 7.1, 7.2). The profile drawing of the pit's west face shows three stratigraphic layers (fig. 7.44). Layer A was a gray silty topsoil that lacked cultural materials; it extended from the ground surface to where it met the top of Layer at about 9–10 cm DBS. Layer B was a gray-brown silty deposit with what the excavator called "light cultural material." Layer B extended from the bottom of Layer A to where it met Layer C at about 30 cm DBS. Layer C was tan clay without cultural materials; it extended from the bottom of Layer B to 40 cm DBS, where we ended the excavation of this pit.

Level 1 (B97-234; 0–0.20 m DBS) included all of Layer A and the top 10–11 cm of Layer B (fig. 7.44). We excavated a total of 65 sherds, of which 15 were diagnostics (table 7.1). We also recovered one piece of nonutilized chert (table 7.2).

Level 2 (B97-233; 0.20–0.40 m DBS) included the bottom 10 cm of Layer B and the top 10 cm of Layer C (fig. 7.44). We excavated a total of 48 sherds, of which 7 were diagnostics (table 7.1). All of the sherds were small and worn.

This test pit produced a very small sample of cultural material, consistent with its location at the extreme eastern edge of the occupied area at B97.

T.68 was at N1212–1213/E893, about 80 m northwest of Mound B (fig. 7.1). The ground surface elevation at the southwest corner of the pit was 98.22 m. We excavated two levels: Level 1 (B97-247; 0–0.20 m DBS) and Level 2 (B97-248; 0.20–0.40 m DBS) (tables 7.1, 7.2). The profile drawing of the pit's east face shows three stratigraphic layers (fig. 7.45). Layer A was a gray topsoil that lacked cultural material; it extended from the ground surface to where it met the top of Layer B at 10–12 cm DBS. Layer B was a gray-brown clay with cultural material; it extended from the bottom of Layer A to where it met Layer C at 23–24 cm DBS. Layer C was yellow clay without cultural materials; it extended from the bottom of Layer B to where we ceased excavation, along an interface that varied between 32 and 38 cm DBS.

Level 1 (B97-247; 0–0.20 m DBS) included all of Layer A and the top 8–10 cm of Layer B (fig. 7.45). We excavated a total of 197 sherds, of which 72 were diagnostics (table 7.1). Among them were four sherds that we classified as misfired sherds or kiln wasters; they all exhibited pitted surfaces (table 7.1; appendix F). We also recovered 77 pieces of chipped stone, of which 63 were chert (12 utilized, 51 nonutilized), 10 were quartz, and four were sandstone (table 7.2). We found one piece of burned daub weighing 15 g (table 7.2).

Level 2 (B97-248; 0.20–0.40 m DBS) included the bottom 6–7 cm of Layer B and all of Layer C, down to where we stopped the excavation (fig. 7.45). We excavated a total of 858 sherds, of which 109 were diagnostics (table 7.1). Among them were three sherds that we classified as misfired sherds or kiln wasters; all had pitted surfaces (table 7.1; appendix F). We also recovered 53 pieces of chipped stone, of which 48 were chert (15 utilized, 33 nonutilized), two were quartz and three were sandstone (table 7.2). We found seven pieces of burned daub weighing 12 g (table 7.2). And we excavated one figurine limb weighing 20 g (table 7.2).

T.69 was at N1210–1211/E800, about 40 m southeast of the edge of the *madrevieja* and 15 m east of the road cut (fig. 7.1). The ground surface elevation at the southwest corner of the pit was 98.58 m. We excavated three levels: Level 1 (B97-220; 0–0.20 m

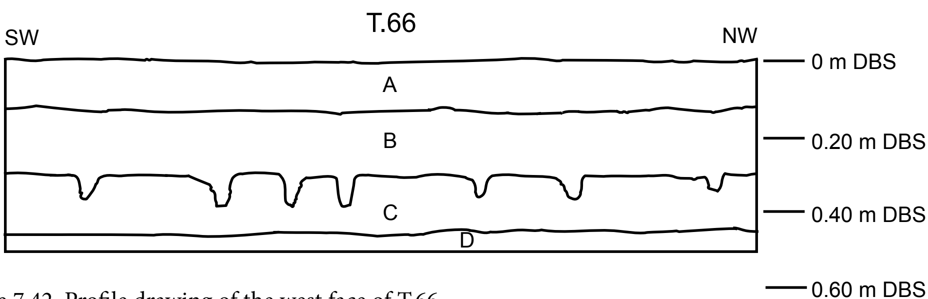

Figure 7.42. Profile drawing of the west face of T.66.

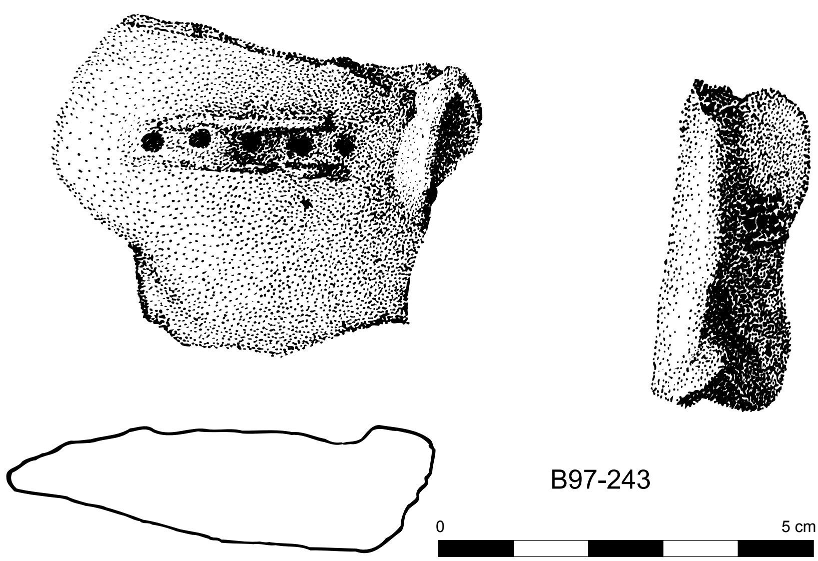

Figure 7.43. Illustration of figurine head fragment (B97-243).

DBS), Level 2 (B97-225; 0.20–0.40 m DBS), and Level 3 (B97-252; 0.40–0.50 m DBS) (tables 7.1, 7.2). The profile drawing of the pit's east face shows three stratigraphic layers (fig. 7.46). Layer A was a gray-brown silty topsoil that lacked cultural materials; it extended from the ground surface to where it met the top of Layer B at about 12–15 cm DBS. Layer B was a hard, gray-brown clay with brown inclusions and with cultural materials throughout; it extended from the bottom of Layer A to where it met Layer C along an edge that varied from 35 cm to 42 cm DBS. Layer C was tan-yellow clay without cultural materials; it extended from the bottom of Layer B to 50 cm DBS, where we ended the excavation of this pit.

Level 1 (B97-220; 0–0.20 m DBS) included all of Layer A and the top 5–8 cm of Layer B (fig. 7.46). We excavated a total of 442 sherds, of which 61 were diagnostics (table 7.1). We also recovered nine pieces of chert (two utilized, seven nonutilized) and one piece of sandstone (table 7.2). We found 78 pieces of burned daub weighing 359 g (table 7.2). We saved one coin envelope of charcoal.

Level 2 (B97-225; 0.20–0.40 m DBS) included most of Layer B and the top 5 cm of Layer C in the northern half of the level (fig. 7.46). We excavated a total of 683 sherds, of which 83 were diagnostics (table 7.1). We also recovered 18 pieces of chipped stone, of which 13 were chert (six utilized, seven nonutilized), four were quartz, and one was sandstone (table 7.2). We found one axe or celt fragment weighing 69 g and made of amphibolite, as well as one small, indeterminate ornament made of a metamorphic fragment weighing just 1 g (table 7.2). In addition, we excavated 15 pieces of burned daub weighing 118 g (table 7.2).

Level 3 (B97-252; 0.40–0.50 m DBS) included the bottom 2 cm of Layer B in the southern half of the level; otherwise it contained Layer C (fig. 7.46). We excavated a total of 67 sherds, of which 11 were diagnostics (table 7.1). We also recovered four pieces of nonutilized chert (table 7.2).

T.70 was at N1188–1189/E780, about 10 m east of the *banco* edge and just east of a barbed-wire fence, in the far northwestern corner of the site (fig. 7.1). The ground surface elevation at the southwest corner of the pit was 98.48 m. We excavated three levels: Level 1 (B97-245; 0–0.20 m DBS), Level 2 (B97-246; 0.20–0.40 m DBS), and Level 3 (B97-250; 0.40–0.50 m DBS) (tables 7.1, 7.2). The profile drawing of the pit's west face shows three stratigraphic layers (fig. 7.47). Layer A was a gray silty topsoil that lacked cultural materials; it extended from the ground surface to where it met the top of Layer B at 19–20 cm DBS. Layer B was a light gray silty deposit with brown inclusions and cultural materials; it extended from the bottom of Layer A to where it met Layer C at about 44–45 cm DBS. Layer C was gray-yellow clay with brown inclusions and no cultural materials; it extended from the bottom of Layer B to 50 cm DBS, where we terminated the excavation of this pit.

Level 1 (B97-245; 0–0.20 m DBS) contained all of Layer A and the top 1 cm or so of Layer B (fig. 7.47). We excavated a total of 30 sherds, of which two were diagnostics (table 7.1). We also found one piece of burned daub weighing 7 g (table 7.2).

Level 2 (B97-246; 0.20–0.40 m DBS) lay entirely within Layer B (fig. 7.47). We excavated a total of 1113 sherds, of which 130 were diagnostics (table 7.1). We also recovered 26 pieces of chipped stone, of which 20

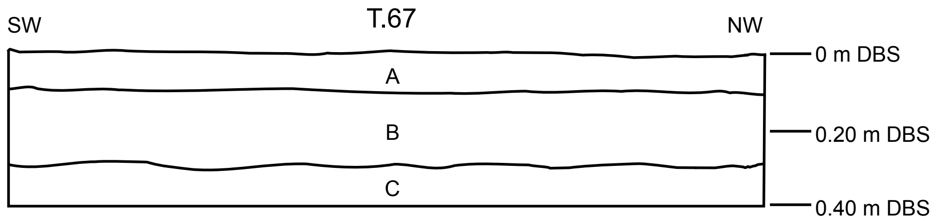

Figure 7.44. Profile drawing of the west face of T.67.

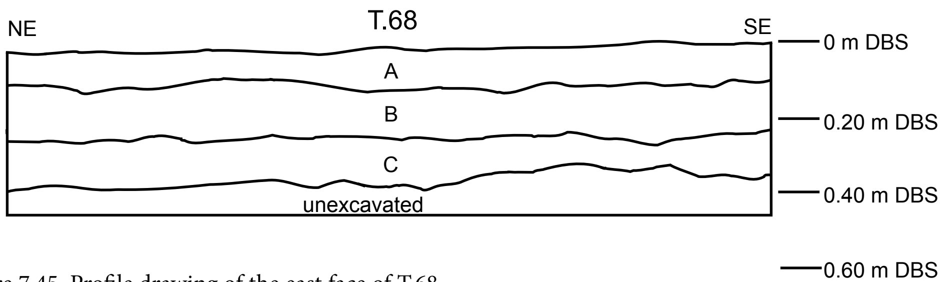

Figure 7.45. Profile drawing of the east face of T.68.

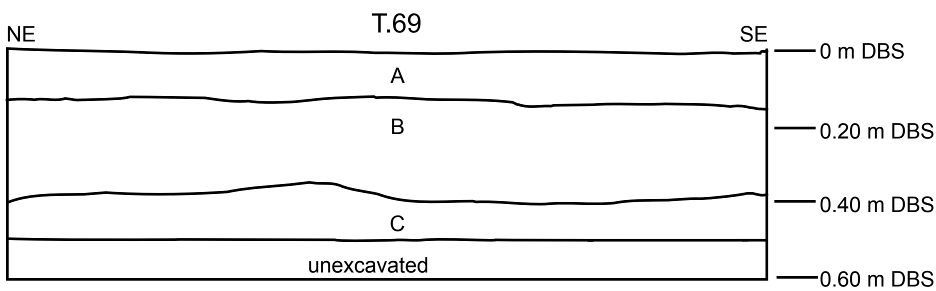

Figure 7.46. Profile drawing of the east face of T.69.

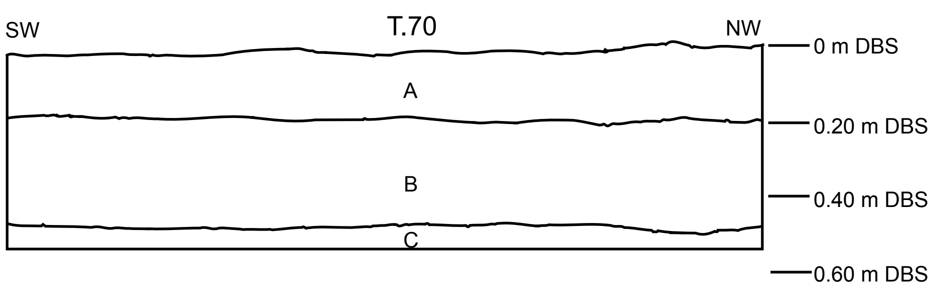

Figure 7.47. Profile drawing of the west face of T.70.

were chert (five utilized, 15 nonutilized), two were quartz, and four were sandstone (table 7.2). We found four pieces of burned daub weighing 15 g (table 7.2). We saved one coin envelope of charcoal and we noted three or four fragments of burned rock.

Level 3 (B97-250; 0.40–0.50 m DBS) included the bottom 5–6 cm of Layer B and the top 4–5 cm of Layer C (fig. 7.47). We excavated a total of 78 sherds, of which six were diagnostics (table 7.1). We also recovered two pieces of chert; one was utilized and the other was nonutilized (table 7.2).

T.71 was at N1236–1237/E935, about 100 m north of Mound B and about 40 m southwest of the edge of occupation at B97 (fig. 7.1). The ground surface elevation at the southwest corner of the pit was 98.20 m. We excavated two levels: Level 1 (B97-249; 0–0.20 m DBS) and Level 2 (B97-251; 0.20–0.40 m DBS) (tables 7.1, 7.2). The profile drawing of the pit's west face shows three stratigraphic layers (fig. 7.48). Layer A was a gray, clayey topsoil that lacked cultural materials; it extended from the ground surface to about 9–10 cm DBS, where it met the top of Layer B. Layer B was gray-brown clay with cultural materials; it extended from the bottom of Layer A to where it met Layer C, along an edge that varied between 20 and 30 cm DBS. Layer C was yellow clay without cultural materials; it extended from the bottom of Layer B to where we ceased excavation at about 40 cm DBS.

Level 1 (B97-249; 0–0.20 m DBS) included all of Layer A and the top 10–11 cm of Layer B (fig. 7.48). We excavated a total of 818 sherds, of which 98 were diagnostics (table 7.1). Among them were 19 sherds that we classified as misfired sherds or kiln wasters; four had spalled, cracked surfaces and 15 had pitted surfaces (table 7.1; appendix F). We also recovered 18 pieces of chipped stone, of which seven were chert (two utilized, five nonutilized) and 11 were quartz (table 7.2). The greater quantity of quartz relative to chert is unusual. We also found one schist-quartzite pendant that weighed 2 g (table 7.2; fig. 7.49). The stone probably came from the Mucuchachí Formation or the Sierra Nevada Formation, in the Venezuelan Andes (R. Sifontes, personal commun., 1989).

Level 2 (B97-251; 0.20–0.40 m DBS) included the bottom 10 cm of Layer B, in the southern half of the level, along with the top 10–20 cm of Layer C (fig. 7.48). We excavated a total of 193 sherds, of which 19 were diagnostics (table 7.1). We also recovered one piece of nonutilized chert (table 7.2). We also found two pieces of slate weighing 2 g that may have been fragments of ornaments, though this is not certain (table 7.2).

T.72 was at N1268–1269/E908, about 50 m southeast of the *madrevieja*, near the northeastern edge of the occupation at B97 (fig. 7.1). The ground surface elevation at the southwest corner of the pit was 98.15 m. We excavated two levels: Level 1 (B97-253; 0–0.20 m DBS) and Level 2 (B97-254; 0.20–0.40 m DBS) (tables 7.1, 7.2). The profile drawing of the pit's west face shows three stratigraphic layers (fig. 7.50). Layer A was a gray topsoil that lacked cultural materials; it extended from the ground surface to 8–10 cm DBS, where it met the top of Layer B. Layer B was gray-brown clay with cultural materials; it extended from the bottom of Layer A to where it met Layer C at 22–27 cm DBS. Layer C was yellow clay without cultural materials; it extended from the bottom of Layer B to where we suspended excavation of the pit around 40 cm DBS.

Level 1 (B97-253; 0–0.20 m DBS) included all of Layer A and the top 10–12 cm of Layer B (fig. 7.50). We excavated a total of 74 sherds, of which four were diagnostics (table 7.1). We also recovered seven pieces of chert; three were utilized and four were nonutilized (table 7.2).

Level 2 (B97-254; 0.20–0.40 m DBS) included the bottom 2–7 cm of Layer B; the rest of the provenience pertained to Layer C (fig. 7.50). We excavated a total of 70 sherds, of which 15 were diagnostics (table 7.1). We also recovered two pieces of nonutilized chert (table 7.2).

T.73 was at N1256–1257/E883, about 50 m southeast of the edge of the *madrevieja*, at the site's northeastern end (fig. 7.1). The ground surface elevation at the southwest corner of the pit was 98.15 m. We excavated five levels: Level 1 (B97-255; 0–0.20 m DBS), Level 2 (B97-256; 0.20–0.40 m DBS), Level 3 (B97-257; 0.40–0.60 m DBS), Level 4 (B97-258; 0.60–0.80 m DBS), and Level 5 (B97-259; 0.80–0.90 m DBS) (tables 7.1, 7.2). The profile drawing of the pit's east face shows five stratigraphic layers (fig. 7.51). Layer A was a silty brown topsoil that lacked cultural materials; it extended from the ground surface to where it met Layer B along an edge that varied from 5 to 10 cm DBS. Layer B was hard, gray-brown clay, silty in places, with cultural materials; it extended from the bottom of Layer A to where it met Layer C, along an edge that sloped downward from 23 cm DBS on the southern end of the level, to 30 cm DBS on the northern end. Layer C was gray-brown clay with small reddish-brown inclusions and cultural materials; it extended from the bottom of Layer B to where it met Layer D at 50–52 cm DBS. Layer D was dark brown clay with a middenlike appearance; the excavator noted "lots" of artifacts, including "large sherds" and charcoal; Layer D extended from the bottom of Layer C to where it met Layer E at 80–84 cm DBS. Layer E was tan clay that lacked cultural materials; it extended from the bottom of Layer D to about 90 cm DBS, where we ended the excavation of this pit.

Level 1 (B97-255; 0–0.20 m DBS) included all of Layer A, and the top 10–15 cm of Layer B (fig. 7.51). We excavated a total of eight sherds, of which three were diagnostics (table 7.1). We also excavated three pieces of nonutilized chert and one piece of sandstone (table 7.2).

Level 2 (B97-256; 0.20–0.40 m DBS) included the bottom 7–10 cm of Layer B and the top 10–13 cm of Layer C (fig. 7.51). We excavated a total of 214 sherds, of which 34 were diagnostics (table 7.1). We also recovered one piece of utilized chert, three pieces of nonutilized chert, and one piece of sandstone (table 7.2). We found four pieces of burned daub weighing 10 g (table 7.2). We saved one coin envelope of charcoal.

Level 3 (B97-257; 0.40–0.60 m DBS) included the bottom 8–10 cm of Layer C and the top 10–12 cm of Layer D (fig. 7.51). We excavated a total of 2452 sherds, of which 161 were diagnostics (table 7.1). Among them were two sherds that we classified as misfired sherds or kiln wasters; both had spalled, cracked surfaces (table 7.1; appendix F). We also recovered two pieces of utilized chert and five pieces of nonutilized chert (table 7.2). We found five pieces of burned daub weighing 15 g (table 7.2). We saved three coin envelopes of charcoal.

Level 4 (B97-258; 0.60–0.80 m DBS) fell entirely within Layer D (fig. 7.51). We excavated a total of 2142 sherds, of which 241

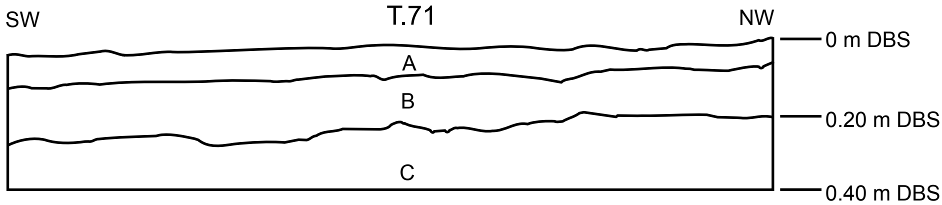

Figure 7.48. Profile drawing of the west face of T.71.

were diagnostics (table 7.1). We also recovered 10 pieces of chipped stone, of which six were chert (two utilized, four nonutilized), three were sandstone, and one was amphibolite (table 7.2). We found two pieces of ground stone of indeterminate form weighing 1570 g (table 7.2). One piece weighing 703 g was a metamorphic conglomerate; the other piece was of an unidentified material. In addition, we excavated three pieces of burned daub weighing 17 g (table 7.2). We saved one coin envelope of animal bone and one coin envelope of charcoal.

Level 5 (B97-259; 0.80–0.90 m DBS) included the bottom 4 cm of Layer D; the rest of the level lay in Layer E (fig. 7.51). We excavated a total of 14 sherds, of which one was a diagnostic (table 7.1). We also recovered three pieces of burned daub weighing 107 g (table 7.2).

OCCUPATIONAL CHRONOLOGY

In our discussion of the first-tier site of B12 (chap. 6), we concluded that the site achieved its peak size during the Late Gaván phase (A.D. 550–1000), although we noted that there were radiocarbon and thermoluminescence dates suggesting that occupation began there during the Early Gaván phase (A.D. 300–550). We then drew upon two lines of evidence in an attempt to define the size of the Early Gaván phase occupation at B12. First, we determined which test pits had the deepest deposits (at B12, the nine pits that yielded cultural materials in excavation levels deeper than 80 cm DBS). Second, we noted which test pits yielded sherds that were examples of V245 (Composite-silhouette Bowl Rim Form 6: outcurved to horizontal and thickened), which appears in illustration G-3 in chapter 3; at B12, V245 was found in 12 excavation areas or test pits. There was some overlap between these two lists and we combined them to get 16 excavation operations that made up what we called the Combined Early Gaván (CEG) sample. An assessment of the distribution of these 16 excavation operations at B12 led us to estimate that the Early Gaván occupation area was about 5 ha.

In an analogous fashion, we computed the CEG for B97. First, we had to determine which test pits had recovered cultural materials in the site's deepest levels. The following nine test pits at B97 yielded cultural materials at depths of 60 cm DBS or below: T.47, T.51, T.53, T.54, T.55, T.56, T.57, T.59, and T.73. Next, we needed to ascertain which test pits produced examples of V245. There were six of them: T.46, T.58, T.60, T.62, T.63, T.66, and T.73. The combined list (CEG) consists of the following 15 test pits: T.46, T.47, T.51, T.53, T.54, T.55, T.56, T.57, T.58, T.59, T.60, T.62, T.63, T.66, and T.73, amounting to a bit more than half of the 28 test pits we excavated at B97. After examining the distribution of the pits in the CEG, we have estimated that the Early Gaván phase occupation at B97 covered approximately 3 ha. There is no evidence that the two mounds had been constructed at that time. T.58 was placed adjacent to the basal edge of Mound B, and is the only pit associated with a mound that yielded an example of V245; but this was in Level 2 of that pit, which was stratigraphically below any detectable mound construction. As at B12, it is likely that the earthen mounds visible at B97 (fig. 7.1) were built during the time of the site's occupational peak, the Late Gaván phase (A.D. 550–1000). The following distributional analyses should thus be viewed as most relevant to the Late Gaván phase occupation at B97.

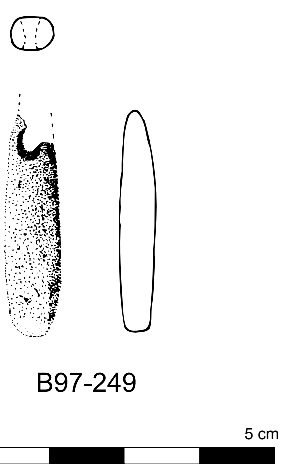

Figure 7.49. Illustration of polished stone (schist-quartzite) pendant (B97-249).

COMMUNITY ORGANIZATION

In our discussion of B12 (chap. 6), we noted that the distribution of the relative frequency of ceramic feet (V150), as expressed by the variable "Feet/Diag," appeared to be sensitive to social status. This conclusion resulted from our comparative analyses of the Area A and Area D house floors as well as from our comparison of the northeast and southwest sectors of B12. With these results in mind, let us examine the distribution of ceramic feet among the test pits at B97. Table 7.3 presents a series of variables for the test pits at B97. Each case represents a test pit, while the frequency given for a variable is based on a column total, i.e., the sum of the frequencies for that variable for all levels of the test pit. The first variable in table 7.3 is V104, the total number of diagnostic sherds, which can serve as a rough measure of the total amount of cultural material recovered in a given pit. The second variable is V150, the total number of ceramic feet. The third variable is "SmpSz," a nominal variable that indicates whether the sample size of a given pit was large enough to warrant its use in further analysis; we arbitrarily chose a cutoff of V104 = 30 diagnostic sherds as the minimum sample size for this purpose. Twenty-three test pits met this criterion ("SmpSz" = Yes). The fourth variable is "Feet/Diag," which is the relative frequency of ceramic feet (V150), computed by dividing by the total number of diagnostic sherds (V104), and then multiplying by 100 to get a percentage. The fifth and six variables were only entered for the 23 test pits that we had sufficiently high sample sizes (i.e., "SmpSz" = Yes). The fifth variable is "H/L," which indicates whether a given value for "Feet/Diag" fell above ("H") the mean value for "Feet/Diag" or whether it was less than or equal to the mean value ("L"). The sixth variable was "Sector," which indicates whether a given test pit was located to the north ("N") of Calzada F or to the south ("S"). Because Mound A, the largest and most elaborate mound at B97, was located to the south of Calzada F, while Mound B, a smaller mound, was located to the north of the Calzada F (fig. 7.1), we suspected that there might have been a social status differential between the occupants who lived on opposite sides of the *calzada*. Finally, the seventh variable in table 7.3 is V334, the total number of sherds classified as kiln wasters or misfired sherds, which we consider to be an indicator of ceramic production.

First of all, it is noteworthy that the overall value (for all the test pits in table 7.3) of "Feet/Diag" is 1.02% for B97, which is considerably lower than the value (5.47%) for all the 46 test pits at B12 (see table 6.11). This result would be consistent with the proposition that the inhabitants of B97 were, in general, of somewhat lower social status than the inhabitants of B12.

Turning next to the intrasite distribution of "Feet/Diag" at B97, table 7.3 reveals that the highest value for "Feet/Diag" was observed in T.47, a test pit situated at the southern edge of the Mound A ramp, well within the south sector ("Sector" = S) of the site (fig. 7.1). Looking only at the 23 test pits with a large sample size ("SmpSz" = Yes), the second- and third-highest values for "Feet/Diag" were found in T.57 and T.54; both pits were also located in the site's south sector. Indeed, of the seven pits that exhibited values for "Feet/Diag" that exceeded the mean value (i.e., "H/L" = H), five of them (71%) were situated in the south sector. By contrast, of the 16 test pits that had values for "Feet/Diag" that fell below the mean value (i.e., "H/L" = L), 12 of them (75%) were located in the north sector. A two-way Pearson chi-square (SYSTAT Software, Inc., 2004) produced a test statistic of 4.407 with df = 1 and an associated probability of 0.036, indicating that we should reject the null hypothesis of no difference between the sectors. It is also true, however, that in the 2×2 contingency table there were fewer than five pits in two of the cells, which casts some doubt on the significance test based on that table. At the same time, there is an unmistakable difference between the north and south sectors of the site. The mean value of "Feet/Diag" in the 14 north-sector pits was 0.004, while the mean value for the nine south-sector pits was 0.018. The median value of "Feet/Diag" in the north-sector pits was 0.001, and the median value in the south-sector pits was 0.015. We conducted a Kruskal-Wallis one-way analysis of variance to test the null hypothesis that there was no difference between the two samples (north- vs. south-sector test pits). The resulting Mann-Whitney *U* test statistic was 38.500, with an associated probability of 0.107 based on a chi-square approximation of 2.593 with df = 1. This outcome gives us some reason (though at only a modest level of statistical significance) to reject the null hypothesis, lending support to the alternative hypothesis that there was a real difference between the two sectors (south vs. north) of the site in terms of the distribution of "Feet/Diag." Overall, we think the results of our analyses of "Feet/Diag" do not contradict the proposition that the south sector of B97 was of higher social status than the north sector.

Let us proceed to consider whether the two sectors differed in the degree to which they engaged in ceramic production, as reflected in the distribution of V334, i.e., misfired sherds or kiln wasters (table 7.3). We carried out a Kruskal-Wallis one-way analysis of variance on the distribution of V334 to test the null hypothesis that there was no difference between the two sectors. The resulting Mann-Whitney *U* test statistic was 86.000, with an associated probability of 0.138 based on a chi-square approximation of 2.200 with df = 1. In this case, we think the result provides insufficient justification to reject the null hypothesis in favor of the alternative hypothesis that there was a real difference between the north and south sectors in terms of the distribution of misfired sherds and kiln wasters. Furthermore, we should note that the two test pits with the highest frequencies of V334 (T.46 and T.63) were found on opposite sides of Calzada F. Also, if we examine the distribution of V334 on a purely presence-absence basis, we note that examples of V334 were found in four test pits that lay south of Calzada F (T.46, T.47, T.55, T.57) and in 11 test pits that lay north of Calzada F (T.56, T.61, T.63, T.64, T.65, T.67, T.68, T.69, T.70, T.71, T.73). All in all, we do not think it makes sense to argue that ceramic production was exclusively or even more frequently practiced in the site's south side. The more reasonable conclusion is that ceramics were being produced throughout the settlement, both north and south of Calzada F.

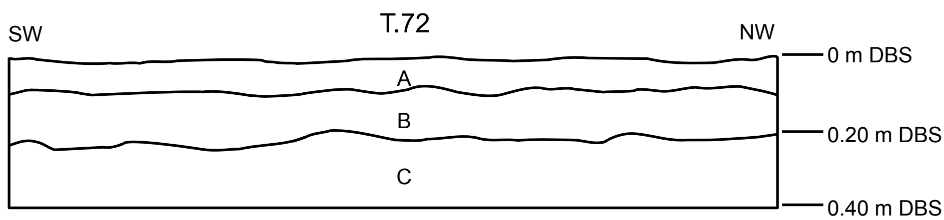

Figure 7.50. Profile drawing of the west face of T.72.

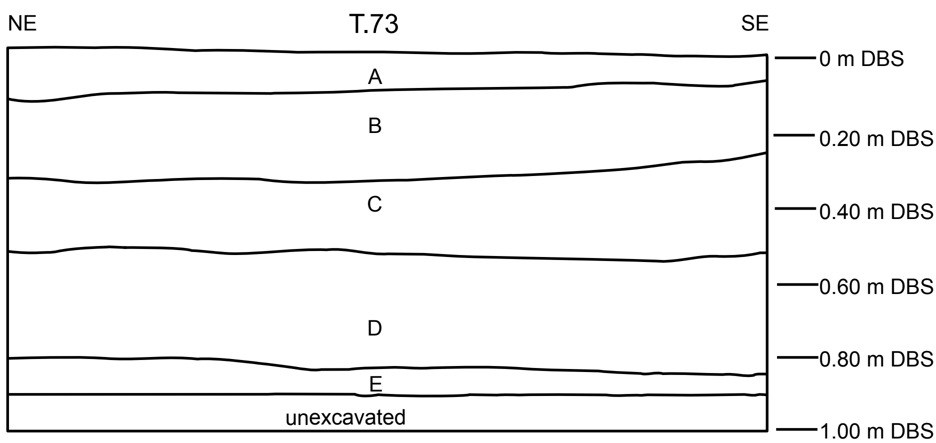

Figure 7.51. Profile drawing of the east face of T.73.

It also seems clear that ceramic production was more common at B97 than at B12. A measure that would reflect the relative degree of participation in ceramic production at a site can be computed by dividing the total number of sherds classified as kiln wasters or misfired sherds (V334) by the total number of diagnostic sherds (V104), multiplied by 100, for all levels for each test pit. The value of that relative frequency, which we call "Waster/Diag," is computed to be 2.95% for B97 (based on the values for the test pits in table 7.3) and 0.24% for B12 (based on the values for the test pits in table 6.11). So, while B97 shows signs of having been occupied by people of relatively lower social status than the inhabitants of B12, there is solid evidence that much more ceramic production took place at B97 than at the nearby center of B12. Indeed, it is reasonable to suggest that the pottery was an important product that the inhabitants of B97 sent to the first-tier center as their contribution to the political economy of the regional polity.

In our discussion of B12 (chap. 6), we found that variability in the production and use of chert tools was related to social status. Table 7.4 contains data on the distribution of chert at B97. The variable "Chert/Diag" was generated by dividing the total number of chert fragments (V1003) by the total number of ceramic diagnostics (V104). Looking just at the 22 test pits with a sufficiently large sample size (and excluding the sample from T.56/61), the mean value of "Chert/Diag" for the north sector was 0.265, while the mean value for the south sector was 0.373, which amounted to 141% of the north-sector mean. The median value of "Chert/Diag" for the north sector was 0.170 and the median value for the south sector was 0.250. Yet, a Kruskal-Wallis one-way analysis of variance yielded a Mann-Whitney *U* test statistic of 45.500, with an associated probability of 0.385 based on a chi-square approximation of 0.755 with df = 1. There is little reason to reject the null hypothesis of no difference between the sectors in terms of the relative frequency of chert ("Chert/Diag"). At B97, therefore, the relative frequency of chert does not seem to have been status related, a result that differs from what we found at B12 (chap. 6), where there was a significant difference between the higher-status and lower-status sectors of the site in terms of the relative frequency of chert.

The degree of involvement in chert-tool production can be inferred, we have previously argued, from the distribution of "NonUt/Chrt," the ratio of nonutilized chert fragments (V1015) to the total number of chert fragments (V1003). The mean value for this ratio in the south sector was 0.662, while the mean value for the north sector was 0.718, about 108% of the value for the southern sector. The median value of "NonUt/Chrt" for the south-sector pits was 0.660, while the median value for the north-sector pits was 0.720; again, the north-sector pits were higher. A Kruskal-Wallis one-way analysis of variance produced a Mann-Whitney *U* test statistic of 85.500, with an associated probability of 0.071 based on a chi-square approximation of 3.269 with df = 1. According to this result, we can reject the null hypothesis and give moderate support to the alternative hypothesis that there was a real difference between the sectors in terms of the ratio of nonutilized chert fragments to total chert. Interestingly, our analysis suggests that the north-sector inhabitants were more involved in the production of stone tools than were the inhabitants of the south sector—even though, as we have seen, the south sector was associated with ceramic indicators of higher social status. By contrast, at B12 we did not find a statistically significant difference between higher-status and lower-status sectors in terms of their involvement in stone-tool production (as reflected by the "NonUt/Chrt" ratio).

Why would the apparently lower-status north sector at B97 have been more involved in chert-tool production than the higher-status south sector? We suspect it was because the lower-status inhabitants of B97 were relatively more involved than their higher-status counterparts in cultivating the *vega* soils adjacent to the site, and in their efforts they made frequent use of stone-tipped wooden implements. Much of this work would have involved not only the tilling of soil but also the clearing of weeds and brush, which grow rapidly in this humid tropical environment; tools tipped with stone would have been far more useful for either purpose than simple wooden tools. However, stone-tipped tools would have required constant maintenance to remain effective, and we should not be surprised to observe higher levels of stone-tool working among those inhabitants of B97 who were the most involved in agricultural pursuits. At B12, by contrast, stone-tipped implements were not only useful in agricultural pursuits, they also played an even more critical role as weaponry during times of war, which we have argued occurred episodically throughout the Late Gaván phase, with B12 serving as a center of defensive aggregation in the region (chap. 6).

Although the relative frequency of burned daub is considerably lower overall at B97 than at B12, notable quantities of daub were nonetheless excavated at B97 (table 7.4). The variables "T.L. Daub Wt" and "T.L. Daub Ct" present the weights (in grams) and counts, respectively, of burned daub excavated at B97 in the topmost level in each test pit that had occupational debris (table 7.4). Looking at the total sample of 28 different test pits (not counting T.56/61), we note that 12 of them (42.8%) contained burned daub in the topmost occupation level. By contrast, we found burned daub in the topmost occupation level of 76% of the test pits at B12 (table 6.10). The overall relative frequency of burned daub (expressed as kg of burned daub per 100 kg of all sherds) was 6.52 at B12, compared to just 1.1 at B97 (Spencer and Redmond, 1998: table 5). Indeed, the overall relative frequency of burned daub was much greater at B12 than at any other excavated site of the Gaván complex, indicating that the regional capital probably experienced far more warfare and conflagration than did the subsidiary sites in the Gaván polity.

If we draw upon the test pit data in tables 7.4 and 6.12, we can compute the overall relative frequencies of chert at B97 and B12 by dividing the total number of chert fragments (V1003) by the total number of diagnostic sherds (V104); the resulting values are 0.24 for B97 and 0.30 for B12. Although these overall relative frequencies are similar, we suggest that stone-tool production activities at B12 had more to do with the making and maintenance of weaponry than was the case at B97, where the production and maintenance of agricultural implements were probably relatively more important activities. At B12, both high-status and low-status people were engaged in the making and maintenance of weapons—although the higher-status individuals at B12 had access to more high-quality chert. At B97, by contrast, it was the lower-status inhabitants who were most involved in the making and maintenance of agricultural implements. Such a scenario would account for the patterns we have observed: at B12, basic access to chert was status related, but chert-tool production was widespread; at B97, basic access to chert was widespread and not status related, but lower-status people engaged in relatively more chert-tool production and maintenance than those of higher status.

SUMMARY

In this chapter we described the mapping and excavation program at B97 (Potrero de Elías), and also presented the results of analyses of the recovered data. B97 sat on the edge of a *banco* overlooking a huge expanse of *vega*, or floodplain. The site attained a maximal size of 5 ha during the Late Gaván phase (A.D. 550–1000). We determined that the site covered about 3 ha during the Early Gaván phase (A.D. 300–550). During our mapping program at the site, we located two mounds, Mound A and Mound B, both of which were probably built in the Late Gaván phase. We did not observe any smaller house mounds on the surface as we did at B12, though we suspect that this absence was due more to preservation issues than a true absence of house mounds, because our test-pit program recovered abundant cultural materials throughout the site. We also mapped an earthen causeway, Calzada F, which ran eastward from the *banco* at B97's western edge, proceeding through the middle of the site and then on toward B12, less than 250 m to the east.

We classified B97 as a second-tier center, even though it was situated much closer to the region's first-tier center (B12) than the four other sites we identified as second-tier centers. After reviewing the data from all the test pits, we are frankly unsure whether B97 should be considered a true second-tier center or instead an adjunct to B12, perhaps a satellite occupation. In addition to the obvious causeway connection (Calzada F) between the sites, we noted that the ramp leading to the top of Mound A (the larger of B97's two mounds) began not in the center of the site but instead near the southeastern edge of B97's occupied area. We suggest that the ramp's orientation indicates that access to Mound A from the southeastern (B12) side of B97 was more important than access from central zone of occupation at B97. Perhaps the Mound A ramp reflected a linkage of some kind between B12 and the individuals and/or functions that were associated with Mound A at B97.

We recorded evidence of ceramic production (in the form of misfired sherds or kiln wasters) in the excavated samples from 15 test pits: T.46, T.47, T.55, T.56, T.57, T.61, T.63, T.64, T.65, T.67, T.68, T.69, T.70, T.71, and T.73. Eleven of the pits with such evidence were situated north of Calzada F, and four of them were situated south of the *calzada* (including T.46, which yielded the highest frequency of kiln wasters and misfired sherds). Ceramic production probably occurred in various places throughout the site and was not restricted to any particular sector. We propose that B97 was an important locus of ceramic production not only for the residents of B97, but also for those of nearby B12. We would argue that the inhabitants of B97 provided ceramics as part of their contribution to the regional political economy that was centered on B12.

Burned daub was found in the topmost occupation levels of 12 (42.8%) of the 28 test pits at B97, a lower relative frequency than the 76% we observed at B12. Although it is possible that B97 experienced burning at the time of its abandonment, the evidence of a conflagration is much stronger at B12, which has produced the most evidence of burning of all the excavated Gaván complex sites.

We found stratigraphic evidence of ancient flooding in six of B97's test pits: T.53, T.54, T.55, T.56, T.65, and T.66. All were located within 50–65 m from the edge of the *banco* that marked the southwestern edge of the site. In each case, a series of small erosion channels were noted at the top of an intermediate layer in the pit's profile. The most reasonable scenario, we suggest, is that the Caño Mitiao Hondo overflowed its banks, covering much of the site; then the floodwaters receded in the direction of the *vega*, carving the erosion channels that we observed in the six test pits. Each test pit yielded evidence of a single flooding episode, though we cannot be sure that the evidence in all the pits reflects the same incident. We should note that the data from the pits indicate that the occupation of B97 continued for a considerable time after this flooding event (or events), which occurred sometime during the Late Gaván phase.

The results of our distributional analyses are probably most relevant to the Late Gaván occupation at B97. We have concluded that there was a social-status difference between the sector of B97 that lay north of Calzada F and the sector that lay south of it. The south sector had the site's largest mound (Mound A) and its test pits tended to have a higher relative frequency of ceramic vessels with feet (a likely indicator of high status) than the north sector; this difference was associated with a moderate level of statistical significance. There was more evidence of stone-tool production in the lower-status north sector than in the higher-status south sector, even though both sectors enjoyed equivalent access to high-quality chert. We explained this by arguing that lower-status people were more involved than higher-status folks in the making and maintenance of stone tools that were used in agriculture. Overall, we find it reasonable to conclude that the B97 data are consistent with the proposition that pervasive social inequality was one of the central characteristics of the Late Gaván chiefdom.

TABLE 7.1
Ceramics from B97.

V3	V5	V1	Location	Depth	V4	V8	V9	V10	V13	V101
T. 46	Level 1	176	N978–979/E954	0–0.20 m DBS	0	2	0.2	0.4	1	4925
T. 46	Level 2	178	N978–979/E954	0.20–0.40 m DBS	0	2	0.2	0.4	1	15,358
T. 46	Level 3	189	N978–979/E954	0.40–0.60 m DBS	0	2	0.2	0.4	1	9060
T. 47	Level 1	177	N982–983/E1024	0–0.20 m DBS	0	2	0.2	0.4	1	1542
T. 47	Level 2	180	N982–983/E1024	0.20–0.40 m DBS	0	2	0.2	0.4	1	4060
T. 47	Level 3	181	N982–983/E1024	0.40–0.60 m DBS	0	2	0.2	0.4	1	1480
T. 47	Level 4	183	N982–983/E1024	0.60–0.80 m DBS	0	2	0.2	0.4	1	162
T. 48	Level 2	187	N954–955/E1056	0.20–0.40 m DBS	0	2	0.2	0.4	1	56
T. 49	Level 1	190	N1044–1045/E1030	0–0.20 m DBS	0	2	0.2	0.4	1	378
T. 49	Level 2	191	N1044–1045/E1030	0.20–0.40 m DBS	0	2	0.2	0.4	1	592
T. 50	Level 1	184	N1020–1021/E1079	0–0.20 m DBS	0	2	0.2	0.4	1	136
T. 51	Level 1	192	N1006–1007/E972	0–0.20 m DBS	0	2	0.2	0.4	1	1090
T. 51	Level 2	193	N1006–1007/E972	0.20–0.40 m DBS	0	2	0.2	0.4	1	5650
T. 51	Level 3	194	N1006–1007/E972	0.40–0.60 m DBS	0	2	0.2	0.4	1	8330
T. 51	Level 4	205	N1006–1007/E972	0.60–0.80 m DBS	0	2	0.2	0.4	1	81
T. 52	Level 1	185	N928–929/E1035	0–0.20 m DBS	0	2	0.2	0.4	1	1
T. 53	Level 1	195	N1032–1033/E936	0–0.20 m DBS	0	2	0.2	0.4	1	635
T. 53	Level 2	196	N1032–1033/E936	0.20–0.40 m DBS	0	2	0.2	0.4	1	528
T. 53	Level 3	197	N1032–1033/E936	0.40–0.60 m DBS	0	2	0.2	0.4	1	2568
T. 53	Level 4	198	N1032–1033/E936	0.60–0.80 m DBS	0	2	0.2	0.4	1	931
T. 53	Level 4	203	N1033.40–1034.00/ E936.60–937.00	0.55–0.70 m DBS	F.3	0.24	0.15	0.04	1	3100
T. 54	Level 2	186	N1074–1075/E904	0.20–0.40 m DBS	0	2	0.2	0.4	1	1055
T. 54	Level 3	188	N1074–1075/E904	0.40–0.60 m DBS	0	2	0.2	0.4	1	591
T. 54	Level 4	199	N1074–1075/E904	0.60–0.75 m DBS	0	2	0.15	0.3	1	19
T. 55	Level 1	200	N1090–1091/E878	0–0.20 m DBS	0	2	0.2	0.4	1	165
T. 55	Level 2	201	N1090–1091/E878	0.20–0.40 m DBS	0	2	0.2	0.4	1	1333
T. 55	Level 3	202	N1090–1091/E878	0.40–0.60 m DBS	0	2	0.2	0.4	1	577
T. 55	Level 4	209	N1090–1091/E878	0.60–0.75 m DBS	0	2	0.15	0.3	1	5
T. 56	Level 1	204	N1112–1113/E893	0–0.20 m DBS	0	2	0.2	0.4	3	7
T. 56	Level 2	206	N1112–1113/E893	0.20–0.40 m DBS	0	2	0.2	0.4	1	4160
T. 56	Level 3	211	N1112–1113/E893	0.40–0.60 m DBS	0	2	0.2	0.4	1	1737
T. 56	Level 4	214	N1112–1113/E893	0.60–0.70 m DBS	0	2	0.1	0.2	1	109
T. 56/61	Level 4	217	N1112–1113/E893–894	0.60–0.70 m DBS	B.5	4	0.1	0.4	1	843
T. 61	Level 1	213	N1112–1113/E894	0–0.20 m DBS	0	2	0.2	0.4	1	494
T. 61	Level 2	218	N1112–1113/E894	0.20–0.40 m DBS	0	2	0.2	0.4	1	4670
T. 61	Level 3	219	N1112–1113/E894	0.40–0.60 m DBS	0	2	0.2	0.4	1	2505
T. 57	Level 1	207	N1056–1057/E997	0–0.20 m DBS	0	2	0.2	0.4	1	1750
T. 57	Level 2	208	N1056–1057/E997	0.20–0.40 m DBS	0	2	0.2	0.4	1	16,260
T. 57	Level 3	216	N1056–1057/E997	0.40–0.60 m DBS	0	2	0.2	0.4	1	7826
T. 57	Level 4	221	N1056–1057/E997	0.60–0.70 m DBS	0	2	0.1	0.2	1	386
T. 58	Level 2	210	N1132–1133/E943	0.20–0.40 m DBS	0	2	0.2	0.4	1	4760
T. 58	Level 3	212	N1132–1133/E943	0.40–0.60 m DBS	0	2	0.2	0.4	1	174
T. 59	Level 1	227	N1128–1129/E970	0–0.20 m DBS	0	2	0.2	0.4	1	968
T. 59	Level 2	228	N1128–1129/E970	0.20–0.40 m DBS	0	2	0.2	0.4	1	20,520
T. 59	Level 3	231	N1128–1129/E970	0.40–0.60 m DBS	0	2	0.2	0.4	1	1211
T. 59	Level 4	232	N1128–1129/E970	0.60–0.75 m DBS	F.4	0.3	0.15	0.05	1	291
T. 60	Level 1	222	N1064–1065/E1037	0–0.20 m DBS	0	2	0.2	0.4	1	1500

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	Location	Depth	V4	V8	V9	V10	V13	V101
T. 60	Level 2	224	N1064–1065/E1037	0.20–0.40 m DBS	0	2	0.2	0.4	1	856
T. 62	Level 2	223	N1098–1099/E1076	0.20–0.40 m DBS	0	2	0.2	0.4	1	297
T. 62	Level 1	226	N1098–1099/E1076	0–0.20 m DBS	0	2	0.2	0.4	1	48
T. 63	Level 1	229	N1158–1159/E947	0–0.20 m DBS	0	2	0.2	0.4	1	5320
T. 63	Level 2	230	N1158–1159/E947	0.20–0.40 m DBS	0	2	0.2	0.4	1	78,514
T. 63	Level 3	235	N1158–1159/E947	0.40–0.60 m DBS	0	2	0.2	0.4	1	334
T. 64	Level 1	236	N1152–1153/E873	0–0.20 m DBS	0	2	0.2	0.4	1	67
T. 64	Level 2	237	N1152–1153/E873	0.20–0.40 m DBS	0	2	0.2	0.4	1	2445
T. 64	Level 3	241	N1152–1153/E873	0.40–0.60 m DBS	0	2	0.3	0.6	1	880
T. 65	Level 1	238	N1138–1139/E839	0–0.20 m DBS	0	2	0.2	0.4	1	221
T. 65	Level 2	239	N1138–1139/E839	0.20–0.40 m DBS	0	2	0.2	0.4	1	4202
T. 65	Level 3	240	N1138–1139/E839	0.40–0.60 m DBS	0	2	0.2	0.4	1	16,096
T. 66	Level 1	242	N1196–1197/E847	0–0.20 m DBS	0	2	0.2	0.4	1	135
T. 66	Level 2	243	N1196–1197/E847	0.20–0.40 m DBS	0	2	0.2	0.4	1	15,010
T. 66	Level 3	244	N1196–1197/E847	0.40–0.50 m DBS	0	2	0.2	0.4	1	482
T. 67	Level 2	233	N1162–1163/E999	0.20–0.40 m DBS	0	2	0.2	0.4	1	188
T. 67	Level 1	234	N1162–1163/E999	0–0.20 m DBS	0	2	0.2	0.4	1	341
T. 68	Level 1	247	N1212–1213/E893	0–0.20 m DBS	0	2	0.2	0.4	1	1725
T. 68	Level 2	248	N1212–1213/E893	0.20–0.40 m DBS	0	2	0.2	0.4	1	2500
T. 69	Level 1	220	N1210–1211/E800	0–0.20 m DBS	0	2	0.2	0.4	1	1740
T. 69	Level 2	225	N1210–1211/E800	0.20–0.40 m DBS	0	2	0.2	0.4	1	2915
T. 69	Level 3	252	N1210–1211/E800	0.40–0.50 m DBS	0	2	0.1	0.2	1	209
T. 70	Level 1	245	N1188–1189/E780	0–0.20 m DBS	0	2	0.2	0.4	1	139
T. 70	Level 2	246	N1188–1189/E780	0.20–0.40 m DBS	0	2	0.2	0.4	1	5435
T. 70	Level 3	250	N1188–1189/E780	0.40–0.50 m DBS	0	2	0.1	0.2	1	330
T. 71	Level 1	249	N1236–1237/E935	0–0.20 m DBS	0	2	0.2	0.4	1	2490
T. 71	Level 2	251	N1236–1237/E935	0.20–0.40 m DBS	0	2	0.2	0.4	1	543
T. 72	Level 1	253	N1268–1269/E908	0–0.20 m DBS	0	2	0.2	0.4	1	526
T. 72	Level 2	254	N1268–1269/E908	0.20–0.40 m DBS	0	2	0.2	0.4	1	335
T. 73	Level 1	255	N1256–1257/E883	0–0.20 m DBS	0	2	0.2	0.4	1	25
T. 73	Level 2	256	N1256–1257/E883	0.20–0.40 m DBS	0	2	0.2	0.4	1	1495
T. 73	Level 3	257	N1256–1257/E883	0.40–0.60 m DBS	0	2	0.2	0.4	1	10,410
T. 73	Level 4	258	N1256–1257/E883	0.60–0.80 m DBS	0	2	0.2	0.4	1	13,995
T. 73	Level 5	259	N1256–1257/E883	0.80–0.90 m DBS	0	2	0.1	0.2	1	72

V3	V5	V1	V102	V103	V104	V105	V106	V107	V108	V109	V110	V111	V112	V113	V114
T. 46	Level 1	176	1965	890	172	4035	1793	30	63	67	14	0	0	119	52
T. 46	Level 2	178	5266	3464	616	11,894	4649	71	255	209	56	15	10	516	100
T. 46	Level 3	189	2018	3587	303	5473	1715	33	117	126	27	0	0	270	33
T. 47	Level 1	177	306	733	51	809	255	0	13	36	2	0	0	43	8
T. 47	Level 2	180	829	1600	136	2460	693	13	65	34	24	0	0	97	39
T. 47	Level 3	181	407	386	49	1030	358	0	24	25	0	0	0	11	38
T. 47	Level 4	183	48	65	9	97	39	1	8	0	0	0	0	9	0
T. 48	Level 2	187	15	6	2	50	13	0	0	2	0	0	0	2	0
T. 49	Level 1	190	63	200	11	178	52	0	3	8	0	0	0	9	2
T. 49	Level 2	191	192	135	20	457	172	1	7	12	0	0	0	18	2

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V102	V103	V104	V105	V106	V107	V108	V109	V110	V111	V112	V113	V114
T. 50	Level 1	184	13	88	4	48	9	0	1	3	0	0	0	3	1
T. 51	Level 1	192	168	360	32	730	136	2	7	20	1	0	2	27	5
T. 51	Level 2	193	1319	2225	247	3425	1072	14	149	75	7	1	1	223	24
T. 51	Level 3	194	1612	3190	250	5140	1362	4	213	19	14	0	0	240	10
T. 51	Level 4	205	36	32	6	49	30	0	1	5	0	0	0	6	0
T. 52	Level 1	185	1	0	0	1	1	0	0	0	0	0	0	0	0
T. 53	Level 1	195	120	278	25	357	95	3	4	17	1	0	0	20	5
T. 53	Level 2	196	114	238	28	290	86	3	23	0	2	0	0	25	3
T. 53	Level 3	197	630	1106	129	1462	501	6	99	12	12	0	0	110	19
T. 53	Level 4	198	218	414	49	517	169	2	41	5	0	0	1	46	3
T. 53	Level 4	203	577	1450	97	1650	480	2	35	60	0	0	0	89	8
T. 54	Level 2	186	284	415	57	640	227	6	10	35	5	0	1	54	3
T. 54	Level 3	188	114	293	34	298	80	0	27	5	2	0	0	29	5
T. 54	Level 4	199	1	0	0	19	1	0	0	0	0	0	0	0	0
T. 55	Level 1	200	39	24	6	141	33	0	6	0	0	0	0	6	0
T. 55	Level 2	201	305	533	63	800	242	3	39	10	11	0	0	59	4
T. 55	Level 3	202	93	227	20	350	74	0	17	0	2	0	1	18	2
T. 55	Level 4	209	1	0	0	5	1	0	0	0	0	0	0	0	0
T. 56	Level 1	204	1	0	0	7	1	0	0	0	0	0	0	0	0
T. 56	Level 2	206	845	1300	136	2860	709	4	115	13	4	0	0	133	3
T. 56	Level 3	211	325	677	67	1060	258	4	45	9	9	0	0	60	7
T. 56	Level 4	214	35	17	2	92	33	0	2	0	0	0	0	1	1
T. 56/61	Level 4	217	225	309	39	534	186	1	5	33	0	0	0	35	4
T. 61	Level 1	213	121	104	15	390	106	0	3	12	0	0	0	12	3
T. 61	Level 2	218	1109	1245	161	3425	947	3	59	98	2	0	0	143	18
T. 61	Level 3	219	524	790	92	1715	432	5	28	45	14	0	0	80	12
T. 57	Level 1	207	292	840	43	920	249	2	6	35	0	0	0	36	7
T. 57	Level 2	208	3607	6120	441	10,140	3166	36	173	218	11	0	3	387	54
T. 57	Level 3	216	2196	1786	209	6040	1987	10	145	42	12	0	0	179	30
T. 57	Level 4	221	133	116	26	270	107	6	16	4	0	0	0	16	10
T. 58	Level 2	210	1499	1358	218	3402	1281	14	64	140	0	0	0	196	22
T. 58	Level 3	212	88	53	10	121	78	0	0	10	0	0	0	6	4
T. 59	Level 1	227	199	322	30	646	169	0	12	18	0	0	0	25	5
T. 59	Level 2	228	4561	4910	460	15,610	4101	14	286	146	13	0	1	434	26
T. 59	Level 3	231	430	376	43	835	387	0	32	9	0	0	2	33	10
T. 59	Level 4	232	111	55	11	236	100	1	10	0	0	0	0	9	2
T. 60	Level 1	222	481	510	63	990	418	3	49	11	0	0	0	51	12
T. 60	Level 2	224	328	229	40	627	288	0	29	11	0	0	0	38	2
T. 62	Level 2	223	50	195	11	102	39	0	2	9	0	0	0	11	0
T. 62	Level 1	226	8	0	0	48	8	0	0	0	0	0	0	0	0
T. 63	Level 1	229	985	1978	116	3342	869	1	44	43	28	0	0	105	11
T. 63	Level 2	230	13,913	23,000	1171	55,514	12,742	41	486	561	75	7	1	993	178
T. 63	Level 3	235	103	69	8	265	95	0	3	4	1	0	0	8	0
T. 64	Level 1	236	9	49	3	18	6	0	0	3	0	0	0	3	0
T. 64	Level 2	237	701	865	128	1580	573	10	62	48	6	1	1	117	11
T. 64	Level 3	241	275	242	26	638	249	14	12	0	0	0	0	24	2
T. 65	Level 1	238	49	70	5	151	44	1	4	0	0	0	0	5	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V102	V103	V104	V105	V106	V107	V108	V109	V110	V111	V112	V113	V114
T. 65	Level 2	239	1061	1170	113	3032	948	6	55	50	0	0	2	105	8
T. 65	Level 3	240	2881	5520	363	10,576	2518	3	138	216	6	0	0	317	48
T. 66	Level 1	242	28	61	5	74	23	1	2	1	1	0	0	3	2
T. 66	Level 2	243	2929	4580	379	10,430	2550	20	154	181	24	0	0	350	29
T. 66	Level 3	244	117	153	17	329	100	0	8	9	0	0	0	14	3
T. 67	Level 2	233	48	57	7	131	41	0	7	0	0	0	0	7	0
T. 67	Level 1	234	65	139	15	202	50	0	13	2	0	0	0	15	0
T. 68	Level 1	247	197	725	72	1000	125	0	34	35	3	0	0	70	2
T. 68	Level 2	248	858	860	109	1640	749	3	53	51	0	0	2	105	4
T. 69	Level 1	220	442	459	61	1281	381	8	29	24	0	0	0	56	5
T. 69	Level 2	225	683	872	83	2043	600	7	68	4	4	0	0	66	17
T. 69	Level 3	252	67	77	11	132	56	0	7	3	1	0	0	10	1
T. 70	Level 1	245	30	12	2	127	28	0	0	2	0	0	0	0	2
T. 70	Level 2	246	1113	1562	130	3873	983	9	46	70	5	0	0	110	20
T. 70	Level 3	250	78	28	6	302	72	0	4	2	0	0	0	5	1
T. 71	Level 1	249	818	660	98	1830	720	3	44	20	29	0	2	96	2
T. 71	Level 2	251	193	131	19	412	174	0	4	15	0	0	0	12	7
T. 72	Level 1	253	74	103	4	423	70	0	1	3	0	0	0	1	3
T. 72	Level 2	254	70	135	15	200	55	0	3	11	1	0	0	15	0
T. 73	Level 1	255	8	20	3	5	5	0	3	0	0	0	0	3	0
T. 73	Level 2	256	214	628	34	867	180	0	18	16	0	0	0	31	3
T. 73	Level 3	257	2452	3250	161	7160	2291	0	36	124	1	0	0	122	39
T. 73	Level 4	258	2142	5240	241	8755	1901	30	20	185	2	2	2	162	79
T. 73	Level 5	259	14	12	1	60	13	1	0	0	0	0	0	1	0

V3	V5	V1	V115	V116	V118	V119	V120	V121	V122	V123	V124	V126	V127	V128	V129
T. 46	Level 1	176	7	113	79	19	9	0	18	1	0	2	4	0	3
T. 46	Level 2	178	52	564	451	118	47	5	90	20	2	8	38	1	0
T. 46	Level 3	189	0	303	248	25	30	1	7	17	0	18	12	0	0
T. 47	Level 1	177	0	51	41	8	2	0	8	0	0	0	0	2	0
T. 47	Level 2	180	0	136	118	11	7	0	4	7	0	5	1	0	1
T. 47	Level 3	181	2	47	35	1	14	0	0	1	0	14	0	0	0
T. 47	Level 4	183	0	9	8	1	0	0	0	1	0	0	0	0	0
T. 48	Level 2	187	0	2	2	0	0	0	0	0	0	0	0	0	0
T. 49	Level 1	190	0	11	10	0	1	0	0	0	0	0	0	1	0
T. 49	Level 2	191	0	20	15	4	1	0	3	1	0	1	0	0	0
T. 50	Level 1	184	0	4	4	0	0	0	0	0	0	0	0	0	0
T. 51	Level 1	192	1	31	26	3	3	0	0	3	0	1	2	0	0
T. 51	Level 2	193	1	247	145	34	68	24	3	7	0	48	21	0	1
T. 51	Level 3	194	0	250	98	26	126	0	8	18	0	111	13	2	0
T. 51	Level 4	205	0	6	3	0	3	0	0	0	0	2	1	0	0
T. 52	Level 1	185	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 1	195	1	24	25	0	0	0	0	0	0	0	0	0	0
T. 53	Level 2	196	0	28	13	4	11	1	3	0	0	6	4	1	0
T. 53	Level 3	197	0	129	61	8	60	0	0	8	0	54	6	0	0
T. 53	Level 4	198	0	49	18	6	25	0	5	1	0	25	0	0	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V115	V116	V118	V119	V120	V121	V122	V123	V124	V126	V127	V128	V129
T. 53	Level 4	203	0	97	30	0	67	0	0	0	0	67	2	0	0
T. 54	Level 2	186	0	57	44	3	10	0	2	1	0	2	8	0	0
T. 54	Level 3	188	0	34	17	2	16	0	1	1	0	14	0	0	0
T. 54	Level 4	199	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 1	200	0	6	6	0	0	0	0	0	0	0	0	0	0
T. 55	Level 2	201	0	63	50	8	5	1	3	4	0	5	2	0	0
T. 55	Level 3	202	0	20	9	9	2	5	2	2	0	2	0	0	0
T. 55	Level 4	209	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 1	204	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 2	206	0	136	122	3	11	0	3	0	0	6	5	0	0
T. 56	Level 3	211	0	67	56	2	9	0	1	1	0	6	3	0	0
T. 56	Level 4	214	0	2	2	0	0	0	0	0	0	0	0	0	0
T. 56/61	Level 4	217	0	39	33	0	6	0	0	0	0	1	5	0	0
T. 61	Level 1	213	0	15	15	0	0	0	0	0	0	0	0	0	0
T. 61	Level 2	218	0	162	114	13	35	0	13	0	0	4	31	0	0
T. 61	Level 3	219	0	92	58	11	23	0	4	7	0	8	14	0	1
T. 57	Level 1	207	1	42	39	2	2	0	1	1	0	2	0	0	0
T. 57	Level 2	208	0	441	365	32	44	0	16	16	0	11	33	0	0
T. 57	Level 3	216	0	209	126	28	55	0	26	2	0	35	20	0	0
T. 57	Level 4	221	0	26	9	1	16	0	1	0	0	14	2	0	0
T. 58	Level 2	210	0	218	184	19	21	0	6	13	0	0	21	0	0
T. 58	Level 3	212	0	10	9	0	1	0	0	0	0	1	0	0	0
T. 59	Level 1	227	0	30	27	2	4	0	0	2	0	1	2	0	0
T. 59	Level 2	228	0	460	376	68	16	3	63	2	0	6	10	0	0
T. 59	Level 3	231	0	43	34	7	2	0	7	0	0	2	0	0	0
T. 59	Level 4	232	0	11	0	2	9	0	2	0	0	0	0	0	0
T. 60	Level 1	222	0	63	27	7	29	0	2	5	0	0	0	29	0
T. 60	Level 2	224	0	40	33	3	4	0	3	0	0	0	4	0	0
T. 62	Level 2	223	0	11	11	0	0	0	0	0	0	0	0	0	0
T. 62	Level 1	226	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 1	229	0	116	85	19	12	0	0	19	0	5	12	5	0
T. 63	Level 2	230	0	1171	993	123	55	32	48	43	0	37	16	0	2
T. 63	Level 3	235	0	8	7	0	1	0	0	0	0	1	0	0	0
T. 64	Level 1	236	0	3	1	2	0	0	1	1	0	0	0	0	0
T. 64	Level 2	237	0	128	97	16	15	3	5	8	0	6	1	0	9
T. 64	Level 3	241	2	24	18	4	4	0	4	0	0	2	0	0	2
T. 65	Level 1	238	0	5	5	0	0	0	0	0	0	0	0	0	0
T. 65	Level 2	239	0	113	92	12	9	0	10	2	0	8	1	0	0
T. 65	Level 3	240	0	363	236	51	41	1	38	12	0	40	1	0	0
T. 66	Level 1	242	0	5	2	2	1	0	2	0	0	0	0	0	1
T. 66	Level 2	243	0	379	328	42	9	0	34	8	0	9	0	0	0
T. 66	Level 3	244	0	17	16	1	0	1	0	0	0	0	0	0	0
T. 67	Level 2	233	0	7	5	2	0	0	0	2	0	0	0	0	0
T. 67	Level 1	234	0	15	13	2	0	0	0	2	0	0	0	0	0
T. 68	Level 1	247	0	72	64	7	1	1	6	0	0	0	1	0	0
T. 68	Level 2	248	0	109	101	8	0	0	8	0	0	0	0	0	0
T. 69	Level 1	220	0	61	53	1	7	0	0	1	0	4	3	0	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V115	V116	V118	V119	V120	V121	V122	V123	V124	V126	V127	V128	V129
T. 69	Level 2	225	0	83	54	14	15	0	14	0	0	8	7	0	0
T. 69	Level 3	252	0	11	11	0	0	0	0	0	0	0	0	0	0
T. 70	Level 1	245	0	2	2	0	0	0	0	0	0	0	0	0	0
T. 70	Level 2	246	0	130	95	25	10	7	18	0	0	8	2	0	0
T. 70	Level 3	250	0	6	6	0	0	0	0	0	0	0	0	0	0
T. 71	Level 1	249	0	98	91	5	2	0	1	4	0	1	1	0	0
T. 71	Level 2	251	0	19	13	0	6	0	0	0	0	1	5	0	0
T. 72	Level 1	253	0	4	4	0	0	0	0	0	0	0	0	0	0
T. 72	Level 2	254	0	15	15	0	0	0	0	0	0	0	0	0	0
T. 73	Level 1	255	0	3	3	0	0	0	0	0	0	0	0	0	0
T. 73	Level 2	256	0	34	34	0	0	0	0	0	0	0	0	0	0
T. 73	Level 3	257	0	161	152	5	4	0	4	1	0	4	0	0	0
T. 73	Level 4	258	0	241	218	8	15	0	6	2	0	4	11	0	0
T. 73	Level 5	259	0	1	1	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V130	V131	V132	V134	V135	V138	V139	V141	V142	V143	V144	V145	V146
T. 46	Level 1	176	44	36	0	0	9	3	10	1	0	0	15	0	0
T. 46	Level 2	178	73	127	12	17	5	5	50	8	4	0	28	0	1
T. 46	Level 3	189	13	147	10	0	2	0	41	6	9	1	0	2	6
T. 47	Level 1	177	3	18	0	1	1	0	6	0	5	0	0	0	1
T. 47	Level 2	180	3	21	1	2	5	0	36	2	5	0	8	0	0
T. 47	Level 3	181	0	10	0	0	0	0	28	0	1	5	0	0	0
T. 47	Level 4	183	0	2	0	0	0	2	1	0	0	0	0	0	0
T. 48	Level 2	187	0	2	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 1	190	1	6	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 2	191	2	9	0	0	0	0	3	1	0	0	0	0	1
T. 50	Level 1	184	0	3	0	0	0	0	1	0	0	0	0	0	0
T. 51	Level 1	192	0	15	0	0	0	0	1	0	0	0	0	0	0
T. 51	Level 2	193	20	85	8	1	2	0	17	3	5	0	0	0	3
T. 51	Level 3	194	17	65	1	1	5	0	30	2	0	0	0	0	0
T. 51	Level 4	205	0	1	0	0	0	0	0	0	0	0	0	0	0
T. 52	Level 1	185	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 1	195	2	8	2	0	1	0	5	0	0	0	0	0	0
T. 53	Level 2	196	3	10	0	0	0	0	4	0	0	0	0	0	0
T. 53	Level 3	197	16	36	7	7	0	0	6	3	0	0	2	1	0
T. 53	Level 4	198	5	8	1	0	2	0	4	0	0	0	0	0	0
T. 53	Level 4	203	3	10	0	0	0	0	19	6	0	0	0	0	0
T. 54	Level 2	186	2	30	3	0	0	0	3	2	1	0	0	0	0
T. 54	Level 3	188	1	11	10	0	2	0	2	2	0	0	0	0	1
T. 54	Level 4	199	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 1	200	0	3	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 2	201	0	36	0	1	0	1	8	0	0	0	0	0	0
T. 55	Level 3	202	0	9	2	0	0	0	3	0	0	0	0	0	0
T. 55	Level 4	209	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 1	204	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 2	206	7	74	8	1	0	1	18	0	1	0	0	0	1

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V130	V131	V132	V134	V135	V138	V139	V141	V142	V143	V144	V145	V146
T. 56	Level 3	211	5	25	2	1	0	0	7	0	1	0	0	0	0
T. 56	Level 4	214	0	2	0	0	0	0	0	0	0	0	0	0	0
T. 56/61	Level 4	217	5	18	3	0	0	0	3	1	0	0	0	0	1
T. 61	Level 1	213	0	9	0	0	0	0	3	0	0	0	0	0	0
T. 61	Level 2	218	21	64	3	2	0	0	22	4	0	0	0	0	2
T. 61	Level 3	219	8	46	1	0	1	1	5	0	0	0	0	0	4
T. 57	Level 1	207	0	19	5	0	1	0	7	0	1	0	0	0	0
T. 57	Level 2	208	17	208	8	1	3	0	44	3	13	0	0	0	2
T. 57	Level 3	216	18	86	7	0	1	0	29	0	0	0	0	0	0
T. 57	Level 4	221	1	2	0	0	0	0	6	0	0	0	0	0	0
T. 58	Level 2	210	9	122	5	1	1	0	16	1	0	0	0	0	0
T. 58	Level 3	212	0	3	0	0	0	0	2	0	0	0	0	0	0
T. 59	Level 1	227	2	11	3	0	0	1	5	0	1	0	0	0	2
T. 59	Level 2	228	34	208	19	3	0	3	48	2	20	0	2	0	1
T. 59	Level 3	231	1	18	5	0	0	0	9	0	0	0	0	0	0
T. 59	Level 4	232	2	3	2	0	0	1	2	0	0	0	0	0	0
T. 60	Level 1	222	1	27	2	0	0	0	9	1	0	0	0	0	0
T. 60	Level 2	224	1	17	0	1	1	1	3	1	0	0	0	0	0
T. 62	Level 2	223	0	8	0	0	1	0	1	0	0	0	0	0	0
T. 62	Level 1	226	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 1	229	4	53	0	6	0	0	23	1	1	0	0	0	2
T. 63	Level 2	230	43	506	25	19	14	0	303	0	30	0	18	0	3
T. 63	Level 3	235	0	0	1	0	0	0	1	0	0	0	0	0	0
T. 64	Level 1	236	1	1	1	0	0	0	0	0	0	0	0	0	0
T. 64	Level 2	237	4	59	1	0	0	0	11	1	0	0	0	0	0
T. 64	Level 3	241	1	13	0	0	0	0	2	0	0	0	0	0	0
T. 65	Level 1	238	0	4	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 2	239	15	46	10	5	3	2	5	0	0	0	2	0	2
T. 65	Level 3	240	30	164	11	14	0	0	46	3	6	0	7	0	0
T. 66	Level 1	242	0	1	0	0	0	0	1	0	0	0	0	0	0
T. 66	Level 2	243	39	151	30	20	6	0	47	2	4	0	0	0	0
T. 66	Level 3	244	2	4	1	0	0	0	0	2	0	0	0	0	0
T. 67	Level 2	233	0	1	0	0	0	0	6	0	0	0	0	0	0
T. 67	Level 1	234	1	6	0	0	0	0	1	0	0	0	0	0	0
T. 68	Level 1	247	8	28	4	3	0	1	1	1	0	0	0	0	0
T. 68	Level 2	248	12	50	3	6	1	0	11	1	0	0	0	0	5
T. 69	Level 1	220	3	42	1	0	0	0	3	0	0	0	0	0	2
T. 69	Level 2	225	4	43	3	0	0	0	9	1	0	0	0	0	3
T. 69	Level 3	252	6	0	0	0	0	0	2	0	0	0	1	0	0
T. 70	Level 1	245	0	2	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 2	246	8	44	7	2	0	0	18	6	0	0	1	0	0
T. 70	Level 3	250	1	3	0	0	0	0	1	0	0	0	1	0	0
T. 71	Level 1	249	1	31	6	4	0	0	11	0	0	0	0	0	0
T. 71	Level 2	251	1	5	0	1	0	0	1	0	0	0	0	0	0
T. 72	Level 1	253	0	3	0	0	0	0	0	0	0	0	0	0	0
T. 72	Level 2	254	0	9	1	0	0	0	1	0	0	0	3	0	0
T. 73	Level 1	255	0	1	0	0	0	0	1	0	0	0	1	0	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V130	V131	V132	V134	V135	V138	V139	V141	V142	V143	V144	V145	V146
T. 73	Level 2	256	0	13	2	0	0	0	5	0	0	0	1	0	6
T. 73	Level 3	257	3	30	12	4	3	1	36	1	5	0	2	0	2
T. 73	Level 4	258	5	45	8	19	23	0	49	1	9	0	2	0	0
T. 73	Level 5	259	0	1	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V147	V148	V149	V150	V151	V152	V153	V154	V155	V156	V157	V158	V159
T. 46	Level 1	176	4	10	0	6	2	0	0	3	7	19	0	8	0
T. 46	Level 2	178	26	37	6	7	4	13	0	6	43	82	0	62	0
T. 46	Level 3	189	16	0	0	3	9	1	0	1	20	4	0	11	0
T. 47	Level 1	177	4	0	0	1	0	0	0	2	1	2	0	6	0
T. 47	Level 2	180	4	1	0	17	0	0	0	0	5	10	0	16	0
T. 47	Level 3	181	0	1	0	0	0	0	0	1	1	0	0	3	0
T. 47	Level 4	183	1	0	0	0	0	0	0	0	0	0	0	3	0
T. 48	Level 2	187	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 1	190	0	2	0	0	0	0	0	0	1	1	0	0	0
T. 49	Level 2	191	1	0	0	0	0	0	0	0	0	2	0	1	0
T. 50	Level 1	184	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 1	192	6	2	1	5	0	0	0	1	0	1	0	0	0
T. 51	Level 2	193	26	8	6	2	1	0	2	5	35	6	0	11	0
T. 51	Level 3	194	9	0	1	2	0	0	0	0	99	8	0	7	2
T. 51	Level 4	205	1	0	0	0	0	0	0	0	0	0	0	1	0
T. 52	Level 1	185	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 1	195	1	1	0	0	0	0	0	2	0	1	0	2	0
T. 53	Level 2	196	2	1	0	0	0	0	0	0	4	1	0	3	0
T. 53	Level 3	197	2	0	2	1	0	0	0	0	38	2	1	4	0
T. 53	Level 4	198	0	0	0	0	0	0	0	1	21	0	0	7	0
T. 53	Level 4	203	3	0	0	0	0	1	1	0	49	3	0	2	0
T. 54	Level 2	186	1	0	0	2	0	0	0	0	7	0	0	4	0
T. 54	Level 3	188	1	0	1	0	0	0	0	0	11	0	0	0	0
T. 54	Level 4	199	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 1	200	0	0	0	0	0	0	0	0	0	0	0	3	0
T. 55	Level 2	201	1	1	0	0	0	0	0	0	4	6	0	5	0
T. 55	Level 3	202	2	0	0	0	0	0	0	0	1	3	0	0	0
T. 55	Level 4	209	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 1	204	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 2	206	5	2	1	0	2	0	0	2	4	3	0	6	0
T. 56	Level 3	211	2	1	0	0	0	0	0	0	6	2	0	15	0
T. 56	Level 4	214	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56/61	Level 4	217	0	0	0	0	0	0	1	0	3	2	0	1	0
T. 61	Level 1	213	0	0	0	0	0	0	0	1	0	0	0	2	0
T. 61	Level 2	218	4	3	3	0	0	0	0	0	17	4	0	12	0
T. 61	Level 3	219	1	2	4	0	0	0	1	1	7	2	0	10	0
T. 57	Level 1	207	2	0	1	2	0	0	0	0	1	1	0	3	0
T. 57	Level 2	208	27	10	4	16	9	0	1	6	37	3	0	24	6
T. 57	Level 3	216	11	5	0	1	3	0	0	4	37	2	0	5	0
T. 57	Level 4	221	1	0	0	1	1	0	0	0	0	0	0	0	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V147	V148	V149	V150	V151	V152	V153	V154	V155	V156	V157	V158	V159
T. 58	Level 2	210	12	0	0	1	0	0	0	0	18	1	0	0	0
T. 58	Level 3	212	0	1	0	0	0	0	0	0	1	0	0	3	0
T. 59	Level 1	227	1	0	0	0	0	0	0	0	3	1	0	0	0
T. 59	Level 2	228	14	6	19	1	7	4	0	0	14	13	0	42	0
T. 59	Level 3	231	1	0	1	0	0	0	0	0	1	0	0	7	0
T. 59	Level 4	232	0	0	0	0	0	0	0	0	0	0	0	1	0
T. 60	Level 1	222	2	2	0	0	0	0	0	1	0	0	0	3	0
T. 60	Level 2	224	4	0	0	0	0	0	0	0	3	1	0	7	0
T. 62	Level 2	223	0	0	0	0	0	0	0	0	1	0	0	0	0
T. 62	Level 1	226	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 1	229	0	7	0	0	0	0	0	0	12	2	0	5	0
T. 63	Level 2	230	29	46	9	2	0	0	0	5	7	0	0	0	0
T. 63	Level 3	235	0	0	1	0	0	0	0	0	1	1	0	3	0
T. 64	Level 1	236	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 2	237	6	4	2	2	1	1	1	0	8	3	0	24	0
T. 64	Level 3	241	0	0	0	0	0	0	0	0	3	1	0	6	0
T. 65	Level 1	238	1	0	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 2	239	6	3	1	0	0	1	0	0	0	3	0	8	1
T. 65	Level 3	240	10	4	13	0	5	2	0	0	10	5	0	31	0
T. 66	Level 1	242	2	0	0	0	0	0	0	0	1	0	0	0	0
T. 66	Level 2	243	19	4	9	0	0	2	1	6	5	10	0	25	0
T. 66	Level 3	244	3	0	0	0	0	0	0	0	0	0	0	5	0
T. 67	Level 2	233	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 67	Level 1	234	0	0	0	1	0	0	0	1	0	2	0	3	0
T. 68	Level 1	247	5	1	10	0	1	0	1	0	1	1	0	6	0
T. 68	Level 2	248	2	0	5	1	1	0	0	0	0	1	0	10	0
T. 69	Level 1	220	2	0	0	0	0	0	0	2	4	2	0	0	0
T. 69	Level 2	225	4	0	1	0	0	0	0	0	7	2	0	6	0
T. 69	Level 3	252	0	0	0	0	0	0	0	0	0	0	0	2	0
T. 70	Level 1	245	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 2	246	2	1	10	0	1	0	0	2	5	11	0	12	0
T. 70	Level 3	250	2	0	0	0	0	0	0	0	0	0	0	0	0
T. 71	Level 1	249	12	4	0	2	0	0	1	1	0	13	0	11	0
T. 71	Level 2	251	0	0	0	0	1	0	0	2	5	0	0	1	0
T. 72	Level 1	253	0	0	0	1	0	0	0	0	0	0	0	0	0
T. 72	Level 2	254	1	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 1	255	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 2	256	0	1	0	0	1	0	0	2	0	0	0	3	0
T. 73	Level 3	257	5	8	0	3	0	0	0	1	0	6	0	39	0
T. 73	Level 4	258	7	14	2	1	0	4	2	0	6	4	0	41	0
T. 73	Level 5	259	0	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V160	V161	V163	V164	V165	V166	V167	V168	V169	V174	V175	V176	V177
T. 46	Level 1	176	28	10	6	17	15	0	4	0	0	5	0	4	1
T. 46	Level 2	178	60	16	1	75	48	3	13	12	5	4	0	5	2
T. 46	Level 3	189	11	0	2	95	55	4	5	0	0	2	0	0	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V160	V161	V163	V164	V165	V166	V167	V168	V169	V174	V175	V176	V177
T. 47	Level 1	177	1	1	1	8	9	0	1	1	0	1	0	0	1
T. 47	Level 2	180	1	2	0	4	13	5	0	2	0	3	0	2	1
T. 47	Level 3	181	0	0	0	6	1	0	3	0	0	0	0	0	0
T. 47	Level 4	183	0	0	0	0	2	0	0	0	0	0	0	0	0
T. 48	Level 2	187	0	0	0	2	0	0	0	0	0	0	0	0	0
T. 49	Level 1	190	1	0	0	5	1	0	0	0	0	0	0	0	0
T. 49	Level 2	191	2	0	0	6	3	0	0	0	0	0	0	0	0
T. 50	Level 1	184	0	0	0	0	1	2	0	0	0	0	0	0	0
T. 51	Level 1	192	0	0	0	7	8	0	0	0	0	0	0	0	0
T. 51	Level 2	193	19	1	0	56	33	0	4	1	0	2	0	0	1
T. 51	Level 3	194	9	8	0	17	44	2	2	1	0	5	0	0	1
T. 51	Level 4	205	0	0	0	0	1	0	0	0	0	0	0	0	0
T. 52	Level 1	185	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 1	195	2	0	0	2	6	0	0	0	0	1	0	0	0
T. 53	Level 2	196	2	1	0	7	3	0	0	0	0	0	0	0	0
T. 53	Level 3	197	16	0	1	17	14	0	5	7	0	0	0	0	0
T. 53	Level 4	198	2	3	0	4	4	0	0	0	0	1	0	1	1
T. 53	Level 4	203	1	2	0	6	4	0	0	0	0	0	0	0	0
T. 54	Level 2	186	2	0	0	23	9	1	0	0	0	0	0	0	0
T. 54	Level 3	188	1	0	0	9	2	0	0	0	0	0	0	0	0
T. 54	Level 4	199	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 1	200	0	0	0	3	0	0	0	0	0	0	0	0	0
T. 55	Level 2	201	0	0	0	17	17	1	1	0	0	0	0	0	0
T. 55	Level 3	202	0	0	0	6	5	0	0	0	0	0	0	0	0
T. 55	Level 4	209	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 1	204	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 2	206	2	4	1	52	25	2	3	1	0	0	0	0	0
T. 56	Level 3	211	5	0	0	15	11	1	0	1	0	0	0	0	0
T. 56	Level 4	214	0	0	0	1	1	0	0	0	0	0	0	0	0
T. 56/61	Level 4	217	5	0	0	10	8	0	0	0	0	0	0	0	0
T. 61	Level 1	213	0	0	0	7	2	0	0	0	0	0	0	0	0
T. 61	Level 2	218	18	2	1	49	18	1	0	1	1	0	0	0	0
T. 61	Level 3	219	8	0	0	37	10	0	0	0	0	1	0	0	0
T. 57	Level 1	207	0	0	0	11	11	2	0	0	0	1	0	0	1
T. 57	Level 2	208	4	12	1	73	112	8	23	1	0	3	0	0	1
T. 57	Level 3	216	13	2	3	62	21	3	7	0	0	1	0	0	1
T. 57	Level 4	221	1	0	0	1	1	0	0	0	0	0	0	0	0
T. 58	Level 2	210	8	1	0	73	44	0	10	1	0	1	0	0	1
T. 58	Level 3	212	0	0	0	2	1	0	0	0	0	0	0	0	0
T. 59	Level 1	227	1	1	0	6	8	0	0	0	0	0	0	0	0
T. 59	Level 2	228	30	3	1	170	51	3	3	3	0	0	0	0	0
T. 59	Level 3	231	1	0	0	19	4	0	0	0	0	0	0	0	0
T. 59	Level 4	232	2	0	0	5	0	0	0	0	0	0	0	0	0
T. 60	Level 1	222	1	0	0	25	2	1	1	0	0	0	0	0	0
T. 60	Level 2	224	1	0	0	9	8	0	0	1	0	1	0	0	1
T. 62	Level 2	223	0	0	0	7	0	1	0	0	0	1	0	0	0
T. 62	Level 1	226	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V160	V161	V163	V164	V165	V166	V167	V168	V169	V174	V175	V176	V177
T. 63	Level 1	229	3	0	0	11	35	5	2	0	6	0	0	0	0
T. 63	Level 2	230	19	23	1	222	205	20	59	16	3	12	2	0	0
T. 63	Level 3	235	0	0	0	0	1	0	0	0	0	0	0	0	0
T. 64	Level 1	236	1	0	0	1	0	0	1	0	0	0	0	0	0
T. 64	Level 2	237	4	0	0	17	31	3	9	0	0	0	0	0	0
T. 64	Level 3	241	1	0	0	7	5	0	1	0	0	0	0	0	0
T. 65	Level 1	238	0	0	0	3	1	0	0	0	0	0	0	0	0
T. 65	Level 2	239	14	1	0	19	27	6	4	0	5	1	1	0	0
T. 65	Level 3	240	28	2	0	118	44	5	7	12	0	0	0	0	0
T. 66	Level 1	242	0	0	0	0	1	0	0	0	0	0	0	0	0
T. 66	Level 2	243	32	7	0	107	67	2	5	19	1	6	0	0	1
T. 66	Level 3	244	2	0	0	3	2	0	0	0	0	0	0	0	0
T. 67	Level 2	233	0	0	0	1	0	0	0	0	0	0	0	0	0
T. 67	Level 1	234	1	0	0	2	2	0	2	0	0	0	0	0	0
T. 68	Level 1	247	6	2	0	12	16	1	3	3	0	0	0	0	0
T. 68	Level 2	248	10	2	0	26	19	4	4	6	0	1	0	0	0
T. 69	Level 1	220	2	1	0	32	10	0	0	0	0	0	0	0	0
T. 69	Level 2	225	4	0	0	29	12	3	2	0	0	0	0	0	0
T. 69	Level 3	252	0	0	0	4	2	0	0	0	0	0	0	0	0
T. 70	Level 1	245	0	0	0	2	0	0	0	0	0	0	0	0	0
T. 70	Level 2	246	5	3	0	16	31	4	0	2	0	0	0	0	0
T. 70	Level 3	250	1	0	0	3	0	0	0	0	0	0	0	0	0
T. 71	Level 1	249	1	0	0	7	23	3	4	4	0	0	0	0	0
T. 71	Level 2	251	1	0	0	0	3	0	2	1	0	0	0	0	0
T. 72	Level 1	253	0	0	0	2	0	0	1	0	0	0	0	0	0
T. 72	Level 2	254	0	0	0	2	6	0	2	0	0	0	0	0	0
T. 73	Level 1	255	0	0	0	1	0	0	0	0	0	0	0	0	0
T. 73	Level 2	256	0	0	0	6	7	0	2	0	0	0	0	0	0
T. 73	Level 3	257	2	1	0	30	12	0	0	4	0	3	0	0	0
T. 73	Level 4	258	1	4	0	34	18	1	0	19	0	7	0	16	0
T. 73	Level 5	259	0	0	0	0	1	0	0	0	0	0	0	0	0

V3	V5	V1	V178	V179	V180	V181	V182	V183	V184	V185	V186	V187	V188	V189	V190
T. 46	Level 1	176	4	0	4	2	5	1	1	24	1	1	5	0	0
T. 46	Level 2	178	1	1	0	2	1	0	3	38	0	7	6	2	0
T. 46	Level 3	189	2	0	0	0	1	1	0	6	1	0	1	1	1
T. 47	Level 1	177	0	0	0	1	0	0	0	0	0	0	0	0	0
T. 47	Level 2	180	2	2	0	1	2	2	0	2	0	0	0	0	0
T. 47	Level 3	181	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 47	Level 4	183	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 48	Level 2	187	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 1	190	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 2	191	0	0	0	0	0	0	0	1	0	0	0	0	0
T. 50	Level 1	184	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 1	192	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 2	193	1	0	0	2	0	0	0	5	1	3	0	3	0
T. 51	Level 3	194	4	0	0	0	5	0	0	5	2	0	1	0	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V178	V179	V180	V181	V182	V183	V184	V185	V186	V187	V188	V189	V190
T. 51	Level 4	205	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 52	Level 1	185	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 1	195	1	0	0	0	1	0	0	0	0	0	0	0	0
T. 53	Level 2	196	0	0	0	0	0	0	0	2	0	0	0	0	0
T. 53	Level 3	197	0	0	0	0	0	0	0	2	3	1	2	0	5
T. 53	Level 4	198	0	0	1	2	0	0	0	1	1	0	1	0	0
T. 53	Level 4	203	0	0	0	0	0	0	0	0	0	0	1	0	0
T. 54	Level 2	186	0	0	0	0	0	0	0	0	0	0	1	0	0
T. 54	Level 3	188	0	0	0	0	0	0	0	1	0	0	0	0	0
T. 54	Level 4	199	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 1	200	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 2	201	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 3	202	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 4	209	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 1	204	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 2	206	0	0	0	0	0	0	0	5	0	0	2	0	0
T. 56	Level 3	211	0	0	0	0	0	0	0	3	0	0	1	0	0
T. 56	Level 4	214	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56/61	Level 4	217	0	0	0	0	0	0	0	5	0	0	0	0	0
T. 61	Level 1	213	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 61	Level 2	218	0	0	0	0	0	0	0	8	1	1	3	0	3
T. 61	Level 3	219	1	0	0	0	1	0	0	5	0	0	0	1	1
T. 57	Level 1	207	0	0	0	1	0	0	0	0	0	0	0	0	0
T. 57	Level 2	208	2	0	0	1	2	0	0	2	1	1	0	3	1
T. 57	Level 3	216	0	0	0	1	0	0	0	5	1	0	3	0	1
T. 57	Level 4	221	0	0	0	0	0	0	0	1	0	0	0	0	0
T. 58	Level 2	210	0	0	0	0	1	0	0	4	0	0	1	0	0
T. 58	Level 3	212	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 59	Level 1	227	0	0	0	0	0	0	0	1	0	0	0	0	0
T. 59	Level 2	228	0	0	0	0	0	0	0	17	3	0	0	0	1
T. 59	Level 3	231	0	0	0	0	0	0	0	1	0	0	0	0	0
T. 59	Level 4	232	0	0	0	0	0	0	0	2	0	0	0	0	0
T. 60	Level 1	222	0	0	0	0	0	0	0	1	0	0	0	0	0
T. 60	Level 2	224	0	0	0	1	0	0	0	0	0	0	0	0	0
T. 62	Level 2	223	1	0	0	0	1	0	0	0	0	0	0	0	0
T. 62	Level 1	226	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 1	229	0	0	0	0	0	0	0	2	0	0	0	0	0
T. 63	Level 2	230	11	3	0	5	7	1	1	5	15	0	1	0	0
T. 63	Level 3	235	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 1	236	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 2	237	0	0	0	0	0	0	0	0	0	0	1	0	1
T. 64	Level 3	241	0	0	0	0	0	0	0	0	0	1	0	0	0
T. 65	Level 1	238	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 2	239	1	1	0	0	1	1	0	4	0	0	1	2	0
T. 65	Level 3	240	0	0	0	0	0	0	0	6	1	0	1	0	0
T. 66	Level 1	242	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V178	V179	V180	V181	V182	V183	V184	V185	V186	V187	V188	V189	V190
T. 66	Level 2	243	5	0	0	6	0	0	0	12	1	10	2	0	1
T. 66	Level 3	244	0	0	0	0	0	0	0	1	0	0	1	0	0
T. 67	Level 2	233	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 67	Level 1	234	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 68	Level 1	247	0	0	0	0	0	0	0	5	0	1	1	0	0
T. 68	Level 2	248	1	0	0	1	0	0	0	8	0	0	0	0	0
T. 69	Level 1	220	0	0	0	0	0	0	0	1	0	0	0	0	0
T. 69	Level 2	225	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 69	Level 3	252	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 1	245	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 2	246	0	0	0	0	0	0	0	1	0	0	0	0	0
T. 70	Level 3	250	0	0	0	0	0	0	0	1	0	0	0	0	0
T. 71	Level 1	249	0	0	0	0	0	0	0	1	0	0	0	0	0
T. 71	Level 2	251	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 72	Level 1	253	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 72	Level 2	254	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 1	255	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 2	256	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 3	257	2	1	0	1	1	0	1	0	0	0	3	0	0
T. 73	Level 4	258	5	2	16	5	17	1	0	1	0	0	0	0	0
T. 73	Level 5	259	0	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V191	V192	V193	V194	V195	V196	V197	V198	V199	V200	V201	V202	V203
T. 46	Level 1	176	0	2	5	0	1	1	0	1	0	0	0	0	0
T. 46	Level 2	178	4	8	3	0	4	1	0	1	1	0	1	0	0
T. 46	Level 3	189	0	0	1	0	0	0	0	0	0	0	1	0	2
T. 47	Level 1	177	0	0	0	0	0	0	0	0	0	0	1	0	0
T. 47	Level 2	180	0	0	0	0	0	0	0	0	0	0	1	0	0
T. 47	Level 3	181	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 47	Level 4	183	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 48	Level 2	187	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 1	190	0	0	0	0	0	0	0	0	0	0	0	0	1
T. 49	Level 2	191	0	0	0	0	0	0	0	0	0	0	0	0	1
T. 50	Level 1	184	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 1	192	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 2	193	3	2	0	1	0	0	1	0	0	0	0	0	0
T. 51	Level 3	194	6	2	0	0	0	0	0	0	0	0	0	0	1
T. 51	Level 4	205	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 52	Level 1	185	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 1	195	0	0	0	0	0	0	0	0	0	0	0	2	0
T. 53	Level 2	196	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 3	197	2	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 4	198	0	0	0	0	0	0	0	1	0	0	0	0	0
T. 53	Level 4	203	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 54	Level 2	186	0	0	0	0	1	0	0	0	0	0	0	0	0
T. 54	Level 3	188	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V191	V192	V193	V194	V195	V196	V197	V198	V199	V200	V201	V202	V203
T. 54	Level 4	199	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 1	200	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 2	201	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 3	202	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 4	209	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 1	204	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 2	206	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 3	211	1	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 4	214	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56/61	Level 4	217	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 61	Level 1	213	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 61	Level 2	218	0	0	0	0	1	1	0	2	1	0	0	0	0
T. 61	Level 3	219	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 57	Level 1	207	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 57	Level 2	208	5	0	0	0	0	0	0	0	0	0	0	0	1
T. 57	Level 3	216	0	0	0	0	0	0	0	2	0	0	0	0	0
T. 57	Level 4	221	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 58	Level 2	210	1	0	0	0	1	0	0	1	0	0	0	0	0
T. 58	Level 3	212	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 59	Level 1	227	0	0	0	0	1	0	0	0	0	0	0	0	0
T. 59	Level 2	228	0	1	4	1	2	1	0	0	0	0	0	0	3
T. 59	Level 3	231	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 59	Level 4	232	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 60	Level 1	222	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 60	Level 2	224	0	0	0	0	0	0	0	0	0	1	0	0	0
T. 62	Level 2	223	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 62	Level 1	226	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 1	229	0	0	0	0	2	0	0	0	0	0	0	0	0
T. 63	Level 2	230	0	0	0	10	2	0	0	4	0	0	0	0	0
T. 63	Level 3	235	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 1	236	0	0	0	1	0	0	0	0	0	0	0	0	0
T. 64	Level 2	237	1	0	0	1	0	0	0	0	0	0	0	0	0
T. 64	Level 3	241	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 1	238	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 2	239	3	0	1	2	2	0	0	0	0	0	0	0	0
T. 65	Level 3	240	1	3	0	4	11	0	0	0	0	0	0	0	1
T. 66	Level 1	242	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 66	Level 2	243	1	1	2	2	2	0	0	1	1	0	0	1	0
T. 66	Level 3	244	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 67	Level 2	233	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 67	Level 1	234	0	0	0	1	0	0	0	0	0	0	0	0	0
T. 68	Level 1	247	0	0	0	1	0	0	0	0	0	0	0	0	0
T. 68	Level 2	248	0	1	2	1	0	0	0	0	0	0	0	0	0
T. 69	Level 1	220	0	0	0	0	0	0	0	1	0	0	0	0	1
T. 69	Level 2	225	0	0	0	0	0	0	0	0	0	0	2	0	0
T. 69	Level 3	252	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 1	245	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V191	V192	V193	V194	V195	V196	V197	V198	V199	V200	V201	V202	V203
T. 70	Level 2	246	0	0	1	3	2	0	0	0	0	0	0	0	1
T. 70	Level 3	250	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 71	Level 1	249	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 71	Level 2	251	1	0	0	0	0	0	0	0	0	0	0	0	0
T. 72	Level 1	253	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 72	Level 2	254	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 1	255	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 2	256	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 3	257	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 4	258	0	0	0	0	0	0	0	0	0	0	0	0	4
T. 73	Level 5	259	0	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V204	V205	V210	V213	V214	V216	V217	V218	V219	V220	V221	V222	V223
T. 46	Level 1	176	0	1	0	0	0	2	17	3	9	0	6	0	0
T. 46	Level 2	178	0	0	0	0	0	1	60	25	22	0	25	3	0
T. 46	Level 3	189	0	0	0	0	0	0	52	30	38	5	28	2	0
T. 47	Level 1	177	0	0	0	0	2	0	2	0	4	1	7	1	0
T. 47	Level 2	180	0	0	0	0	0	0	5	2	3	1	8	0	1
T. 47	Level 3	181	0	0	0	0	0	0	2	1	5	0	1	0	0
T. 47	Level 4	183	0	0	0	0	0	0	0	0	1	0	1	0	0
T. 48	Level 2	187	0	0	0	0	0	0	0	1	1	0	0	0	0
T. 49	Level 1	190	0	0	0	0	0	0	1	0	1	0	2	0	0
T. 49	Level 2	191	0	0	0	0	0	0	3	1	2	0	3	0	0
T. 50	Level 1	184	0	0	0	0	0	0	0	0	2	0	1	0	0
T. 51	Level 1	192	0	0	0	0	0	0	5	0	6	0	1	0	0
T. 51	Level 2	193	0	0	1	0	0	0	29	7	26	3	21	1	0
T. 51	Level 3	194	0	0	0	0	0	0	15	1	23	0	24	2	0
T. 51	Level 4	205	0	0	0	0	0	0	0	0	0	0	1	0	0
T. 52	Level 1	185	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 1	195	0	0	0	0	0	0	2	2	1	1	3	1	0
T. 53	Level 2	196	0	0	0	1	0	0	6	1	2	0	1	0	0
T. 53	Level 3	197	0	0	0	0	0	1	9	11	12	1	6	1	0
T. 53	Level 4	198	0	0	0	1	0	0	4	2	1	0	2	0	0
T. 53	Level 4	203	0	0	0	2	0	0	3	0	4	0	2	0	0
T. 54	Level 2	186	0	0	0	0	0	0	11	6	8	1	7	0	0
T. 54	Level 3	188	0	0	0	0	0	0	2	2	3	0	4	0	0
T. 54	Level 4	199	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 1	200	0	0	0	0	0	0	3	0	0	0	0	0	0
T. 55	Level 2	201	0	0	0	0	0	0	8	4	20	0	3	0	0
T. 55	Level 3	202	0	0	0	0	0	0	5	4	2	0	0	0	0
T. 55	Level 4	209	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 1	204	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 2	206	0	0	0	0	0	0	24	10	28	0	9	3	3
T. 56	Level 3	211	0	0	0	0	0	0	7	3	7	1	8	0	1
T. 56	Level 4	214	0	0	0	0	0	0	0	0	0	0	1	0	0
T. 56/61	Level 4	217	0	0	0	0	0	0	6	3	3	0	8	0	0
T. 61	Level 1	213	0	0	0	0	0	0	4	0	1	0	3	0	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V204	V205	V210	V213	V214	V216	V217	V218	V219	V220	V221	V222	V223
T. 61	Level 2	218	0	0	0	0	0	0	14	6	25	1	15	1	0
T. 61	Level 3	219	0	0	0	1	0	0	6	3	32	1	3	2	0
T. 57	Level 1	207	0	0	0	0	0	0	6	6	5	0	6	0	0
T. 57	Level 2	208	0	0	0	3	0	0	35	26	83	0	56	7	0
T. 57	Level 3	216	1	0	0	5	0	0	14	19	38	1	16	0	0
T. 57	Level 4	221	0	0	0	0	0	0	1	1	0	0	0	0	0
T. 58	Level 2	210	0	1	0	0	0	0	32	12	37	2	35	0	0
T. 58	Level 3	212	0	0	0	0	0	0	1	0	1	0	1	0	0
T. 59	Level 1	227	0	0	0	0	0	0	7	0	0	0	6	0	1
T. 59	Level 2	228	0	1	0	0	0	0	28	15	97	3	58	8	1
T. 59	Level 3	231	0	0	0	0	0	0	3	6	11	0	3	0	0
T. 59	Level 4	232	0	0	0	0	0	0	3	0	0	0	2	0	0
T. 60	Level 1	222	0	0	0	0	0	0	9	5	11	0	2	6	0
T. 60	Level 2	224	0	0	0	0	0	0	4	1	4	1	4	3	0
T. 62	Level 2	223	0	0	0	0	0	0	3	1	2	0	2	0	0
T. 62	Level 1	226	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 1	229	0	0	0	0	0	0	4	8	10	0	30	0	1
T. 63	Level 2	230	0	0	0	2	4	0	30	19	232	17	125	25	0
T. 63	Level 3	235	0	0	0	0	0	0	0	1	0	0	0	0	0
T. 64	Level 1	236	0	0	0	0	0	0	0	1	0	0	0	0	0
T. 64	Level 2	237	0	0	0	0	0	0	14	9	12	2	18	1	1
T. 64	Level 3	241	0	0	0	0	0	0	0	0	4	0	8	1	0
T. 65	Level 1	238	0	0	0	0	0	0	2	0	1	0	1	0	0
T. 65	Level 2	239	0	0	0	0	0	0	26	14	2	0	8	3	0
T. 65	Level 3	240	0	0	0	1	0	1	46	35	35	4	38	4	0
T. 66	Level 1	242	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 66	Level 2	243	0	1	0	1	0	0	30	15	49	3	59	7	0
T. 66	Level 3	244	0	0	0	0	0	0	1	1	1	0	0	2	0
T. 67	Level 2	233	0	0	0	0	0	0	0	0	1	0	0	0	0
T. 67	Level 1	234	0	0	0	0	0	0	0	0	1	0	1	2	0
T. 68	Level 1	247	0	0	0	0	0	0	9	9	6	0	5	2	0
T. 68	Level 2	248	0	0	0	0	0	0	21	6	9	3	11	1	0
T. 69	Level 1	220	0	0	0	0	0	0	10	2	19	0	7	2	0
T. 69	Level 2	225	0	0	0	2	0	0	13	0	22	1	4	3	0
T. 69	Level 3	252	0	0	0	0	0	0	0	0	3	0	2	1	0
T. 70	Level 1	245	0	0	0	0	0	0	0	0	2	0	0	0	0
T. 70	Level 2	246	0	0	0	0	0	0	10	14	9	5	8	4	1
T. 70	Level 3	250	0	0	0	0	0	0	2	1	0	0	0	0	0
T. 71	Level 1	249	0	0	0	0	0	0	9	8	7	0	7	6	0
T. 71	Level 2	251	0	0	0	0	0	0	1	1	0	0	2	1	0
T. 72	Level 1	253	0	0	0	0	0	0	1	0	2	0	0	0	0
T. 72	Level 2	254	0	0	0	0	0	0	2	1	5	0	0	0	0
T. 73	Level 1	255	0	0	0	0	0	0	1	0	0	0	0	0	0
T. 73	Level 2	256	0	0	0	0	0	0	1	2	2	0	2	3	3
T. 73	Level 3	257	0	0	0	0	0	0	5	10	10	0	9	3	0
T. 73	Level 4	258	0	0	0	0	0	0	9	19	1	4	16	0	0
T. 73	Level 5	259	0	0	0	0	0	0	0	1	0	0	0	0	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V224	V225	V226	V227	V228	V229	V230	V231	V232	V233	V234	V235	V236
T. 46	Level 1	176	1	0	0	0	31	3	1	0	0	0	0	0	1
T. 46	Level 2	178	2	0	0	2	132	1	5	1	0	0	0	0	0
T. 46	Level 3	189	0	0	1	1	129	13	9	3	0	0	0	0	2
T. 47	Level 1	177	3	0	0	0	17	0	0	1	0	0	0	0	0
T. 47	Level 2	180	2	0	0	0	17	0	4	0	0	0	0	0	0
T. 47	Level 3	181	1	0	0	0	8	0	1	1	0	0	0	0	0
T. 47	Level 4	183	0	0	0	0	1	0	1	0	0	0	0	0	0
T. 48	Level 2	187	0	0	0	0	2	0	0	0	0	0	0	0	0
T. 49	Level 1	190	0	0	0	2	3	1	2	0	0	0	0	0	0
T. 49	Level 2	191	0	0	0	0	7	1	0	0	0	0	0	0	0
T. 50	Level 1	184	0	0	0	0	3	0	0	0	0	0	0	0	0
T. 51	Level 1	192	1	0	0	2	15	0	0	0	0	0	0	0	0
T. 51	Level 2	193	4	0	0	2	67	11	3	4	0	0	4	1	0
T. 51	Level 3	194	0	0	0	0	47	2	10	6	0	0	0	0	0
T. 51	Level 4	205	0	0	0	0	1	0	0	0	0	0	0	0	0
T. 52	Level 1	185	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 1	195	0	0	0	0	8	1	1	0	0	0	0	0	0
T. 53	Level 2	196	0	0	0	0	7	0	3	0	0	0	0	0	0
T. 53	Level 3	197	0	0	0	3	35	2	6	0	0	0	0	0	0
T. 53	Level 4	198	0	0	0	0	8	0	1	0	0	0	0	0	0
T. 53	Level 4	203	0	0	0	1	7	3	0	0	0	0	0	0	0
T. 54	Level 2	186	0	0	0	0	25	2	5	1	0	0	0	0	0
T. 54	Level 3	188	0	0	0	0	9	0	1	1	0	0	0	0	0
T. 54	Level 4	199	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 1	200	0	0	0	0	2	0	1	0	0	0	0	0	0
T. 55	Level 2	201	0	0	0	1	31	0	4	0	1	0	0	0	0
T. 55	Level 3	202	0	0	0	0	8	0	0	3	0	0	0	0	0
T. 55	Level 4	209	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 1	204	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 2	206	2	1	0	2	57	11	7	6	0	1	0	0	0
T. 56	Level 3	211	0	0	0	0	19	4	0	1	0	0	0	0	0
T. 56	Level 4	214	0	0	0	1	2	0	0	0	0	0	0	0	0
T. 56/61	Level 4	217	0	0	0	1	18	1	1	1	0	0	0	0	0
T. 61	Level 1	213	0	0	0	1	8	1	0	0	0	0	0	0	0
T. 61	Level 2	218	0	0	0	6	54	4	5	5	0	0	0	0	0
T. 61	Level 3	219	0	0	0	0	44	0	0	2	0	0	0	0	1
T. 57	Level 1	207	1	0	0	0	14	4	2	2	0	0	0	1	1
T. 57	Level 2	208	4	0	0	5	181	15	18	2	0	0	0	0	0
T. 57	Level 3	216	1	0	1	3	76	6	8	3	0	0	0	0	0
T. 57	Level 4	221	0	0	0	0	1	1	0	0	0	0	0	0	0
T. 58	Level 2	210	4	0	0	5	102	9	14	0	0	0	0	0	0
T. 58	Level 3	212	0	0	0	0	3	0	0	0	0	0	0	0	0
T. 59	Level 1	227	0	0	0	0	9	3	1	1	0	0	0	0	0
T. 59	Level 2	228	4	0	0	13	196	14	11	6	0	0	0	0	0
T. 59	Level 3	231	0	0	0	0	23	0	0	0	0	0	0	0	0
T. 59	Level 4	232	0	0	0	0	4	1	0	0	0	0	0	0	0
T. 60	Level 1	222	1	0	0	0	26	1	0	2	0	0	0	0	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V224	V225	V226	V227	V228	V229	V230	V231	V232	V233	V234	V235	V236
T. 60	Level 2	224	0	0	0	0	15	0	0	2	0	0	0	0	0
T. 62	Level 2	223	0	0	0	0	7	0	0	1	0	0	0	0	0
T. 62	Level 1	226	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 1	229	0	0	0	0	40	0	12	1	0	0	0	0	0
T. 63	Level 2	230	29	0	0	29	467	7	23	6	0	0	0	0	0
T. 63	Level 3	235	0	0	0	0	1	0	0	0	0	0	0	0	0
T. 64	Level 1	236	0	0	0	1	1	0	0	0	0	0	0	0	0
T. 64	Level 2	237	1	0	0	2	44	1	6	8	0	0	0	0	0
T. 64	Level 3	241	0	0	0	0	13	0	0	0	0	0	0	0	0
T. 65	Level 1	238	0	0	0	0	2	1	1	0	0	0	0	0	0
T. 65	Level 2	239	2	0	0	0	39	4	9	4	0	0	0	0	0
T. 65	Level 3	240	1	0	0	9	153	3	8	9	0	0	0	0	0
T. 66	Level 1	242	0	0	0	0	1	0	0	0	0	0	0	0	0
T. 66	Level 2	243	8	1	0	9	165	2	6	8	0	0	0	0	0
T. 66	Level 3	244	0	0	0	0	5	0	0	0	0	0	0	0	0
T. 67	Level 2	233	0	0	0	0	1	0	0	0	0	0	0	0	0
T. 67	Level 1	234	2	0	0	0	6	0	0	0	0	0	0	0	0
T. 68	Level 1	247	1	0	0	0	23	3	4	2	0	0	0	0	0
T. 68	Level 2	248	8	0	0	0	41	3	6	3	0	0	0	0	0
T. 69	Level 1	220	0	0	0	3	34	1	7	1	0	0	0	0	0
T. 69	Level 2	225	1	0	0	2	41	3	2	0	0	0	0	0	0
T. 69	Level 3	252	0	0	0	0	6	0	0	0	0	0	0	0	0
T. 70	Level 1	245	0	0	0	0	2	0	0	0	0	0	0	0	0
T. 70	Level 2	246	0	0	0	0	44	2	4	0	0	0	0	0	1
T. 70	Level 3	250	0	0	0	0	3	0	0	0	0	0	0	0	0
T. 71	Level 1	249	0	0	0	0	28	3	3	2	0	0	0	0	0
T. 71	Level 2	251	0	0	0	0	4	1	0	0	0	0	0	0	0
T. 72	Level 1	253	0	0	0	0	3	0	0	0	0	0	0	0	0
T. 72	Level 2	254	1	0	0	1	7	1	1	1	0	0	0	0	0
T. 73	Level 1	255	0	0	0	0	1	0	0	0	0	0	0	0	0
T. 73	Level 2	256	2	0	0	0	11	0	4	0	0	0	0	0	0
T. 73	Level 3	257	5	0	0	0	40	0	0	0	0	2	0	0	0
T. 73	Level 4	258	3	0	0	1	50	3	0	0	0	0	0	0	0
T. 73	Level 5	259	0	0	0	0	0	1	0	0	0	0	0	0	0

V3	V5	V1	V237	V238	V239	V240	V241	V242	V243	V244	V245	V253	V254	V255	V256
T. 46	Level 1	176	0	0	0	0	0	4	0	0	5	0	2	0	1
T. 46	Level 2	178	0	0	0	3	0	0	0	1	1	1	3	0	1
T. 46	Level 3	189	0	1	0	0	0	0	1	1	0	0	0	0	0
T. 47	Level 1	177	0	0	0	0	0	1	0	0	0	0	0	0	0
T. 47	Level 2	180	0	1	0	0	0	0	0	5	0	0	0	0	0
T. 47	Level 3	181	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 47	Level 4	183	0	0	0	0	0	0	0	0	0	0	0	1	0
T. 48	Level 2	187	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 1	190	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 2	191	0	1	0	0	0	0	0	0	0	0	0	0	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V237	V238	V239	V240	V241	V242	V243	V244	V245	V253	V254	V255	V256
T. 50	Level 1	184	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 1	192	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 2	193	1	2	0	0	1	1	0	0	0	0	0	0	0
T. 51	Level 3	194	0	0	0	0	4	1	0	0	0	0	0	0	0
T. 51	Level 4	205	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 52	Level 1	185	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 1	195	0	0	0	0	0	0	1	0	0	0	0	0	0
T. 53	Level 2	196	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 3	197	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 4	198	0	0	0	0	1	1	0	0	0	0	0	0	0
T. 53	Level 4	203	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 54	Level 2	186	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 54	Level 3	188	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 54	Level 4	199	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 1	200	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 2	201	0	0	0	0	0	0	0	0	0	1	0	0	0
T. 55	Level 3	202	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 4	209	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 1	204	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 2	206	0	0	0	0	0	0	0	0	0	0	1	0	0
T. 56	Level 3	211	0	3	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 4	214	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56/61	Level 4	217	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 61	Level 1	213	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 61	Level 2	218	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 61	Level 3	219	0	0	0	0	0	0	0	1	0	0	0	1	0
T. 57	Level 1	207	0	0	0	0	0	1	0	0	0	0	0	0	0
T. 57	Level 2	208	0	0	0	0	0	3	0	0	0	0	0	0	0
T. 57	Level 3	216	0	0	0	0	0	0	0	1	0	0	0	0	0
T. 57	Level 4	221	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 58	Level 2	210	0	0	0	0	0	0	0	0	1	0	0	0	0
T. 58	Level 3	212	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 59	Level 1	227	0	0	0	0	0	0	0	0	0	1	0	0	0
T. 59	Level 2	228	0	0	0	0	0	0	0	0	0	0	0	0	1
T. 59	Level 3	231	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 59	Level 4	232	0	0	0	0	0	0	0	0	0	0	1	0	0
T. 60	Level 1	222	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 60	Level 2	224	0	0	0	0	0	0	0	0	1	1	0	0	0
T. 62	Level 2	223	0	0	0	0	0	0	0	0	1	0	0	0	0
T. 62	Level 1	226	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 1	229	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 2	230	0	0	3	0	0	4	0	4	6	1	0	0	0
T. 63	Level 3	235	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 1	236	0	0	1	0	0	0	0	0	0	0	0	0	0
T. 64	Level 2	237	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 3	241	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 1	238	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V237	V238	V239	V240	V241	V242	V243	V244	V245	V253	V254	V255	V256
T. 65	Level 2	239	0	0	0	0	1	0	0	2	0	0	2	0	0
T. 65	Level 3	240	0	0	2	0	0	0	0	0	0	0	0	0	0
T. 66	Level 1	242	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 66	Level 2	243	0	0	0	0	0	1	0	1	4	0	0	0	0
T. 66	Level 3	244	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 67	Level 2	233	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 67	Level 1	234	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 68	Level 1	247	0	0	0	0	0	0	0	0	0	0	1	0	0
T. 68	Level 2	248	0	0	0	1	0	0	0	0	0	0	0	0	0
T. 69	Level 1	220	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 69	Level 2	225	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 69	Level 3	252	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 1	245	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 2	246	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 3	250	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 71	Level 1	249	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 71	Level 2	251	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 72	Level 1	253	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 72	Level 2	254	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 1	255	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 2	256	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 3	257	0	0	0	1	0	0	1	0	1	0	0	0	0
T. 73	Level 4	258	0	0	0	1	2	0	0	0	20	0	0	0	0
T. 73	Level 5	259	0	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V257	V258	V260	V261	V262	V263	V264	V265	V266	V267	V269	V271	V272
T. 46	Level 1	176	0	0	2	0	3	0	1	1	1	1	1	1	0
T. 46	Level 2	178	0	0	8	3	0	1	18	5	5	6	4	4	0
T. 46	Level 3	189	0	0	7	0	1	0	15	0	14	0	4	2	2
T. 47	Level 1	177	0	0	4	0	0	0	2	0	0	0	0	0	0
T. 47	Level 2	180	0	0	0	3	0	4	9	5	5	3	10	2	0
T. 47	Level 3	181	0	0	0	9	0	0	1	0	11	0	7	0	0
T. 47	Level 4	183	0	0	0	0	0	0	1	0	0	0	0	0	0
T. 48	Level 2	187	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 1	190	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 2	191	0	0	0	0	0	0	0	1	0	0	2	1	0
T. 50	Level 1	184	0	0	0	0	0	0	1	0	0	0	0	0	0
T. 51	Level 1	192	0	0	1	0	0	0	0	0	0	0	0	0	0
T. 51	Level 2	193	0	0	1	0	0	0	7	1	1	2	5	2	0
T. 51	Level 3	194	0	0	9	2	0	1	8	3	3	4	0	0	0
T. 51	Level 4	205	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 52	Level 1	185	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 1	195	0	0	0	0	0	1	1	2	0	1	0	0	0
T. 53	Level 2	196	0	0	0	0	0	2	1	1	0	0	0	0	0
T. 53	Level 3	197	0	0	0	1	0	0	2	1	0	1	1	1	0
T. 53	Level 4	198	0	0	0	0	0	0	1	0	2	0	1	0	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V257	V258	V260	V261	V262	V263	V264	V265	V266	V267	V269	V271	V272
T. 53	Level 4	203	0	0	3	0	0	0	8	2	1	1	4	1	3
T. 54	Level 2	186	0	0	0	0	1	0	2	0	0	0	0	0	0
T. 54	Level 3	188	0	0	0	0	0	0	1	0	1	0	0	2	0
T. 54	Level 4	199	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 1	200	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 2	201	0	0	4	0	0	0	0	0	4	0	0	0	0
T. 55	Level 3	202	0	0	3	0	0	0	0	0	0	0	0	0	0
T. 55	Level 4	209	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 1	204	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 2	206	0	0	2	1	0	3	6	2	0	1	3	0	0
T. 56	Level 3	211	0	0	3	0	0	0	2	0	2	0	0	0	0
T. 56	Level 4	214	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56/61	Level 4	217	0	0	0	0	1	0	1	0	0	0	1	0	0
T. 61	Level 1	213	0	0	0	0	0	0	3	0	0	0	0	0	0
T. 61	Level 2	218	0	0	1	6	1	0	3	3	4	1	3	2	0
T. 61	Level 3	219	0	0	1	1	0	0	0	0	3	0	0	0	0
T. 57	Level 1	207	0	0	2	0	0	3	0	0	1	1	0	0	0
T. 57	Level 2	208	0	0	2	1	1	0	19	6	0	8	7	2	0
T. 57	Level 3	216	0	0	5	1	0	0	11	0	5	1	6	0	0
T. 57	Level 4	221	0	0	0	1	0	0	3	0	2	0	0	0	0
T. 58	Level 2	210	0	0	0	2	2	1	8	1	0	0	2	0	0
T. 58	Level 3	212	0	0	0	0	0	0	0	1	0	0	1	0	0
T. 59	Level 1	227	0	0	1	0	0	0	3	0	0	0	1	0	0
T. 59	Level 2	228	2	0	18	0	1	0	8	0	15	4	2	1	0
T. 59	Level 3	231	0	0	1	0	0	0	6	1	1	0	0	0	0
T. 59	Level 4	232	0	0	0	0	0	0	2	0	0	0	0	0	0
T. 60	Level 1	222	0	0	0	0	0	0	4	0	2	0	3	1	0
T. 60	Level 2	224	0	0	0	0	0	0	0	2	0	1	0	1	0
T. 62	Level 2	223	0	0	0	0	0	0	0	0	1	0	0	0	0
T. 62	Level 1	226	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 1	229	0	0	4	1	0	0	6	1	8	3	0	0	0
T. 63	Level 2	230	0	0	17	8	5	3	78	69	56	40	27	0	0
T. 63	Level 3	235	0	0	0	0	0	0	0	1	0	0	0	0	0
T. 64	Level 1	236	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 2	237	0	0	4	2	0	0	1	0	2	2	0	1	0
T. 64	Level 3	241	0	0	0	0	0	0	1	0	0	1	0	0	0
T. 65	Level 1	238	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 2	239	0	0	2	1	0	0	0	0	1	1	0	0	0
T. 65	Level 3	240	0	0	7	2	1	1	25	2	2	6	2	0	0
T. 66	Level 1	242	0	0	0	0	0	0	0	0	1	0	0	0	0
T. 66	Level 2	243	0	0	7	4	0	2	9	4	17	3	1	1	0
T. 66	Level 3	244	0	0	0	0	0	0	0	0	0	0	0	1	0
T. 67	Level 2	233	0	0	0	1	0	0	0	0	3	2	0	0	0
T. 67	Level 1	234	0	0	0	0	0	0	0	0	0	1	0	0	0
T. 68	Level 1	247	0	0	0	0	0	0	0	0	0	0	1	0	0
T. 68	Level 2	248	0	0	3	1	2	1	0	0	4	0	0	0	0
T. 69	Level 1	220	0	0	0	0	0	0	1	0	2	0	0	0	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V257	V258	V260	V261	V262	V263	V264	V265	V266	V267	V269	V271	V272
T. 69	Level 2	225	0	0	0	0	0	2	0	2	4	0	1	1	0
T. 69	Level 3	252	0	0	0	0	1	0	0	0	1	0	0	0	0
T. 70	Level 1	245	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 2	246	0	0	5	1	0	0	8	0	1	3	0	2	0
T. 70	Level 3	250	0	0	0	0	0	0	0	0	0	0	1	0	0
T. 71	Level 1	249	0	0	1	0	0	0	1	4	1	4	0	0	0
T. 71	Level 2	251	0	0	0	0	0	0	1	0	0	0	0	0	0
T. 72	Level 1	253	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 72	Level 2	254	0	0	0	0	0	0	1	0	0	0	0	0	0
T. 73	Level 1	255	0	0	0	0	0	0	1	0	0	0	0	0	0
T. 73	Level 2	256	0	0	1	1	0	0	3	0	0	0	0	0	0
T. 73	Level 3	257	0	1	0	0	0	0	16	12	6	0	2	0	0
T. 73	Level 4	258	0	0	1	1	0	0	18	10	6	1	12	1	0
T. 73	Level 5	259	0	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V273	V274	V275	V276	V277	V279	V280	V281	V282	V286	V287	V288	V289
T. 46	Level 1	176	0	0	0	0	1	1	1	0	0	0	11	4	0
T. 46	Level 2	178	1	3	0	0	1	2	3	0	0	0	0	5	2
T. 46	Level 3	189	0	2	0	0	0	0	0	0	0	0	1	0	2
T. 47	Level 1	177	0	0	0	0	0	2	0	0	0	0	0	0	0
T. 47	Level 2	180	0	0	0	0	0	0	0	0	0	0	0	16	1
T. 47	Level 3	181	0	0	0	0	0	1	0	0	0	1	0	0	0
T. 47	Level 4	183	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 48	Level 2	187	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 1	190	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 2	191	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 50	Level 1	184	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 1	192	0	0	0	0	0	1	0	0	0	0	0	2	3
T. 51	Level 2	193	0	0	1	0	0	5	0	0	0	0	0	0	1
T. 51	Level 3	194	0	0	2	0	0	0	0	0	0	0	0	1	1
T. 51	Level 4	205	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 52	Level 1	185	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 1	195	0	0	0	0	0	1	1	0	0	0	0	0	0
T. 53	Level 2	196	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 3	197	0	1	1	0	0	0	0	0	0	0	1	0	1
T. 53	Level 4	198	0	0	0	0	0	0	0	0	0	0	1	0	0
T. 53	Level 4	203	0	2	0	0	0	0	0	0	0	0	0	0	0
T. 54	Level 2	186	0	2	0	0	0	1	0	0	0	0	0	1	1
T. 54	Level 3	188	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 54	Level 4	199	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 1	200	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 2	201	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 3	202	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 4	209	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 1	204	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 2	206	0	0	0	0	0	2	0	0	0	0	0	0	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V273	V274	V275	V276	V277	V279	V280	V281	V282	V286	V287	V288	V289
T. 56	Level 3	211	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 4	214	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56/61	Level 4	217	0	0	1	0	0	0	0	0	0	0	0	0	0
T. 61	Level 1	213	0	0	0	0	0	0	0	0	0	0	1	0	0
T. 61	Level 2	218	0	1	0	1	0	0	0	0	0	0	0	0	0
T. 61	Level 3	219	0	0	0	0	0	1	0	0	0	0	0	0	0
T. 57	Level 1	207	0	0	0	0	0	0	0	0	0	0	0	0	2
T. 57	Level 2	208	0	0	1	0	0	5	0	0	0	0	1	6	7
T. 57	Level 3	216	0	0	0	0	0	3	0	0	0	0	1	1	0
T. 57	Level 4	221	0	0	0	0	0	0	0	0	0	0	0	1	0
T. 58	Level 2	210	0	1	0	0	0	1	0	0	0	0	0	0	2
T. 58	Level 3	212	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 59	Level 1	227	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 59	Level 2	228	0	1	0	0	0	1	0	1	0	0	0	1	0
T. 59	Level 3	231	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 59	Level 4	232	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 60	Level 1	222	0	0	0	0	0	1	0	0	0	0	0	0	0
T. 60	Level 2	224	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 62	Level 2	223	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 62	Level 1	226	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 1	229	0	1	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 2	230	0	0	0	0	0	5	0	0	0	0	0	0	2
T. 63	Level 3	235	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 1	236	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 2	237	0	0	0	0	0	0	0	0	0	0	0	2	0
T. 64	Level 3	241	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 1	238	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 2	239	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 3	240	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 66	Level 1	242	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 66	Level 2	243	0	1	0	0	0	6	0	0	0	0	0	0	0
T. 66	Level 3	244	0	1	0	0	0	0	0	0	0	0	0	0	0
T. 67	Level 2	233	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 67	Level 1	234	0	0	0	0	0	0	0	0	0	0	1	0	1
T. 68	Level 1	247	0	1	0	0	0	0	0	0	0	0	0	0	0
T. 68	Level 2	248	0	0	0	0	0	0	0	0	0	0	0	0	1
T. 69	Level 1	220	0	0	0	0	0	2	0	0	0	0	0	0	0
T. 69	Level 2	225	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 69	Level 3	252	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 1	245	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 2	246	0	0	4	0	0	2	0	0	1	0	0	0	0
T. 70	Level 3	250	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 71	Level 1	249	0	0	0	0	0	1	0	0	0	0	0	0	2
T. 71	Level 2	251	0	0	0	0	0	2	0	0	0	0	0	0	0
T. 72	Level 1	253	0	0	0	0	0	0	0	0	0	0	0	0	1
T. 72	Level 2	254	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 1	255	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V273	V274	V275	V276	V277	V279	V280	V281	V282	V286	V287	V288	V289
T. 73	Level 2	256	0	0	0	0	0	2	0	0	0	0	0	0	0
T. 73	Level 3	257	0	1	0	0	0	0	1	0	0	0	0	0	3
T. 73	Level 4	258	0	0	0	0	0	0	0	0	0	0	0	0	1
T. 73	Level 5	259	0	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V290	V291	V292	V294	V295	V296	V297	V300	V301	V302	V303	V304	V305
T. 46	Level 1	176	2	0	0	0	0	0	5	5	0	0	0	0	0
T. 46	Level 2	178	0	1	0	0	0	1	5	9	0	1	1	0	0
T. 46	Level 3	189	0	0	0	1	1	0	0	7	11	0	0	0	0
T. 47	Level 1	177	1	0	0	0	0	0	1	0	0	0	0	0	0
T. 47	Level 2	180	0	0	0	0	1	0	16	0	1	0	0	0	0
T. 47	Level 3	181	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 47	Level 4	183	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 48	Level 2	187	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 1	190	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 2	191	0	0	0	0	0	0	0	0	1	0	0	0	0
T. 50	Level 1	184	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 1	192	0	0	1	1	0	2	1	0	0	0	0	0	0
T. 51	Level 2	193	1	0	0	0	0	0	2	8	14	2	1	1	0
T. 51	Level 3	194	0	0	1	0	0	0	1	6	6	1	4	0	0
T. 51	Level 4	205	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 52	Level 1	185	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 1	195	0	0	0	0	0	0	0	1	0	0	0	0	0
T. 53	Level 2	196	0	0	0	0	0	0	0	2	3	0	0	0	0
T. 53	Level 3	197	0	0	0	0	1	0	0	11	4	0	0	0	0
T. 53	Level 4	198	0	0	0	0	0	0	0	2	1	0	1	0	0
T. 53	Level 4	203	0	0	0	0	0	0	0	2	4	0	0	0	0
T. 54	Level 2	186	0	0	0	0	0	0	2	1	4	1	0	0	0
T. 54	Level 3	188	0	0	0	0	0	0	0	0	3	0	0	0	0
T. 54	Level 4	199	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 1	200	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 2	201	0	0	0	0	0	0	0	0	0	0	0	1	0
T. 55	Level 3	202	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 4	209	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 1	204	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 2	206	0	0	0	0	0	0	0	2	5	0	0	0	0
T. 56	Level 3	211	0	0	0	0	0	0	0	0	0	1	0	0	0
T. 56	Level 4	214	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56/61	Level 4	217	0	0	0	0	0	0	0	0	2	0	0	0	0
T. 61	Level 1	213	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 61	Level 2	218	0	0	0	0	0	0	0	7	7	0	0	0	0
T. 61	Level 3	219	0	0	0	0	0	0	0	1	10	0	0	0	1
T. 57	Level 1	207	0	1	0	0	0	1	0	0	0	0	1	0	0
T. 57	Level 2	208	3	0	3	0	0	0	0	2	5	0	0	0	0
T. 57	Level 3	216	0	0	0	0	0	0	1	5	6	0	1	0	0
T. 57	Level 4	221	0	0	0	0	0	0	1	0	0	0	0	0	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V290	V291	V292	V294	V295	V296	V297	V300	V301	V302	V303	V304	V305
T. 58	Level 2	210	1	1	0	0	0	0	0	1	1	0	0	0	0
T. 58	Level 3	212	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 59	Level 1	227	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 59	Level 2	228	0	0	1	0	0	0	0	2	2	0	0	0	0
T. 59	Level 3	231	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 59	Level 4	232	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 60	Level 1	222	0	0	0	0	0	0	0	1	4	0	0	0	0
T. 60	Level 2	224	0	0	0	0	0	0	0	1	0	0	0	0	0
T. 62	Level 2	223	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 62	Level 1	226	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 1	229	0	0	0	0	0	0	0	1	0	0	0	0	0
T. 63	Level 2	230	0	0	2	0	0	0	0	7	9	1	1	0	0
T. 63	Level 3	235	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 1	236	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 2	237	0	0	0	0	0	0	2	1	4	0	0	0	0
T. 64	Level 3	241	0	0	0	0	0	0	0	1	0	0	0	0	0
T. 65	Level 1	238	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 2	239	0	0	0	0	0	0	0	4	0	0	2	1	1
T. 65	Level 3	240	0	0	0	0	0	0	0	7	2	0	0	5	0
T. 66	Level 1	242	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 66	Level 2	243	0	0	0	0	0	0	0	3	1	0	0	1	0
T. 66	Level 3	244	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 67	Level 2	233	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 67	Level 1	234	0	0	0	0	0	0	1	0	0	0	0	0	0
T. 68	Level 1	247	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 68	Level 2	248	0	0	0	0	0	1	0	0	1	0	0	0	0
T. 69	Level 1	220	0	0	0	0	0	0	0	0	2	1	0	0	0
T. 69	Level 2	225	0	0	0	0	0	0	0	0	1	0	0	0	0
T. 69	Level 3	252	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 1	245	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 2	246	0	0	0	0	0	0	0	2	3	0	0	0	0
T. 70	Level 3	250	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 71	Level 1	249	0	0	2	0	0	0	0	0	0	0	0	1	0
T. 71	Level 2	251	0	0	0	0	0	0	0	0	0	0	0	1	0
T. 72	Level 1	253	0	0	1	0	0	0	0	0	0	0	0	0	0
T. 72	Level 2	254	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 1	255	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 2	256	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 3	257	0	0	2	0	0	1	0	0	1	0	0	0	0
T. 73	Level 4	258	0	0	0	0	1	0	0	0	0	0	5	0	0
T. 73	Level 5	259	0	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V306	V307	V308	V309	V310	V311	V312	V313	V314	V315	V316	V317	V319
T. 46	Level 1	176	0	0	0	0	0	9	0	0	0	0	14	0	0
T. 46	Level 2	178	4	0	0	1	0	41	0	0	0	0	57	0	0
T. 46	Level 3	189	3	0	0	0	2	20	0	0	0	0	42	1	2

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V306	V307	V308	V309	V310	V311	V312	V313	V314	V315	V316	V317	V319
T. 47	Level 1	177	0	0	0	0	0	0	0	0	0	0	1	0	0
T. 47	Level 2	180	1	0	0	0	0	0	0	0	0	0	7	0	0
T. 47	Level 3	181	11	0	0	0	0	1	0	0	0	0	14	0	0
T. 47	Level 4	183	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 48	Level 2	187	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 1	190	0	0	0	0	0	1	0	0	0	0	1	0	0
T. 49	Level 2	191	0	0	0	0	0	0	0	0	0	0	1	0	0
T. 50	Level 1	184	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 1	192	0	0	0	0	3	0	0	0	0	0	3	0	0
T. 51	Level 2	193	1	0	0	0	3	35	0	3	0	0	68	0	0
T. 51	Level 3	194	7	2	0	0	1	0	2	0	0	0	129	0	0
T. 51	Level 4	205	0	0	0	0	0	0	0	0	0	0	3	0	0
T. 52	Level 1	185	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 1	195	0	0	0	0	0	0	0	0	0	0	1	0	0
T. 53	Level 2	196	0	0	0	0	0	0	0	0	0	1	11	1	0
T. 53	Level 3	197	4	0	0	0	0	2	0	1	0	0	60	0	0
T. 53	Level 4	198	0	0	0	0	0	0	0	0	0	0	25	0	0
T. 53	Level 4	203	10	0	0	0	0	2	0	0	0	0	67	0	0
T. 54	Level 2	186	0	0	0	0	0	7	0	0	0	0	13	0	0
T. 54	Level 3	188	0	0	0	0	0	1	0	0	1	0	17	0	0
T. 54	Level 4	199	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 1	200	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 2	201	0	0	0	0	0	4	0	0	0	0	5	0	0
T. 55	Level 3	202	2	0	0	0	0	1	0	0	0	0	3	0	0
T. 55	Level 4	209	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 1	204	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 2	206	3	0	0	0	0	4	0	1	0	0	15	0	0
T. 56	Level 3	211	1	0	1	0	0	6	0	0	0	0	9	0	0
T. 56	Level 4	214	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 56/61	Level 4	217	0	0	0	0	1	0	0	0	0	0	6	0	0
T. 61	Level 1	213	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 61	Level 2	218	3	0	0	0	1	18	0	1	0	0	37	0	0
T. 61	Level 3	219	1	0	1	0	0	7	0	1	1	0	25	2	0
T. 57	Level 1	207	0	0	0	0	0	1	0	0	0	0	2	0	0
T. 57	Level 2	208	3	0	1	0	0	37	1	1	0	0	50	1	0
T. 57	Level 3	216	5	0	0	0	1	37	1	0	0	0	55	2	0
T. 57	Level 4	221	2	0	0	0	0	0	0	0	0	0	16	0	0
T. 58	Level 2	210	2	0	0	0	0	0	0	0	0	0	22	1	0
T. 58	Level 3	212	0	0	0	0	0	1	0	0	0	0	1	0	0
T. 59	Level 1	227	0	0	0	0	0	0	0	0	0	0	3	0	0
T. 59	Level 2	228	0	0	0	0	0	0	0	1	0	0	19	1	0
T. 59	Level 3	231	1	0	0	0	0	1	0	0	0	0	2	0	0
T. 59	Level 4	232	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 60	Level 1	222	8	0	0	0	0	15	0	0	1	0	29	0	0
T. 60	Level 2	224	0	0	0	0	0	3	0	0	0	0	4	0	0
T. 62	Level 2	223	0	0	0	0	0	0	0	0	0	0	1	0	1
T. 62	Level 1	226	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V306	V307	V308	V309	V310	V311	V312	V313	V314	V315	V316	V317	V319
T. 63	Level 1	229	0	0	0	0	0	12	0	0	0	0	13	0	0
T. 63	Level 2	230	24	0	0	0	0	11	0	0	3	0	56	0	0
T. 63	Level 3	235	0	0	0	0	0	1	0	0	0	0	1	0	0
T. 64	Level 1	236	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 2	237	1	0	0	0	0	0	0	1	1	0	16	0	0
T. 64	Level 3	241	0	0	0	0	0	3	0	0	0	0	4	0	0
T. 65	Level 1	238	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 2	239	0	0	1	0	0	1	0	0	1	0	11	0	0
T. 65	Level 3	240	14	0	5	0	0	10	0	4	0	0	47	1	0
T. 66	Level 1	242	0	0	0	0	0	1	0	0	0	0	1	0	0
T. 66	Level 2	243	0	0	0	0	0	5	0	0	1	0	11	0	0
T. 66	Level 3	244	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 67	Level 2	233	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 67	Level 1	234	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 68	Level 1	247	0	0	0	0	0	1	0	0	0	0	1	0	0
T. 68	Level 2	248	0	0	0	0	0	0	0	0	0	0	1	0	0
T. 69	Level 1	220	0	0	1	0	0	4	0	0	0	0	8	0	0
T. 69	Level 2	225	3	0	0	0	0	10	0	1	1	0	17	0	0
T. 69	Level 3	252	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 1	245	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 2	246	0	0	0	0	0	5	0	1	0	0	11	1	1
T. 70	Level 3	250	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 71	Level 1	249	0	0	1	0	0	1	0	0	0	0	3	0	0
T. 71	Level 2	251	0	0	0	0	0	5	0	0	0	0	6	0	0
T. 72	Level 1	253	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 72	Level 2	254	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 1	255	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 2	256	0	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 3	257	0	1	3	0	0	0	0	0	0	0	5	0	0
T. 73	Level 4	258	2	0	0	0	0	0	0	0	0	0	15	0	0
T. 73	Level 5	259	0	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V320	V321	V322	V324	V328	V329	V330	V331	V332	V333	V334	V335
T. 46	Level 1	176	0	1	14	0	14	5	12	1	0	1	9	0
T. 46	Level 2	178	0	7	50	0	23	0	18	2	2	2	87	0
T. 46	Level 3	189	0	12	30	0	5	5	0	0	0	0	0	0
T. 47	Level 1	177	0	0	1	0	2	1	0	0	0	0	1	0
T. 47	Level 2	180	0	0	7	0	12	12	0	0	0	0	0	0
T. 47	Level 3	181	0	0	14	0	0	0	0	0	0	0	0	0
T. 47	Level 4	183	0	0	0	0	0	0	0	0	0	0	0	0
T. 48	Level 2	187	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 1	190	0	0	1	0	1	1	0	0	0	0	0	0
T. 49	Level 2	191	0	0	1	0	2	2	0	0	0	0	0	0
T. 50	Level 1	184	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 1	192	0	0	3	0	0	0	0	1	0	0	0	0
T. 51	Level 2	193	0	0	68	0	6	3	0	2	0	1	0	0
T. 51	Level 3	194	0	3	126	0	8	4	0	2	0	2	0	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V320	V321	V322	V324	V328	V329	V330	V331	V332	V333	V334	V335
T. 51	Level 4	205	0	0	3	0	0	0	0	0	0	0	0	0
T. 52	Level 1	185	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 1	195	0	1	0	0	2	1	0	1	0	0	0	0
T. 53	Level 2	196	0	0	11	0	1	1	0	0	0	0	0	0
T. 53	Level 3	197	0	1	59	0	2	2	0	0	0	0	0	0
T. 53	Level 4	198	0	0	25	0	0	0	0	0	0	0	0	0
T. 53	Level 4	203	0	0	67	0	3	2	1	0	0	0	0	0
T. 54	Level 2	186	0	3	10	0	2	2	0	0	0	0	0	0
T. 54	Level 3	188	0	1	16	0	0	0	0	0	0	0	0	0
T. 54	Level 4	199	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 1	200	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 2	201	0	0	4	1	6	0	0	1	0	0	5	0
T. 55	Level 3	202	0	0	3	0	4	0	0	2	1	0	1	0
T. 55	Level 4	209	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 1	204	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 2	206	0	4	11	0	8	0	0	3	0	0	5	0
T. 56	Level 3	211	0	0	9	0	2	1	0	0	0	0	1	0
T. 56	Level 4	214	0	0	0	0	0	0	0	0	0	0	0	0
T. 56/61	Level 4	217	0	0	6	0	0	1	0	1	0	0	0	0
T. 61	Level 1	213	0	0	0	0	0	0	0	0	0	0	0	0
T. 61	Level 2	218	0	2	35	0	5	2	0	2	0	0	1	0
T. 61	Level 3	219	0	0	23	0	3	0	2	0	0	0	1	0
T. 57	Level 1	207	0	0	2	0	4	1	0	0	0	0	3	0
T. 57	Level 2	208	0	5	44	0	7	5	1	0	1	0	0	0
T. 57	Level 3	216	0	2	55	0	0	0	1	0	0	0	0	1
T. 57	Level 4	221	0	0	16	0	0	0	0	0	0	0	0	0
T. 58	Level 2	210	0	0	21	0	3	2	0	1	0	0	0	0
T. 58	Level 3	212	0	0	1	0	0	0	0	0	0	0	0	0
T. 59	Level 1	227	0	0	3	0	1	1	0	0	0	0	0	0
T. 59	Level 2	228	0	3	15	0	18	11	0	7	0	0	0	0
T. 59	Level 3	231	0	0	2	0	0	0	0	0	0	0	0	0
T. 59	Level 4	232	0	0	0	0	0	0	0	0	0	0	0	0
T. 60	Level 1	222	0	0	29	0	0	0	0	0	0	0	0	0
T. 60	Level 2	224	0	0	4	0	3	1	1	0	0	1	0	0
T. 62	Level 2	223	0	1	0	0	0	0	0	0	0	0	0	0
T. 62	Level 1	226	0	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 1	229	0	1	7	5	4	0	0	1	0	0	3	0
T. 63	Level 2	230	0	1	55	0	95	11	3	16	0	1	64	0
T. 63	Level 3	235	0	0	1	0	1	0	0	1	0	0	0	0
T. 64	Level 1	236	0	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 2	237	0	1	15	0	6	0	0	1	0	0	5	0
T. 64	Level 3	241	0	0	4	0	1	0	0	0	0	0	1	0
T. 65	Level 1	238	0	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 2	239	0	2	9	0	3	1	0	0	1	0	1	0
T. 65	Level 3	240	0	6	41	0	11	8	0	0	1	0	2	0
T. 66	Level 1	242	0	0	1	0	0	0	0	0	0	0	0	0

TABLE 7.1
Ceramics from B97.
(Continued)

V3	V5	V1	V320	V321	V322	V324	V328	V329	V330	V331	V332	V333	V334	V335
T. 66	Level 2	243	0	2	9	0	14	4	0	1	0	2	9	0
T. 66	Level 3	244	0	0	0	0	0	0	0	0	0	0	0	0
T. 67	Level 2	233	0	0	0	0	0	0	0	0	0	0	0	0
T. 67	Level 1	234	0	0	0	0	3	0	0	0	1	1	1	0
T. 68	Level 1	247	0	0	1	0	6	1	0	0	0	1	4	0
T. 68	Level 2	248	0	1	0	0	4	1	0	0	0	0	3	0
T. 69	Level 1	220	0	1	7	0	2	0	0	0	0	0	2	0
T. 69	Level 2	225	0	1	16	0	0	0	0	0	0	0	2	0
T. 69	Level 3	252	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 1	245	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 2	246	1	0	10	0	13	1	7	0	0	3	2	0
T. 70	Level 3	250	0	0	0	0	0	0	0	0	0	0	0	0
T. 71	Level 1	249	0	1	2	0	22	3	0	0	0	0	19	0
T. 71	Level 2	251	0	0	6	0	0	0	0	0	0	0	0	0
T. 72	Level 1	253	0	0	0	0	0	0	0	0	0	0	0	0
T. 72	Level 2	254	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 1	255	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 2	256	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 3	257	0	1	4	0	6	4	0	0	0	0	2	0
T. 73	Level 4	258	0	0	15	0	6	5	0	1	0	0	0	0
T. 73	Level 5	259	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 7.2
Other Artifacts from B97.

V3	V5	V1	Location	Depth	V4	V8	V9	V10	V13	V1001
Surface	n.a.	22	Surface Collection	Surface Collection	0	n.a.	n.a.	n.a.	n.a.	0
Surface	n.a.	179	N930/E997	Surface	n.a.	n.a.	n.a.	n.a.	n.a.	0
Surface	n.a.	182	N955/E976	Surface	0	n.a.	n.a.	n.a.	n.a.	0
Surface	n.a.	215	Surface Collection	Surface Collection	0	n.a.	n.a.	n.a.	n.a.	0
T. 46	Level 1	176	N978–979/E954	0–0.20 m DBS	0	2	0.2	0.4	1	118
T. 46	Level 2	178	N978–979/E954	0.20–0.40 m DBS	0	2	0.2	0.4	1	218
T. 46	Level 3	189	N978–979/E954	0.40–0.60 m DBS	0	2	0.2	0.4	1	93
T. 47	Level 1	177	N982–983/E1024	0–0.20 m DBS	0	2	0.2	0.4	1	4
T. 47	Level 2	180	N982–983/E1024	0.20–0.40 m DBS	0	2	0.2	0.4	1	9
T. 47	Level 3	181	N982–983/E1024	0.40–0.60 m DBS	0	2	0.2	0.4	1	1
T. 47	Level 4	183	N982–983/E1024	0.60–0.80 m DBS	0	2	0.2	0.4	1	0
T. 49	Level 1	190	N1044–1045/E1030	0–0.20 m DBS	0	2	0.2	0.4	1	4
T. 49	Level 2	191	N1044–1045/E1030	0.20–0.40 m DBS	0	2	0.2	0.4	1	11
T. 50	Level 1	184	N1020–1021/E1079	0–0.20 m DBS	0	2	0.2	0.4	1	1
T. 51	Level 1	192	N1006–1007/E972	0–0.20 m DBS	0	2	0.2	0.4	1	11

TABLE 7.2
Other Artifacts from B97.
(Continued)

V3	V5	V1	Location	Depth	V4	V8	V9	V10	V13	V1001
T. 51	Level 2	193	N1006–1007/E972	0.20–0.40 m DBS	0	2	0.2	0.4	1	87
T. 51	Level 3	194	N1006–1007/E972	0.40–0.60 m DBS	0	2	0.2	0.4	1	35
T. 52	Level 1	185	N928–929/E1035	0–0.20 m DBS	0	2	0.2	0.4	1	0
T. 53	Level 1	195	N1032–1033/E936	0–0.20 m DBS	0	2	0.2	0.4	1	16
T. 53	Level 2	196	N1032–1033/E936	0.20–0.40 m DBS	0	2	0.2	0.4	1	15
T. 53	Level 3	197	N1032–1033/E936	0.40–0.60 m DBS	0	2	0.2	0.4	1	26
T. 53	Level 4	198	N1032–1033/E936	0.60–0.80 m DBS	0	2	0.2	0.4	1	8
T. 53	Level 4	203	N1033.40–1034.00/ E936.60–937.00	0.55–0.70 m DBS	F.3	0.24	0.15	0.04	1	5
T. 54	Level 2	186	N1074–1075/E904	0.20–0.40 m DBS	0	2	0.2	0.4	1	34
T. 54	Level 3	188	N1074–1075/E904	0.40–0.60 m DBS	0	2	0.2	0.4	1	18
T. 54	Level 4	199	N1074–1075/E904	0.60–0.75 m DBS	0	2	0.15	0.3	1	0
T. 55	Level 1	200	N1090–1091/E878	0–0.20 m DBS	0	2	0.2	0.4	1	11
T. 55	Level 2	201	N1090–1091/E878	0.20–0.40 m DBS	0	2	0.2	0.4	1	65
T. 55	Level 3	202	N1090–1091/E878	0.40–0.60 m DBS	0	2	0.2	0.4	1	35
T. 56	Level 2	206	N1112–1113/E893	0.20–0.40 m DBS	0	2	0.2	0.4	1	80
T. 56	Level 3	211	N1112–1113/E893	0.40–0.60 m DBS	0	2	0.2	0.4	1	22
T. 56	Level 4	214	N1112–1113/E893	0.60–0.70 m DBS	0	2	0.1	0.2	1	1
T. 56/61	Level 4	217	N1112–1113/E893–894	0.60–0.70 m DBS	B.5	4	0.1	0.4	1	16
T. 61	Level 1	213	N1112–1113/E894	0–0.20 m DBS	0	2	0.2	0.4	1	17
T. 61	Level 2	218	N1112–1113/E894	0.20–0.40 m DBS	0	2	0.2	0.4	1	88
T. 61	Level 3	219	N1112–1113/E894	0.40–0.60 m DBS	0	2	0.2	0.4	1	40
T. 57	Level 1	207	N1056–1057/E997	0–0.20 m DBS	0	2	0.2	0.4	1	22
T. 57	Level 2	208	N1056–1057/E997	0.20–0.40 m DBS	0	2	0.2	0.4	1	99
T. 57	Level 3	216	N1056–1057/E997	0.40–0.60 m DBS	0	2	0.2	0.4	1	27
T. 57	Level 4	221	N1056–1057/E997	0.60–0.70 m DBS	0	2	0.1	0.2	1	1
T. 58	Level 2	210	N1132–1133/E943	0.20–0.40 m DBS	0	2	0.2	0.4	1	128
T. 58	Level 3	212	N1132–1133/E943	0.40–0.60 m DBS	0	2	0.2	0.4	1	1
T. 59	Level 2	228	N1128–1129/E970	0.20–0.40 m DBS	0	2	0.2	0.4	1	64
T. 59	Level 3	231	N1128–1129/E970	0.40–0.60 m DBS	0	2	0.2	0.4	1	2
T. 59	Level 4	232	N1128–1129/E970	0.60–0.75 m DBS	F.4	0.3	0.15	0.05	1	2
T. 60	Level 1	222	N1064–1065/E1037	0–0.20 m DBS	0	2	0.2	0.4	1	16
T. 60	Level 2	224	N1064–1065/E1037	0.20–0.40 m DBS	0	2	0.2	0.4	1	11
T. 62	Level 2	223	N1098–1099/E1076	0.20–0.40 m DBS	0	2	0.2	0.4	1	10
T. 62	Level 1	226	N1098–1099/E1076	0–0.20 m DBS	0	2	0.2	0.4	1	2
T. 63	Level 1	229	N1158–1159/E947	0–0.20 m DBS	0	2	0.2	0.4	1	11
T. 63	Level 2	230	N1158–1159/E947	0.20–0.40 m DBS	0	2	0.2	0.4	1	35
T. 64	Level 1	236	N1152–1153/E873	0–0.20 m DBS	0	2	0.2	0.4	1	2
T. 64	Level 2	237	N1152–1153/E873	0.20–0.40 m DBS	0	2	0.2	0.4	1	12
T. 64	Level 3	241	N1152–1153/E873	0.40–0.70 m DBS	0	2	0.3	0.6	1	3
T. 65	Level 1	238	N1138–1139/E839	0–0.20 m DBS	0	2	0.2	0.4	1	19
T. 65	Level 2	239	N1138–1139/E839	0.20–0.40 m DBS	0	2	0.2	0.4	1	130
T. 65	Level 3	240	N1138–1139/E839	0.40–0.60 m DBS	0	2	0.2	0.4	1	70
T. 66	Level 1	242	N1196–1197/E847	0–0.20 m DBS	0	2	0.2	0.4	1	3
T. 66	Level 2	243	N1196–1197/E847	0.20–0.40 m DBS	0	2	0.2	0.4	1	98
T. 66	Level 3	244	N1196–1197/E847	0.40–0.50 m DBS	0	2	0.2	0.4	1	16
T. 67	Level 1	234	N1162–1163/E999	0–0.20 m DBS	0	2	0.2	0.4	1	1

TABLE 7.2
Other Artifacts from B97.
(Continued)

V3	V5	V1	Location	Depth	V4	V8	V9	V10	V13	V1001
T. 68	Level 1	247	N1212–1213/E893	0–0.20 m DBS	0	2	0.2	0.4	1	77
T. 68	Level 2	248	N1212–1213/E893	0.20–0.40 m DBS	0	2	0.2	0.4	1	53
T. 69	Level 1	220	N1210–1211/E800	0–0.20 m DBS	0	2	0.2	0.4	1	10
T. 69	Level 2	225	N1210–1211/E800	0.20–0.40 m DBS	0	2	0.2	0.4	1	18
T. 69	Level 3	252	N1210–1211/E800	0.40–0.50 m DBS	0	2	0.1	0.2	1	4
T. 70	Level 1	245	N1188–1189/E780	0–0.20 m DBS	0	2	0.2	0.4	1	0
T. 70	Level 2	246	N1188–1189/E780	0.20–0.40 m DBS	0	2	0.2	0.4	1	26
T. 70	Level 3	250	N1188–1189/E780	0.40–0.50 m DBS	0	2	0.1	0.2	1	2
T. 71	Level 1	249	N1236–1237/E935	0–0.20 m DBS	0	2	0.2	0.4	1	18
T. 71	Level 2	251	N1236–1237/E935	0.20–0.40 m DBS	0	2	0.2	0.4	1	1
T. 72	Level 1	253	N1268–1269/E908	0–0.20 m DBS	0	2	0.2	0.4	1	7
T. 72	Level 2	254	N1268–1269/E908	0.20–0.40 m DBS	0	2	0.2	0.4	1	2
T. 73	Level 1	255	N1256–1257/E883	0–0.20 m DBS	0	2	0.2	0.4	1	4
T. 73	Level 2	256	N1256–1257/E883	0.20–0.40 m DBS	0	2	0.2	0.4	1	5
T. 73	Level 3	257	N1256–1257/E883	0.40–0.60 m DBS	0	2	0.2	0.4	1	7
T. 73	Level 4	258	N1256–1257/E883	0.60–0.80 m DBS	0	2	0.2	0.4	1	10
T. 73	Level 5	259	N1256–1257/E883	0.80–0.90 m DBS	0	2	0.1	0.2	1	0

V3	V5	V1	V1002	V1003	V1004	V1005	V1006	V1007	V1008	V1009	V1010	V1013	V1014	V1015
Surface	n.a.	22	0	0	0	0	0	0	0	0	0	0	0	0
Surface	n.a.	179	0	0	0	0	0	0	0	0	0	0	0	0
Surface	n.a.	182	0	0	0	0	0	0	0	0	0	0	0	0
Surface	n.a.	215	0	0	0	0	0	0	0	0	0	0	0	0
T. 46	Level 1	176	3007	109	2667	5	240	4	135	0	0	43	929	66
T. 46	Level 2	178	2491	200	2065	16	396	1	18	1	12	62	711	138
T. 46	Level 3	189	887	86	792	2	3	5	92	0	0	30	404	56
T. 47	Level 1	177	18	4	18	0	0	0	0	0	0	2	13	2
T. 47	Level 2	180	392	9	392	0	0	0	0	0	0	4	102	5
T. 47	Level 3	181	233	1	233	0	0	0	0	0	0	1	233	0
T. 47	Level 4	183	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 1	190	12	4	12	0	0	0	0	0	0	1	7	3
T. 49	Level 2	191	80	10	78	0	0	1	2	0	0	3	22	7
T. 50	Level 1	184	98	1	98	0	0	0	0	0	0	0	0	1
T. 51	Level 1	192	345	10	323	0	0	1	22	0	0	5	237	5
T. 51	Level 2	193	999	76	821	2	108	7	65	1	5	17	382	59
T. 51	Level 3	194	687	25	450	8	195	2	42	0	0	8	177	17
T. 52	Level 1	185	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 1	195	146	15	144	1	2	0	0	0	0	5	50	10
T. 53	Level 2	196	142	11	97	2	8	2	36	0	0	4	77	7
T. 53	Level 3	197	594	21	492	4	15	1	87	0	0	3	32	18
T. 53	Level 4	198	64	7	63	1	1	0	0	0	0	2	17	5
T. 53	Level 4	203	96	2	28	3	68	0	0	0	0	0	0	2
T. 54	Level 2	186	517	31	496	2	8	1	13	0	0	14	404	17
T. 54	Level 3	188	115	17	93	0	0	1	22	0	0	4	30	13
T. 54	Level 4	199	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 1	200	78	9	65	1	10	1	3	0	0	4	42	5

TABLE 7.2
Other Artifacts from B97.
(Continued)

V3	V5	V1	V1002	V1003	V1004	V1005	V1006	V1007	V1008	V1009	V1010	V1013	V1014	V1015
T. 55	Level 2	201	329	59	298	2	2	3	22	1	7	11	65	48
T. 55	Level 3	202	244	34	243	1	1	0	0	0	0	15	160	19
T. 56	Level 2	206	844	75	699	0	0	4	130	1	15	22	344	53
T. 56	Level 3	211	197	21	192	0	0	1	5	0	0	10	87	11
T. 56	Level 4	214	1	1	1	0	0	0	0	0	0	0	0	1
T. 56/61	Level 4	217	60	15	58	0	0	1	2	0	0	4	25	11
T. 61	Level 1	213	48	14	40	1	2	2	6	0	0	3	5	11
T. 61	Level 2	218	7895	76	702	1	5	9	72	2	15	14	245	62
T. 61	Level 3	219	247	37	226	0	0	1	5	2	16	10	98	27
T. 57	Level 1	207	1013	22	1013	0	0	0	0	0	0	8	595	14
T. 57	Level 2	208	2885	89	2612	2	3	6	193	2	77	36	1490	53
T. 57	Level 3	216	176	20	141	6	20	1	15	0	0	5	56	15
T. 57	Level 4	221	91	1	91	0	0	0	0	0	0	1	91	0
T. 58	Level 2	210	1609	118	1487	3	10	6	110	1	2	32	1058	86
T. 58	Level 3	212	17	1	17	0	0	0	0	0	0	1	17	0
T. 59	Level 2	228	1594	56	1443	2	10	6	1421	0	0	17	940	39
T. 59	Level 3	231	27	2	27	0	0	0	0	0	0	0	0	2
T. 59	Level 4	232	11	2	11	0	0	0	0	0	0	2	11	0
T. 60	Level 1	222	71	16	71	0	0	0	0	0	0	7	50	9
T. 60	Level 2	224	98	10	80	0	0	1	18	0	0	2	65	8
T. 62	Level 2	223	85	10	85	0	0	0	0	0	0	6	69	4
T. 62	Level 1	226	9	2	9	0	0	0	0	0	0	1	8	1
T. 63	Level 1	229	55	11	55	0	0	0	0	0	0	3	12	8
T. 63	Level 2	230	640	32	551	0	0	1	5	2	84	10	238	22
T. 64	Level 1	236	98	2	98	0	0	0	0	0	0	2	989	0
T. 64	Level 2	237	303	12	303	0	0	0	0	0	0	4	38	8
T. 64	Level 3	241	195	3	195	0	0	0	0	0	0	1	153	2
T. 65	Level 1	238	237	17	207	1	25	1	5	0	0	7	27	10
T. 65	Level 2	239	714	124	608	3	16	2	88	1	2	25	235	109
T. 65	Level 3	240	1453	63	1180	2	18	4	256	1	3	21	625	42
T. 66	Level 1	242	0	2	21	1	2	0	0	0	0	1	20	1
T. 66	Level 2	243	1440	87	692	0	0	9	738	2	10	24	212	63
T. 66	Level 3	244	319	15	317	0	0	1	2	0	0	5	263	10
T. 67	Level 1	234	18	1	18	0	0	0	0	0	0	0	0	1
T. 68	Level 1	247	357	63	256	10	86	4	15	0	0	12	75	51
T. 68	Level 2	248	397	48	324	2	18	3	55	0	0	15	147.5	33
T. 69	Level 1	220	80	9	35	0	0	1	45	0	0	2	18	7
T. 69	Level 2	225	69	13	43	4	15	1	11	0	0	6	35	7
T. 69	Level 3	252	10	4	10	0	0	0	0	0	0	0	0	4
T. 70	Level 1	245	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 2	246	367	20	180	2	10	4	177	0	0	5	55	15
T. 70	Level 3	250	75	2	75	0	0	0	0	0	0	1	18	1
T. 71	Level 1	249	199	7	98	11	101	0	0	0	0	2	85	5
T. 71	Level 2	251	13	1	13	0	0	0	0	0	0	0	0	1
T. 72	Level 1	253	118	7	118	0	0	0	0	0	0	3	93	4
T. 72	Level 2	254	143	2	143	0	0	0	0	0	0	0	0	2
T. 73	Level 1	255	216	3	166	0	0	1	44	0	0	0	0	3

TABLE 7.2
Other Artifacts from B97.
(Continued)

V3	V5	V1	V1002	V1003	V1004	V1005	V1006	V1007	V1008	V1009	V1010	V1013	V1014	V1015
T. 73	Level 2	256	190	4	180	0	0	1	10	0	0	1	12	3
T. 73	Level 3	257	160	7	160	0	0	0	0	0	0	2	22	5
T. 73	Level 4	258	249	6	222	0	0	3	22	1	5	2	27	4
T. 73	Level 5	259	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V1016	V1017	V1018	V1019	V1020	V1021	V1022	V1023	V1024	V1025	V1026	V1027
Surface	n.a.	22	0	0	0	0	0	0	0	0	0	0	0	0
Surface	n.a.	179	0	0	0	0	0	0	0	0	0	0	0	0
Surface	n.a.	182	0	0	0	0	0	0	0	0	0	0	0	0
Surface	n.a.	215	0	0	0	0	0	0	0	0	0	0	0	0
T. 46	Level 1	176	1737	1	5	4	235	2	122	2	13	0	0	0
T. 46	Level 2	178	1354	4	249	12	147	1	18	0	0	0	0	1
T. 46	Level 3	189	388	0	0	2	3	2	50	3	42	0	0	0
T. 47	Level 1	177	5	0	0	0	0	0	0	0	0	0	0	0
T. 47	Level 2	180	290	0	0	0	0	0	0	0	0	0	0	0
T. 47	Level 3	181	0	0	0	0	0	0	0	0	0	0	0	0
T. 47	Level 4	183	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 1	190	5	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 2	191	56	0	0	0	0	0	0	1	2	0	0	0
T. 50	Level 1	184	98	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 1	192	86	0	0	0	0	0	0	1	22	0	0	0
T. 51	Level 2	193	439	3	108	0	0	1	2	6	63	0	0	1
T. 51	Level 3	194	273	1	120	7	75	0	0	2	42	0	0	0
T. 52	Level 1	185	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 1	195	94	0	0	1	2	0	0	0	0	0	0	0
T. 53	Level 2	196	21	2	8	0	0	2	36	0	0	0	0	0
T. 53	Level 3	197	460	1	7	3	8	1	87	0	0	0	0	0
T. 53	Level 4	198	46	0	0	1	1	0	0	0	0	0	0	0
T. 53	Level 4	203	28	3	68	0	0	0	0	0	0	0	0	0
T. 54	Level 2	186	87	1	3	1	5	1	13	0	0	0	0	0
T. 54	Level 3	188	63	0	0	0	0	1	22	0	0	0	0	0
T. 54	Level 4	199	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 1	200	36	0	0	1	10	1	3	0	0	0	0	0
T. 55	Level 2	201	233	1	1	1	1	1	15	2	7	0	0	1
T. 55	Level 3	202	83	0	0	1	1	0	0	0	0	0	0	0
T. 56	Level 2	206	355	0	0	0	0	3	126	1	4	1	15	0
T. 56	Level 3	211	105	0	0	0	0	1	5	0	0	0	0	0
T. 56	Level 4	214	1	0	0	0	0	0	0	0	0	0	0	0
T. 56/61	Level 4	217	33	0	0	0	0	1	2	0	0	0	0	0
T. 61	Level 1	213	35	0	0	1	2	1	2	1	4	0	0	0
T. 61	Level 2	218	457	0	0	1	5	6	68	3	4	0	0	2
T. 61	Level 3	219	128	0	0	0	0	0	0	1	5	1	10	1
T. 57	Level 1	207	418	0	0	0	0	0	0	0	0	0	0	0
T. 57	Level 2	208	1122	0	0	2	3	3	52	3	141	1	28	1
T. 57	Level 3	216	85	1	2	5	18	1	15	0	0	0	0	0
T. 57	Level 4	221	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 7.2
Other Artifacts from B97.
(Continued)

V3	V5	V1	V1016	V1017	V1018	V1019	V1020	V1021	V1022	V1023	V1024	V1025	V1026	V1027
T. 58	Level 2	210	429	1	3	2	7	3	80	3	30	0	0	1
T. 58	Level 3	212	0	0	0	0	0	0	0	0	0	0	0	0
T. 59	Level 2	228	505	1	6	1	9	2	23	4	119	0	0	0
T. 59	Level 3	231	27	0	0	0	0	0	0	0	0	0	0	0
T. 59	Level 4	232	0	0	0	0	0	0	0	0	0	0	0	0
T. 60	Level 1	222	21	0	0	0	0	0	0	0	0	0	0	0
T. 60	Level 2	224	15	0	0	0	0	1	18	0	0	0	0	0
T. 62	Level 2	223	16	0	0	0	0	0	0	0	0	0	0	0
T. 62	Level 1	226	1	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 1	229	43	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 2	230	313	0	0	0	0	0	0	1	5	1	32	1
T. 64	Level 1	236	0	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 2	237	265	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 3	241	42	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 1	238	180	0	0	1	25	0	0	1	5	0	0	0
T. 65	Level 2	239	373	2	14	1	2	0	0	2	88	0	0	1
T. 65	Level 3	240	555	1	10	1	8	1	20	3	236	0	0	1
T. 66	Level 1	242	1	1	2	0	0	0	0	0	0	0	0	0
T. 66	Level 2	243	480	0	0	0	0	1	568	8	170	0	0	2
T. 66	Level 3	244	54	0	0	0	0	1	2	0	0	0	0	0
T. 67	Level 1	234	18	0	0	0	0	0	0	0	0	0	0	0
T. 68	Level 1	247	181	5	17	5	69	1	10	3	5	0	0	0
T. 68	Level 2	248	178	1	5	1	13	0	0	3	55	0	0	0
T. 69	Level 1	220	17	0	0	0	0	0	0	0	0	0	0	0
T. 69	Level 2	225	8	1	4	3	11	0	0	1	11	0	0	0
T. 69	Level 3	252	10	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 1	245	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 2	246	125	1	5	1	5	1	32	3	145	0	0	0
T. 70	Level 3	250	57	0	0	0	0	0	0	0	0	0	0	0
T. 71	Level 1	249	13	4	56	7	45	0	0	0	0	0	0	0
T. 71	Level 2	251	13	0	0	0	0	0	0	0	0	0	0	0
T. 72	Level 1	253	25	0	0	0	0	0	0	0	0	0	0	0
T. 72	Level 2	254	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 1	255	166	0	0	0	0	1	44	0	0	0	0	0
T. 73	Level 2	256	168	0	0	0	0	0	0	1	10	0	0	0
T. 73	Level 3	257	138	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 4	258	195	0	0	0	0	0	0	3	22	0	0	1
T. 73	Level 5	259	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V1028	V1033	V1034	V1035	V1036	V1037	V1038	V1039	V2001	V2002	V2003	V2004
Surface	n.a.	22	0	0	0	0	0	0	0	0	1	347	0	0
Surface	n.a.	179	0	0	0	0	0	0	0	0	1	2020	0	0
Surface	n.a.	182	0	0	0	0	0	0	0	0	0	0	0	0
Surface	n.a.	215	0	0	0	0	0	0	0	0	1	277	0	0
T. 46	Level 1	176	0	2	0	2	33	1	4	1	1	387	1	387
T. 46	Level 2	178	12	2	0	0	56	1	3	0	2	762	0	0

TABLE 7.2
Other Artifacts from B97.
(Continued)

V3	V5	V1	V1028	V1033	V1034	V1035	V1036	V1037	V1038	V1039	V2001	V2002	V2003	V2004
T. 46	Level 3	189	0	2	0	0	27	1	0	0	0	0	0	0
T. 47	Level 1	177	0	0	0	0	2	0	0	0	0	0	0	0
T. 47	Level 2	180	0	0	0	0	4	0	0	0	1	3900	1	3900
T. 47	Level 3	181	0	1	0	0	0	0	0	0	0	0	0	0
T. 47	Level 4	183	0	0	0	0	0	0	0	0	1	47	0	0
T. 49	Level 1	190	0	0	0	0	1	0	0	0	0	0	0	0
T. 49	Level 2	191	0	0	0	0	1	0	2	0	0	0	0	0
T. 50	Level 1	184	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 1	192	0	1	0	0	2	0	0	2	0	0	0	0
T. 51	Level 2	193	5	0	1	0	15	0	1	0	1	63	1	63
T. 51	Level 3	194	0	1	0	0	6	0	1	0	0	0	0	0
T. 52	Level 1	185	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 1	195	0	0	0	0	4	0	1	0	0	0	0	0
T. 53	Level 2	196	0	0	0	0	3	0	0	1	0	0	0	0
T. 53	Level 3	197	0	0	0	0	3	0	0	0	1	57	0	0
T. 53	Level 4	198	0	0	0	0	2	0	0	0	0	0	0	0
T. 53	Level 4	203	0	0	0	0	0	0	0	0	0	0	0	0
T. 54	Level 2	186	0	0	1	1	12	0	0	0	0	0	0	0
T. 54	Level 3	188	0	0	0	0	4	0	0	0	0	0	0	0
T. 54	Level 4	199	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 1	200	0	0	0	0	4	0	0	0	0	0	0	0
T. 55	Level 2	201	7	0	0	0	11	0	0	0	0	0	0	0
T. 55	Level 3	202	0	1	0	0	13	0	1	0	0	0	0	0
T. 56	Level 2	206	0	0	0	1	16	0	5	0	0	0	0	0
T. 56	Level 3	211	0	0	0	0	9	0	1	0	0	0	0	0
T. 56	Level 4	214	0	0	0	0	0	0	0	0	0	0	0	0
T. 56/61	Level 4	217	0	0	0	0	4	0	0	0	0	0	0	0
T. 61	Level 1	213	0	0	0	0	3	0	0	0	0	0	0	0
T. 61	Level 2	218	15	0	0	1	11	0	2	0	0	0	0	0
T. 61	Level 3	219	6	0	0	0	9	0	0	1	0	0	0	0
T. 57	Level 1	207	0	3	1	0	2	0	1	1	0	0	0	0
T. 57	Level 2	208	49	1	2	2	25	0	3	3	0	0	0	0
T. 57	Level 3	216	0	0	0	0	5	0	0	0	0	0	0	0
T. 57	Level 4	221	0	1	0	0	0	0	0	0	0	0	0	0
T. 58	Level 2	210	2	3	0	1	19	0	7	2	0	0	0	0
T. 58	Level 3	212	0	0	0	0	1	0	0	0	0	0	0	0
T. 59	Level 2	228	0	2	1	2	12	0	0	0	0	0	0	0
T. 59	Level 3	231	0	0	0	0	0	0	0	0	0	0	0	0
T. 59	Level 4	232	0	0	0	0	1	0	1	0	0	0	0	0
T. 60	Level 1	222	0	0	0	0	6	0	1	0	0	0	0	0
T. 60	Level 2	224	0	0	0	0	2	0	0	0	0	0	0	0
T. 62	Level 2	223	0	0	0	0	5	0	1	0	0	0	0	0
T. 62	Level 1	226	0	0	0	0	1	0	0	0	0	0	0	0
T. 63	Level 1	229	0	0	0	0	3	0	0	0	0	0	0	0
T. 63	Level 2	230	52	1	0	0	8	0	0	1	2	1840	0	0
T. 64	Level 1	236	0	1	0	0	1	0	0	0	0	0	0	0
T. 64	Level 2	237	0	0	0	0	4	0	0	0	0	0	0	0

TABLE 7.2
Other Artifacts from B97.
(Continued)

V3	V5	V1	V1028	V1033	V1034	V1035	V1036	V1037	V1038	V1039	V2001	V2002	V2003	V2004
T. 64	Level 3	241	0	0	0	0	0	0	0	1	0	0	0	0
T. 65	Level 1	238	0	0	0	0	7	0	0	0	0	0	0	0
T. 65	Level 2	239	2	0	0	0	21	0	2	2	0	0	0	0
T. 65	Level 3	240	3	1	0	0	18	0	1	1	1	412	0	0
T. 66	Level 1	242	0	0	0	0	1	0	0	0	0	0	0	0
T. 66	Level 2	243	10	0	0	0	22	0	1	1	1	290	1	290
T. 66	Level 3	244	0	1	0	0	4	0	0	0	0	0	0	0
T. 67	Level 1	234	0	0	0	0	0	0	0	0	0	0	0	0
T. 68	Level 1	247	0	0	0	0	10	1	0	1	0	0	0	0
T. 68	Level 2	248	0	0	0	0	15	0	0	0	0	0	0	0
T. 69	Level 1	220	0	0	0	0	2	0	0	0	0	0	0	0
T. 69	Level 2	225	0	0	0	0	5	0	1	0	0	0	0	0
T. 69	Level 3	252	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 1	245	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 2	246	0	0	0	0	5	0	0	0	0	0	0	0
T. 70	Level 3	250	0	0	0	0	1	0	0	0	0	0	0	0
T. 71	Level 1	249	0	0	0	0	0	0	0	2	0	0	0	0
T. 71	Level 2	251	0	0	0	0	0	0	0	0	0	0	0	0
T. 72	Level 1	253	0	1	0	0	1	0	0	1	0	0	0	0
T. 72	Level 2	254	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 1	255	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 2	256	0	0	0	0	1	0	0	0	0	0	0	0
T. 73	Level 3	257	0	0	0	0	2	0	0	0	0	0	0	0
T. 73	Level 4	258	5	0	0	0	2	0	0	0	2	1570	0	0
T. 73	Level 5	259	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V2005	V2006	V2007	V2008	V2009	V2010	V2011	V2012	V2013	V2014	V2015	V2016
Surface	n.a.	22	0	0	0	0	1	347	0	0	0	0	1	347
Surface	n.a.	179	1	2020	0	0	0	0	0	0	0	0	0	0
Surface	n.a.	182	0	0	0	0	0	0	0	0	0	0	0	0
Surface	n.a.	215	0	0	1	277	0	0	0	0	0	0	0	0
T. 46	Level 1	176	0	0	0	0	0	0	0	0	0	0	0	0
T. 46	Level 2	178	0	0	0	0	0	0	2	768	0	0	0	0
T. 46	Level 3	189	0	0	0	0	0	0	0	0	0	0	0	0
T. 47	Level 1	177	0	0	0	0	0	0	0	0	0	0	0	0
T. 47	Level 2	180	0	0	0	0	0	0	0	0	0	0	0	0
T. 47	Level 3	181	0	0	0	0	0	0	0	0	0	0	0	0
T. 47	Level 4	183	0	0	1	47	0	0	0	0	0	0	0	0
T. 49	Level 1	190	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 2	191	0	0	0	0	0	0	0	0	0	0	0	0
T. 50	Level 1	184	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 1	192	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 2	193	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 3	194	0	0	0	0	0	0	0	0	0	0	0	0
T. 52	Level 1	185	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 1	195	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 7.2
Other Artifacts from B97.
(Continued)

V3	V5	V1	V2005	V2006	V2007	V2008	V2009	V2010	V2011	V2012	V2013	V2014	V2015	V2016
T. 53	Level 2	196	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 3	197	0	0	0	0	0	0	0	0	1	57	1	57
T. 53	Level 4	198	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 4	203	0	0	0	0	0	0	0	0	0	0	0	0
T. 54	Level 2	186	0	0	0	0	0	0	0	0	0	0	0	0
T. 54	Level 3	188	0	0	0	0	0	0	0	0	0	0	0	0
T. 54	Level 4	199	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 1	200	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 2	201	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 3	202	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 2	206	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 3	211	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 4	214	0	0	0	0	0	0	0	0	0	0	0	0
T. 56/61	Level 4	217	0	0	0	0	0	0	0	0	0	0	0	0
T. 61	Level 1	213	0	0	0	0	0	0	0	0	0	0	0	0
T. 61	Level 2	218	0	0	0	0	0	0	0	0	0	0	0	0
T. 61	Level 3	219	0	0	0	0	0	0	0	0	0	0	0	0
T. 57	Level 1	207	0	0	0	0	0	0	0	0	0	0	0	0
T. 57	Level 2	208	0	0	0	0	0	0	0	0	0	0	0	0
T. 57	Level 3	216	0	0	0	0	0	0	0	0	0	0	0	0
T. 57	Level 4	221	0	0	0	0	0	0	0	0	0	0	0	0
T. 58	Level 2	210	0	0	0	0	0	0	0	0	0	0	0	0
T. 58	Level 3	212	0	0	0	0	0	0	0	0	0	0	0	0
T. 59	Level 2	228	0	0	0	0	0	0	0	0	0	0	0	0
T. 59	Level 3	231	0	0	0	0	0	0	0	0	0	0	0	0
T. 59	Level 4	232	0	0	0	0	0	0	0	0	0	0	0	0
T. 60	Level 1	222	0	0	0	0	0	0	0	0	0	0	0	0
T. 60	Level 2	224	0	0	0	0	0	0	0	0	0	0	0	0
T. 62	Level 2	223	0	0	0	0	0	0	0	0	0	0	0	0
T. 62	Level 1	226	0	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 1	229	0	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 2	230	1	1640	0	0	0	0	1	200	0	0	1	200
T. 64	Level 1	236	0	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 2	237	0	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 3	241	0	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 1	238	0	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 2	239	0	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 3	240	0	0	1	412	0	0	0	0	0	0	1	412
T. 66	Level 1	242	0	0	0	0	0	0	0	0	0	0	0	0
T. 66	Level 2	243	0	0	0	0	0	0	0	0	0	0	1	290
T. 66	Level 3	244	0	0	0	0	0	0	0	0	0	0	0	0
T. 67	Level 1	234	0	0	0	0	0	0	0	0	0	0	0	0
T. 68	Level 1	247	0	0	0	0	0	0	0	0	0	0	0	0
T. 68	Level 2	248	0	0	0	0	0	0	0	0	0	0	0	0
T. 69	Level 1	220	0	0	0	0	0	0	0	0	0	0	0	0
T. 69	Level 2	225	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 7.2
Other Artifacts from B97.
(Continued)

V3	V5	V1	V2005	V2006	V2007	V2008	V2009	V2010	V2011	V2012	V2013	V2014	V2015	V2016
T. 69	Level 3	252	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 1	245	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 2	246	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 3	250	0	0	0	0	0	0	0	0	0	0	0	0
T. 71	Level 1	249	0	0	0	0	0	0	0	0	0	0	0	0
T. 71	Level 2	251	0	0	0	0	0	0	0	0	0	0	0	0
T. 72	Level 1	253	0	0	0	0	0	0	0	0	0	0	0	0
T. 72	Level 2	254	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 1	255	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 2	256	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 3	257	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 4	258	0	0	0	0	0	0	2	1570	0	0	0	0
T. 73	Level 5	259	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V2017	V2018	V2019	V2020	V2021	V2022	V2023	V2024	V2028	V2029	V2031	V2032
Surface	n.a.	22	0	0	0	0	0	0	0	0	0	0	1	7
Surface	n.a.	179	0	0	0	0	1	2020	0	0	0	0	0	0
Surface	n.a.	182	0	0	0	0	0	0	0	0	0	0	1	5
Surface	n.a.	215	0	0	1	47	0	0	0	0	0	0	1	50
T. 46	Level 1	176	0	0	0	0	1	387	0	0	0	0	0	0
T. 46	Level 2	178	0	0	1	98	1	664	0	0	0	0	0	0
T. 46	Level 3	189	0	0	0	0	0	0	0	0	0	0	0	0
T. 47	Level 1	177	0	0	0	0	0	0	0	0	0	0	0	0
T. 47	Level 2	180	0	0	0	0	1	3900	0	0	0	0	1	165
T. 47	Level 3	181	0	0	0	0	0	0	0	0	0	0	0	0
T. 47	Level 4	183	0	0	1	47	0	0	0	0	0	0	0	0
T. 49	Level 1	190	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 2	191	0	0	0	0	0	0	0	0	0	0	0	0
T. 50	Level 1	184	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 1	192	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 2	193	1	63	0	0	0	0	0	0	0	0	0	0
T. 51	Level 3	194	0	0	0	0	0	0	0	0	0	0	0	0
T. 52	Level 1	185	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 1	195	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 2	196	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 3	197	0	0	0	0	0	0	0	0	0	1	0	0
T. 53	Level 4	198	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 4	203	0	0	0	0	0	0	0	0	0	0	1	4
T. 54	Level 2	186	0	0	0	0	0	0	0	0	0	0	0	0
T. 54	Level 3	188	0	0	0	0	0	0	0	0	0	0	0	0
T. 54	Level 4	199	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 1	200	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 2	201	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 3	202	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 2	206	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 3	211	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 7.2
Other Artifacts from B97.
(Continued)

V3	V5	V1	V2017	V2018	V2019	V2020	V2021	V2022	V2023	V2024	V2028	V2029	V2031	V2032
T. 56	Level 4	214	0	0	0	0	0	0	0	0	0	0	0	0
T. 56/61	Level 4	217	0	0	0	0	0	0	0	0	0	0	0	0
T. 61	Level 1	213	0	0	0	0	0	0	0	0	0	0	0	0
T. 61	Level 2	218	0	0	0	0	0	0	0	0	0	0	0	0
T. 61	Level 3	219	0	0	0	0	0	0	0	0	0	0	1	57
T. 57	Level 1	207	0	0	0	0	0	0	0	0	0	0	0	0
T. 57	Level 2	208	0	0	0	0	0	0	0	0	0	0	1	42
T. 57	Level 3	216	0	0	0	0	0	0	0	0	0	0	2	5
T. 57	Level 4	221	0	0	0	0	0	0	0	0	0	0	0	0
T. 58	Level 2	210	0	0	0	0	0	0	0	0	0	0	0	0
T. 58	Level 3	212	0	0	0	0	0	0	0	0	0	0	0	0
T. 59	Level 2	228	0	0	0	0	0	0	0	0	0	0	1	7
T. 59	Level 3	231	0	0	0	0	0	0	0	0	0	0	1	22
T. 59	Level 4	232	0	0	0	0	0	0	0	0	0	0	0	0
T. 60	Level 1	222	0	0	0	0	0	0	0	0	0	0	1	42
T. 60	Level 2	224	0	0	0	0	0	0	0	0	0	0	0	0
T. 62	Level 2	223	0	0	0	0	0	0	0	0	0	0	0	0
T. 62	Level 1	226	0	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 1	229	0	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 2	230	0	0	0	0	1	1640	0	0	1	0	1	1
T. 64	Level 1	236	0	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 2	237	0	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 3	241	0	0	0	0	0	0	0	0	0	0	1	5
T. 65	Level 1	238	0	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 2	239	0	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 3	240	0	0	0	0	0	0	0	0	0	0	1	76
T. 66	Level 1	242	0	0	0	0	0	0	0	0	0	0	0	0
T. 66	Level 2	243	0	0	0	0	0	0	0	0	0	0	0	0
T. 66	Level 3	244	0	0	0	0	0	0	0	0	0	0	0	0
T. 67	Level 1	234	0	0	0	0	0	0	0	0	0	0	0	0
T. 68	Level 1	247	0	0	0	0	0	0	0	0	0	0	0	0
T. 68	Level 2	248	0	0	0	0	0	0	0	0	0	0	0	0
T. 69	Level 1	220	0	0	0	0	0	0	0	0	0	0	0	0
T. 69	Level 2	225	0	0	0	0	0	0	0	0	0	0	2	70
T. 69	Level 3	252	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 1	245	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 2	246	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 3	250	0	0	0	0	0	0	0	0	0	0	0	0
T. 71	Level 1	249	0	0	0	0	0	0	0	0	0	0	1	2
T. 71	Level 2	251	0	0	0	0	0	0	0	0	0	0	2	2
T. 72	Level 1	253	0	0	0	0	0	0	0	0	0	0	0	0
T. 72	Level 2	254	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 1	255	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 2	256	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 3	257	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 4	258	0	0	0	0	1	703	1	867	0	0	0	0
T. 73	Level 5	259	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 7.2
Other Artifacts from B97.
(Continued)

V3	V5	V1	V2033	V2034	V2035	V2036	V2037	V2038	V2039	V2040	V2043	V2044	V2045	V2046
Surface	n.a.	22	0	0	0	0	0	0	1	7	0	0	0	0
Surface	n.a.	179	0	0	0	0	0	0	0	0	0	0	0	0
Surface	n.a.	182	0	0	0	0	0	0	1	5	0	0	0	0
Surface	n.a.	215	1	50	0	0	0	0	0	0	0	0	0	0
T. 46	Level 1	176	0	0	0	0	0	0	0	0	0	0	0	0
T. 46	Level 2	178	0	0	0	0	0	0	0	0	0	0	0	0
T. 46	Level 3	189	0	0	0	0	0	0	0	0	0	0	0	0
T. 47	Level 1	177	0	0	0	0	0	0	0	0	0	0	0	0
T. 47	Level 2	180	1	165	0	0	0	0	0	0	0	0	0	0
T. 47	Level 3	181	0	0	0	0	0	0	0	0	0	0	0	0
T. 47	Level 4	183	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 1	190	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 2	191	0	0	0	0	0	0	0	0	0	0	0	0
T. 50	Level 1	184	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 1	192	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 2	193	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 3	194	0	0	0	0	0	0	0	0	0	0	0	0
T. 52	Level 1	185	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 1	195	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 2	196	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 3	197	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 4	198	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 4	203	0	0	0	0	0	0	0	0	0	0	1	4
T. 54	Level 2	186	0	0	0	0	0	0	0	0	0	0	0	0
T. 54	Level 3	188	0	0	0	0	0	0	0	0	0	0	0	0
T. 54	Level 4	199	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 1	200	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 2	201	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 3	202	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 2	206	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 3	211	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 4	214	0	0	0	0	0	0	0	0	0	0	0	0
T. 56/61	Level 4	217	0	0	0	0	0	0	0	0	0	0	0	0
T. 61	Level 1	213	0	0	0	0	0	0	0	0	0	0	0	0
T. 61	Level 2	218	0	0	0	0	0	0	0	0	0	0	0	0
T. 61	Level 3	219	0	0	1	57	0	0	0	0	0	0	0	0
T. 57	Level 1	207	0	0	0	0	0	0	0	0	0	0	0	0
T. 57	Level 2	208	0	0	0	0	1	42	0	0	0	0	0	0
T. 57	Level 3	216	0	0	0	0	0	0	1	3	1	2	0	0
T. 57	Level 4	221	0	0	0	0	0	0	0	0	0	0	0	0
T. 58	Level 2	210	0	0	0	0	0	0	0	0	0	0	0	0
T. 58	Level 3	212	0	0	0	0	0	0	0	0	0	0	0	0
T. 59	Level 2	228	0	0	0	0	1	7	0	0	0	0	0	0
T. 59	Level 3	231	0	0	1	22	0	0	0	0	0	0	0	0
T. 59	Level 4	232	0	0	0	0	0	0	0	0	0	0	0	0
T. 60	Level 1	222	0	0	0	0	0	0	0	0	0	0	1	42
T. 60	Level 2	224	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 7.2
Other Artifacts from B97.
(Continued)

V3	V5	V1	V2033	V2034	V2035	V2036	V2037	V2038	V2039	V2040	V2043	V2044	V2045	V2046
T. 62	Level 2	223	0	0	0	0	0	0	0	0	0	0	0	0
T. 62	Level 1	226	0	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 1	229	0	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 2	230	0	0	0	0	0	0	0	0	1	1	0	0
T. 64	Level 1	236	0	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 2	237	0	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 3	241	0	0	0	0	0	0	1	5	0	0	0	0
T. 65	Level 1	238	0	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 2	239	0	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 3	240	0	0	1	76	0	0	0	0	0	0	0	0
T. 66	Level 1	242	0	0	0	0	0	0	0	0	0	0	0	0
T. 66	Level 2	243	0	0	0	0	0	0	0	0	0	0	0	0
T. 66	Level 3	244	0	0	0	0	0	0	0	0	0	0	0	0
T. 67	Level 1	234	0	0	0	0	0	0	0	0	0	0	0	0
T. 68	Level 1	247	0	0	0	0	0	0	0	0	0	0	0	0
T. 68	Level 2	248	0	0	0	0	0	0	0	0	0	0	0	0
T. 69	Level 1	220	0	0	0	0	0	0	0	0	0	0	0	0
T. 69	Level 2	225	0	0	0	0	1	69	0	0	1	1	0	0
T. 69	Level 3	252	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 1	245	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 2	246	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 3	250	0	0	0	0	0	0	0	0	0	0	0	0
T. 71	Level 1	249	0	0	0	0	0	0	1	2	0	0	0	0
T. 71	Level 2	251	0	0	0	0	0	0	0	0	0	0	2	2
T. 72	Level 1	253	0	0	0	0	0	0	0	0	0	0	0	0
T. 72	Level 2	254	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 1	255	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 2	256	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 3	257	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 4	258	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 5	259	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V2047	V2048	V2049	V2050	V2051	V2052	V2053	V2054	V2055	V2056	V2057	V2058
Surface	n.a.	22	0	0	0	0	1	7	0	0	0	0	0	0
Surface	n.a.	179	0	0	0	0	0	0	0	0	0	0	0	0
Surface	n.a.	182	0	0	0	0	1	5	0	0	0	0	0	0
Surface	n.a.	215	0	0	1	50	0	0	0	0	0	0	0	0
T. 46	Level 1	176	0	0	0	0	0	0	0	0	0	0	0	0
T. 46	Level 2	178	0	0	0	0	0	0	0	0	0	0	0	0
T. 46	Level 3	189	0	0	0	0	0	0	0	0	0	0	0	0
T. 47	Level 1	177	0	0	0	0	0	0	0	0	0	0	0	0
T. 47	Level 2	180	0	0	0	0	0	0	0	0	0	0	0	0
T. 47	Level 3	181	0	0	0	0	0	0	0	0	0	0	0	0
T. 47	Level 4	183	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 1	190	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 2	191	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 7.2
Other Artifacts from B97.
(Continued)

V3	V5	V1	V2047	V2048	V2049	V2050	V2051	V2052	V2053	V2054	V2055	V2056	V2057	V2058
T. 50	Level 1	184	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 1	192	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 2	193	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 3	194	0	0	0	0	0	0	0	0	0	0	0	0
T. 52	Level 1	185	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 1	195	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 2	196	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 3	197	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 4	198	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 4	203	0	1	0	0	0	0	1	4	0	0	0	0
T. 54	Level 2	186	0	0	0	0	0	0	0	0	0	0	0	0
T. 54	Level 3	188	0	0	0	0	0	0	0	0	0	0	0	0
T. 54	Level 4	199	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 1	200	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 2	201	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 3	202	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 2	206	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 3	211	0	0	0	0	0	0	0	0	0	0	0	0
T. 56	Level 4	214	0	0	0	0	0	0	0	0	0	0	0	0
T. 56/61	Level 4	217	0	0	0	0	0	0	0	0	0	0	0	0
T. 61	Level 1	213	0	0	0	0	0	0	0	0	0	0	0	0
T. 61	Level 2	218	0	0	0	0	0	0	0	0	0	0	0	0
T. 61	Level 3	219	0	0	0	0	0	0	1	57	0	0	0	0
T. 57	Level 1	207	0	0	0	0	0	0	0	0	0	0	0	0
T. 57	Level 2	208	0	0	1	42	0	0	0	0	0	0	0	0
T. 57	Level 3	216	0	0	0	0	1	3	0	0	0	0	0	0
T. 57	Level 4	221	0	0	0	0	0	0	0	0	0	0	0	0
T. 58	Level 2	210	0	0	0	0	0	0	0	0	0	0	0	0
T. 58	Level 3	212	0	0	0	0	0	0	0	0	0	0	0	0
T. 59	Level 2	228	0	0	0	0	0	0	0	0	0	0	1	7
T. 59	Level 3	231	0	0	0	0	1	22	0	0	0	0	0	0
T. 59	Level 4	232	0	0	0	0	0	0	0	0	0	0	0	0
T. 60	Level 1	222	0	1	0	0	0	0	1	42	0	0	0	0
T. 60	Level 2	224	0	0	0	0	0	0	0	0	0	0	0	0
T. 62	Level 2	223	0	0	0	0	0	0	0	0	0	0	0	0
T. 62	Level 1	226	0	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 1	229	0	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 2	230	0	0	0	0	1	1	0	0	0	0	0	0
T. 64	Level 1	236	0	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 2	237	0	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 3	241	0	0	0	0	0	0	0	0	1	5	0	0
T. 65	Level 1	238	0	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 2	239	0	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 3	240	0	0	0	0	0	0	0	0	0	0	0	0
T. 66	Level 1	242	0	0	0	0	0	0	0	0	0	0	0	0
T. 66	Level 2	243	0	0	0	0	0	0	0	0	0	0	0	0
T. 66	Level 3	244	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 7.2
Other Artifacts from B97.
(Continued)

V3	V5	V1	V2047	V2048	V2049	V2050	V2051	V2052	V2053	V2054	V2055	V2056	V2057	V2058
T. 67	Level 1	234	0	0	0	0	0	0	0	0	0	0	0	0
T. 68	Level 1	247	0	0	0	0	0	0	0	0	0	0	0	0
T. 68	Level 2	248	0	0	0	0	0	0	0	0	0	0	0	0
T. 69	Level 1	220	0	0	0	0	0	0	0	0	0	0	0	0
T. 69	Level 2	225	0	0	1	69	0	0	0	0	0	0	0	0
T. 69	Level 3	252	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 1	245	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 2	246	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 3	250	0	0	0	0	0	0	0	0	0	0	0	0
T. 71	Level 1	249	0	0	0	0	0	0	1	2	0	0	0	0
T. 71	Level 2	251	2	0	0	0	2	2	0	0	0	0	0	0
T. 72	Level 1	253	0	0	0	0	0	0	0	0	0	0	0	0
T. 72	Level 2	254	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 1	255	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 2	256	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 3	257	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 4	258	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 5	259	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V2059	V2060	V2061	V2062	V2063	V2064	V2071	V2072	V2073	V2074	V2081	V2082
Surface	n.a.	22	0	0	0	0	0	0	0	0	0	0	0	0
Surface	n.a.	179	0	0	0	0	0	0	0	0	0	0	0	0
Surface	n.a.	182	0	0	0	0	0	0	0	0	0	0	0	0
Surface	n.a.	215	0	0	0	0	0	0	0	0	0	0	0	0
T. 46	Level 1	176	0	0	0	0	0	0	89	30	4	3	0	0
T. 46	Level 2	178	0	0	0	0	0	0	210	55	19	7	4	32
T. 46	Level 3	189	0	0	0	0	0	0	33	9	0	0	1	30
T. 47	Level 1	177	0	0	0	0	0	0	71	11	0	0	0	0
T. 47	Level 2	180	0	0	1	165	0	0	100	19	17	1	0	0
T. 47	Level 3	181	0	0	0	0	0	0	0	0	0	0	0	0
T. 47	Level 4	183	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 1	190	0	0	0	0	0	0	0	0	0	0	0	0
T. 49	Level 2	191	0	0	0	0	0	0	23	6	0	0	0	0
T. 50	Level 1	184	0	0	0	0	0	0	0	0	0	0	0	0
T. 51	Level 1	192	0	0	0	0	0	0	24	3	6	1	0	0
T. 51	Level 2	193	0	0	0	0	0	0	11	5	0	0	0	0
T. 51	Level 3	194	0	0	0	0	0	0	19	3	0	0	0	0
T. 52	Level 1	185	0	0	0	0	0	0	73	13	0	0	0	0
T. 53	Level 1	195	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 2	196	0	0	0	0	0	0	2	1	0	0	0	0
T. 53	Level 3	197	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 4	198	0	0	0	0	0	0	0	0	0	0	0	0
T. 53	Level 4	203	0	0	0	0	0	0	1	1	0	0	0	0
T. 54	Level 2	186	0	0	0	0	0	0	23	8	0	0	0	0
T. 54	Level 3	188	0	0	0	0	0	0	0	0	0	0	0	0
T. 54	Level 4	199	0	0	0	0	0	0	2	1	0	0	0	0

TABLE 7.2
Other Artifacts from B97.
(Continued)

V3	V5	V1	V2059	V2060	V2061	V2062	V2063	V2064	V2071	V2072	V2073	V2074	V2081	V2082
T. 55	Level 1	200	0	0	0	0	0	0	7	1	0	0	0	0
T. 55	Level 2	201	0	0	0	0	0	0	0	0	0	0	0	0
T. 55	Level 3	202	0	0	0	0	0	0	0	0	0	0	1	24
T. 56	Level 2	206	0	0	0	0	0	0	87	2	0	0	1	14
T. 56	Level 3	211	0	0	0	0	0	0	5	1	0	0	0	0
T. 56	Level 4	214	0	0	0	0	0	0	0	0	0	0	0	0
T. 56/61	Level 4	217	0	0	0	0	0	0	18	6	3	1	0	0
T. 61	Level 1	213	0	0	0	0	0	0	0	0	0	0	0	0
T. 61	Level 2	218	0	0	0	0	0	0	14	7	0	0	0	0
T. 61	Level 3	219	0	0	0	0	0	0	16	10	0	0	0	0
T. 57	Level 1	207	0	0	0	0	0	0	422	48	0	0	0	0
T. 57	Level 2	208	0	0	0	0	0	0	526	107	0	0	1	223
T. 57	Level 3	216	0	0	0	0	1	2	327	41	0	0	0	0
T. 57	Level 4	221	0	0	0	0	0	0	169	35	0	0	0	0
T. 58	Level 2	210	0	0	0	0	0	0	37	10	0	0	0	0
T. 58	Level 3	212	0	0	0	0	0	0	0	0	0	0	0	0
T. 59	Level 2	228	0	0	0	0	0	0	90	4	0	0	0	0
T. 59	Level 3	231	0	0	0	0	0	0	0	0	0	0	0	0
T. 59	Level 4	232	0	0	0	0	0	0	2	2	0	0	0	0
T. 60	Level 1	222	0	0	0	0	0	0	23	10	0	0	0	0
T. 60	Level 2	224	0	0	0	0	0	0	53	16	0	0	0	0
T. 62	Level 2	223	0	0	0	0	0	0	0	0	0	0	0	0
T. 62	Level 1	226	0	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 1	229	0	0	0	0	0	0	0	0	0	0	0	0
T. 63	Level 2	230	0	0	0	0	0	0	43	3	0	0	0	0
T. 64	Level 1	236	0	0	0	0	0	0	0	0	0	0	0	0
T. 64	Level 2	237	0	0	0	0	0	0	60	33	0	0	0	0
T. 64	Level 3	241	0	0	0	0	0	0	17	6	0	0	0	0
T. 65	Level 1	238	0	0	0	0	0	0	0	0	0	0	0	0
T. 65	Level 2	239	0	0	0	0	0	0	3	5	0	0	0	0
T. 65	Level 3	240	0	0	0	0	1	76	49	10	5	1	0	0
T. 66	Level 1	242	0	0	0	0	0	0	0	0	0	0	0	0
T. 66	Level 2	243	0	0	0	0	0	0	32	6	0	0	1	32
T. 66	Level 3	244	0	0	0	0	0	0	7	3	5	1	0	0
T. 67	Level 1	234	0	0	0	0	0	0	0	0	0	0	0	0
T. 68	Level 1	247	0	0	0	0	0	0	15	1	0	0	0	0
T. 68	Level 2	248	0	0	0	0	0	0	12	7	0	0	1	20
T. 69	Level 1	220	0	0	0	0	0	0	359	78	0	0	0	0
T. 69	Level 2	225	1	1	0	0	0	0	118	15	0	0	0	0
T. 69	Level 3	252	0	0	0	0	0	0	0	0	0	0	0	0
T. 70	Level 1	245	0	0	0	0	0	0	7	1	0	0	0	0
T. 70	Level 2	246	0	0	0	0	0	0	15	4	0	0	1	34
T. 70	Level 3	250	0	0	0	0	0	0	0	0	0	0	0	0
T. 71	Level 1	249	0	0	0	0	0	0	0	0	0	0	0	0
T. 71	Level 2	251	0	0	0	0	0	0	0	0	0	0	0	0
T. 72	Level 1	253	0	0	0	0	0	0	0	0	0	0	0	0
T. 72	Level 2	254	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 7.2
Other Artifacts from B97.
(Continued)

V3	V5	V1	V2059	V2060	V2061	V2062	V2063	V2064	V2071	V2072	V2073	V2074	V2081	V2082
T. 73	Level 1	255	0	0	0	0	0	0	0	0	0	0	0	0
T. 73	Level 2	256	0	0	0	0	0	0	10	4	0	0	0	0
T. 73	Level 3	257	0	0	0	0	0	0	15	5	0	0	0	0
T. 73	Level 4	258	0	0	0	0	0	0	17	3	0	0	0	0
T. 73	Level 5	259	0	0	0	0	0	0	107	3	0	0	0	0

V3	V5	V1	V2083	V2084	V2087	V2088	V2091	V2092
Surface	n.a.	22	0	0	0	0	0	0
Surface	n.a.	179	0	0	0	0	0	0
Surface	n.a.	182	0	0	0	0	0	0
Surface	n.a.	215	0	0	0	0	0	0
T. 46	Level 1	176	0	0	0	0	0	0
T. 46	Level 2	178	0	0	4	32	0	0
T. 46	Level 3	189	0	0	1	30	0	0
T. 47	Level 1	177	0	0	0	0	0	0
T. 47	Level 2	180	0	0	0	0	0	0
T. 47	Level 3	181	0	0	0	0	0	0
T. 47	Level 4	183	0	0	0	0	0	0
T. 49	Level 1	190	0	0	0	0	0	0
T. 49	Level 2	191	0	0	0	0	0	0
T. 50	Level 1	184	0	0	0	0	0	0
T. 51	Level 1	192	0	0	0	0	0	0
T. 51	Level 2	193	0	0	0	0	0	0
T. 51	Level 3	194	0	0	0	0	0	0
T. 52	Level 1	185	0	0	0	0	0	0
T. 53	Level 1	195	0	0	0	0	0	0
T. 53	Level 2	196	0	0	0	0	0	0
T. 53	Level 3	197	0	0	0	0	0	0
T. 53	Level 4	198	0	0	0	0	0	0
T. 53	Level 4	203	0	0	0	0	0	0
T. 54	Level 2	186	0	0	0	0	0	0
T. 54	Level 3	188	0	0	0	0	0	0
T. 54	Level 4	199	0	0	0	0	0	0
T. 55	Level 1	200	0	0	0	0	0	0
T. 55	Level 2	201	0	0	0	0	0	0
T. 55	Level 3	202	0	0	0	0	1	24
T. 56	Level 2	206	0	0	1	14	0	0
T. 56	Level 3	211	0	0	0	0	0	0
T. 56	Level 4	214	0	0	0	0	0	0
T. 56/61	Level 4	217	0	0	0	0	0	0
T. 61	Level 1	213	0	0	0	0	0	0
T. 61	Level 2	218	0	0	0	0	0	0
T. 61	Level 3	219	0	0	0	0	0	0
T. 57	Level 1	207	0	0	0	0	0	0
T. 57	Level 2	208	1	223	0	0	0	0
T. 57	Level 3	216	0	0	0	0	0	0

TABLE 7.2
Other Artifacts from B97.
(Continued)

V3	V5	V1	V2083	V2084	V2087	V2088	V2091	V2092
T. 57	Level 4	221	0	0	0	0	0	0
T. 58	Level 2	210	0	0	0	0	0	0
T. 58	Level 3	212	0	0	0	0	0	0
T. 59	Level 2	228	0	0	0	0	0	0
T. 59	Level 3	231	0	0	0	0	0	0
T. 59	Level 4	232	0	0	0	0	0	0
T. 60	Level 1	222	0	0	0	0	0	0
T. 60	Level 2	224	0	0	0	0	0	0
T. 62	Level 2	223	0	0	0	0	0	0
T. 62	Level 1	226	0	0	0	0	0	0
T. 63	Level 1	229	0	0	0	0	0	0
T. 63	Level 2	230	0	0	0	0	0	0
T. 64	Level 1	236	0	0	0	0	0	0
T. 64	Level 2	237	0	0	0	0	0	0
T. 64	Level 3	241	0	0	0	0	0	0
T. 65	Level 1	238	0	0	0	0	0	0
T. 65	Level 2	239	0	0	0	0	0	0
T. 65	Level 3	240	0	0	0	0	0	0
T. 66	Level 1	242	0	0	0	0	0	0
T. 66	Level 2	243	1	32	0	0	0	0
T. 66	Level 3	244	0	0	0	0	0	0
T. 67	Level 1	234	0	0	0	0	0	0
T. 68	Level 1	247	0	0	0	0	0	0
T. 68	Level 2	248	0	0	1	20	0	0
T. 69	Level 1	220	0	0	0	0	0	0
T. 69	Level 2	225	0	0	0	0	0	0
T. 69	Level 3	252	0	0	0	0	0	0
T. 70	Level 1	245	0	0	0	0	0	0
T. 70	Level 2	246	0	0	1	34	0	0
T. 70	Level 3	250	0	0	0	0	0	0
T. 71	Level 1	249	0	0	0	0	0	0
T. 71	Level 2	251	0	0	0	0	0	0
T. 72	Level 1	253	0	0	0	0	0	0
T. 72	Level 2	254	0	0	0	0	0	0
T. 73	Level 1	255	0	0	0	0	0	0
T. 73	Level 2	256	0	0	0	0	0	0
T. 73	Level 3	257	0	0	0	0	0	0
T. 73	Level 4	258	0	0	0	0	0	0
T. 73	Level 5	259	0	0	0	0	0	0

TABLE 7.3
Distribution of Certain Ceramic Variables among Test Pits at B97.
Frequencies represent totals for all levels of each pit; variable labels defined in accompanying text.

Test Pit	V104	V150	SmpSz	Feet/Diag	H/L	Sector	V334
T.46	1091	16	Yes	1.47%	H	S	96
T.47	245	18	Yes	7.35%	H	S	1
T.48	2	0		0%			0
T.49	31	0	Yes	0%	L	S	0
T.50	4	0		0%			0
T.51	535	9	Yes	1.68%	H	S	0
T.52	0	0		0%			0
T.53	328	1	Yes	0.30%	L	S	0
T.54	91	2	Yes	2.20%	H	S	0
T.55	89	0	Yes	0%	L	S	6
T.56	205	0	Yes	0%	L	N	6
T.56/61	39	0	Yes	0%	L	N	0
T.61	268	0	Yes	0%	L	N	2
T.57	719	20	Yes	2.78%	H	S	3
T.58	228	1	Yes	0.44%	L	N	0
T.59	544	1	Yes	0.18%	L	N	0
T.60	103	0	Yes	0%	L	S	0
T.62	11	0		0%			0
T.63	1295	2	Yes	0.15%	L	N	67
T.64	157	2	Yes	1.27%	H	N	6
T.65	481	0	Yes	0%	L	N	3
T.66	401	0	Yes	0%	L	N	9
T.67	22	1		4.55%			1
T.68	181	1	Yes	0.55%	L	N	7
T.69	155	0	Yes	0%	L	N	4
T.70	138	0	Yes	0%	L	N	2
T.71	117	2	Yes	1.71%	H	N	19
T.72	19	1		5.26%			0
T.73	440	4	Yes	0.91%	L	N	2

V104 = total count of diagnostic sherds; V150 = total count of ceramic foot fragments; SmpSz = sample size of V104 ≥ 30 diagnostic sherds, warranting use in further analysis; Feet/Diag = total count of ceramic foot fragments (V150) divided by total count of diagnostic sherds (V104), multiplied by 100 for percentage; H/L = whether the value for Feet/Diag is greater than (H) or less than or equal to (L) mean for all test pits. Sector = test pit north (N) or south (S) of Calzada F; V334 = total count of sherds classified as kiln wasters or misfired sherds.

TABLE 7.4

Distribution of Certain Daub and Chipped Stone Variables among Test Pits at B97.

Frequencies represent totals for all levels of each pit; variable labels defined in accompanying text.

Test Pit	V104	SmpSz	Sector	V1003	Chert/ Diag	V1015	NonUt/ Chrt	T.L. Daub Wt	T.L. Daub Ct
T.46	1091	Yes	S	395	0.36	260	0.66	89	30
T.47	245	Yes	S	14	0.06	7	0.5	71	11
T.48	2			0	0	0	0	0	0
T.49	31	Yes	S	14	0.45	10	0.71	0	0
T.50	4			1	0.25	1	1	0	0
T.51	535	Yes	S	111	0.21	81	0.73	24	3
T.52	0			0	0	0	0	73	13
T.53	328	Yes	S	56	0.17	42	0.75	0	0
T.54	91	Yes	S	48	0.53	30	0.63	23	8
T.55	89	Yes	S	102	1.15	72	0.71	7	1
T.56	205	Yes	N	97	0.47	65	0.67	0	0
T.56/61	39	Yes	N	15	0.38	11	0.73	n.a.	n.a.
T.61	268	Yes	N	127	0.47	100	0.79	0	0
T.57	719	Yes	S	132	0.18	82	0.62	422	48
T.58	228	Yes	N	119	0.52	86	0.72	37	10
T.59	544	Yes	N	60	0.11	41	0.68	0	0
T.60	103	Yes	S	26	0.25	17	0.65	23	10
T.62	11			12	1.09	5	0.42	0	0
T.63	1295	Yes	N	43	0.03	30	0.7	0	0
T.64	157	Yes	N	17	0.11	10	0.59	0	0
T.65	481	Yes	N	204	0.42	161	0.79	0	0
T.66	401	Yes	N	104	0.26	74	0.71	0	0
T.67	22			1	0.05	1	1	0	0
T.68	181	Yes	N	111	0.61	84	0.76	15	1
T.69	155	Yes	N	26	0.17	18	0.69	359	78
T.70	138	Yes	N	22	0.16	16	0.73	7	1
T.71	117	Yes	N	8	0.07	6	0.75	0	0
T.72	19			9	0.47	6	0.67	0	0
T.73	440	Yes	N	20	0.05	15	0.75	0	0

V104 = total count of diagnostic sherds; SmpSz = sample size of V104 ≥ 30 diagnostic sherds, warranting use in further analysis; Sector = test pit north (N) or south (S) of Calzada F; V1003 = total count of chert fragments; Chert/Diag = total count of chert fragments (V1003) divided by total count of ceramic diagnostics (V104); V1015 = total count of nonutilized chert fragments; NonUt/Chrt = total count of nonutilized chert fragments (V1015) divided by total count of chert fragments (V1003). T.L. Daub Wt = total weight (in grams) of burned daub fragments in top level of test pit; T.L. Daub Ct = total count of burned daub fragments in top level of test pit.

CHAPTER 8

EXCAVATIONS AT B26 AND B27

The sites of B26 (Potrero Urpianero) and B27 (El Recostón de La Tigra) are neighboring nonmound sites situated alongside the causeway (Calzada G) that leads in a southeasterly direction from the regional center of El Gaván (B12) (figs. 1.3, 7.2). Both sites were located during the regional survey (Redmond and Spencer, 2007). B26, which lies about 2 km southeast of B12, is a third-tier habitation site that extends along the edge of the *banco* to the northeast and overlooking the Caño Colorado, a tributary of the Canaguá River. B27 is an area of drained fields, an agricultural facility, without evidence of habitation; it is situated on the eastern alluvium of the Canaguá River and is traversed by the Caño Colorado. B27 is located about 3 km southeast of B12. We decided to describe B26 and B27 together in this chapter because we suspect that the B27 fields were farmed by the inhabitants of nearby B26.

B26 (POTRERO URPIANERO)

The nonmound site of B26 lies about 180 m southwest of the causeway (Calzada G) and covers an area of 3.4 ha (fig. 8.1). The reader should note that this site size represents a slightly revised estimate for B26, superseding the previous estimate of 3.02–3.125 ha (Redmond and Spencer, 2007; Spencer et al., 1994; Spencer and Redmond, 1998). The land on which B26 is located had been cleared in 1983 with a *rastrillo de verano* (harrow) and planted with pasture grass, according to Alberto Ayala, the son-in-law of Ramón Gutiérrez, who was living with his extended family at the ranch Fundo Párate Duro, the main house of which was situated about 0.5 km to the southeast of B26. Ayala accompanied us during our survey of the site in July of 1984. He told us that, when the land was cleared, ceramics turned up not far below the surface over a 1 ha area along the edge of the *banco* in the Potrero Urpianero, a pasture that sprawls to the west of the small gully that almost bisects B26 near T.83, as well as to the east beyond T.78 (fig. 8.1). He took us to see two yellow-colored clay surfaces, circular in shape, that were evident in the exposed southwestern slope of the *banco*, and two possible cultural features (pits) that seemed to be associated with one of them. Although we searched the ground carefully in 1984, we did not recover any sherds in this western part of the site. We had better luck as we carried our survey beyond T.74 and T.75 to the east, in a pasture called Potrero Apamatal (fig. 8.1), where Ayala said he had seen ceramics on another occasion at the *banco* edge not far from the *bajareque* (wattle-and-daub) residence of the Gudiño family. Although we found no pottery at the *banco* edge, we recovered some Gaván-complex ceramics, chipped stone, and burned daub in the earthen courtyard of the Gudiño house. We also noted a *metate* fragment in the fill of the 40 cm tall earthen platform that supported the house (Redmond and Spencer 2007: 177). All the materials we collected at the Gudiño house were probably redeposited, scraped up from their original archaeological contexts by the Gudiño family when they built their low house platform. Consequently, even though our only surface finds at B26 came from the Potrero Apamatal in the eastern part of the site, we decided to name the entire site Potrero Urpianero in recognition of Ayala's information about finding subsurface ceramics and features over a substantial area when that large pasture was cleared in 1983.

In March 1986 we returned to B26; we mapped the site with an alidade and plane table and carried out a program of systematic test-pit excavation (fig. 8.1). The central datum point was established at the first plane table position in the Potrero Apamatal; it had a coordinate of N1000/E1000 and an elevation of 100.00 m. The origin of the grid system thus lay to the southwest of the *banco* on

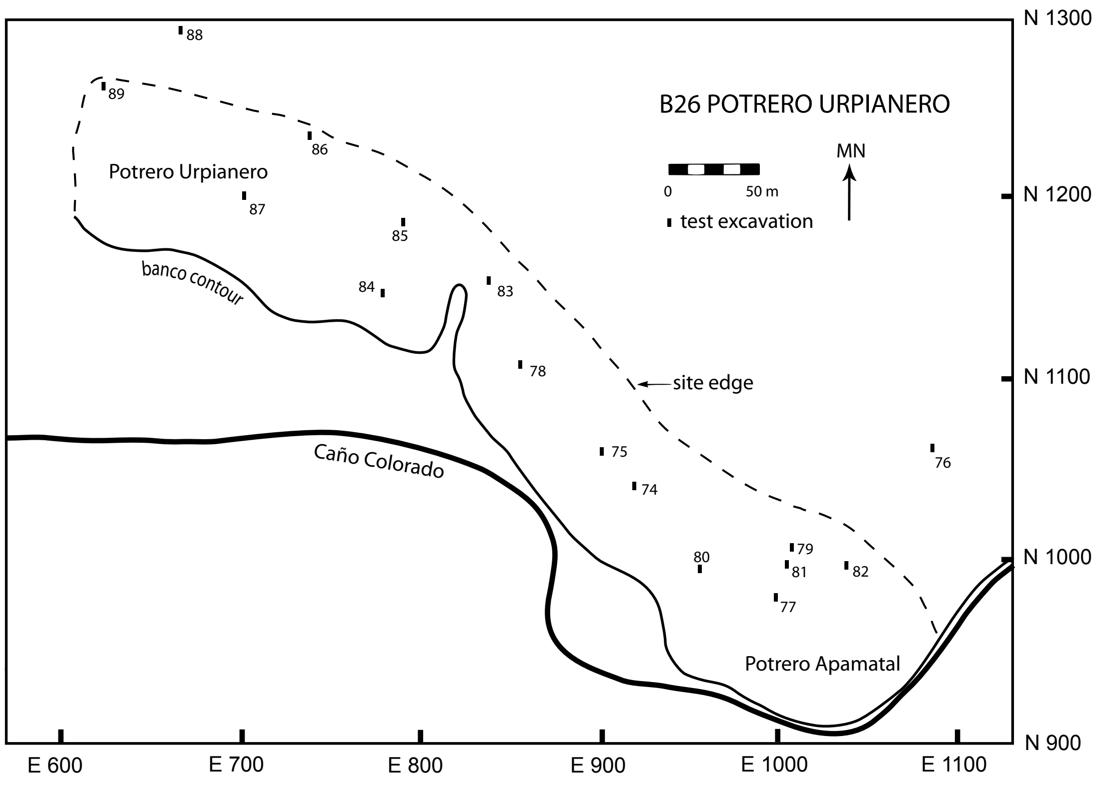

Figure 8.1. Topographic map of Potrero Urpianero (B26), showing the locations of the numbered test excavations; a guide to the north and east grid coordinates is also presented.

which the site was situated, so that the entire site fell in the northeast quadrant of a Cartesian coordinate system. The resulting grid designations could then be expressed in the distance (in m) north and east of the arbitrary origin, while the elevations would be relative to the datum point of 100.00 m.

Test-pit Program at B26

The test-pit program carried out at Potrero Urpianero (B26) was designed to recover information about the site's areal extent and occupation. A probabilistic sampling program was pursued that adhered to the principles of a systematically stratified, randomized design, which we called the Probability-2 design. Following the procedure outlined in detail in chapter 6, the grid coordinates of test-pit locations were selected from a table of random numbers (Arkin and Colton, 1963: table 25). Each test pit measured 2 × 1 m, was oriented north-south, and was referenced by the grid designation of its southwest corner. The Probability-2 design called for two test pits to be chosen for each square block of site area or stratum measuring 100 × 100 m. The Probability-2 sampling design at B26 resulted in the excavation of 16 test pits, which yielded a sampling fraction of 0.04%.

The test pits were located in the field by aligning the alidade to the selected grid point and coordinating with the person holding the stadia rod along the bearing by means of walkie-talkies until the precise distance was reached. A stake was driven in the ground to mark the southwest corner of the test pit and a surface elevation was taken at this point. That point became the datum point of the pit, from which all depth below surface (DBS) measurements were taken during the pit's excavation.

The descriptions of the 16 test pits excavated at B26 that follow include drawings of the test pit profiles. The tables of the ceramic and nonceramic data recovered (tables 8.1, 8.2) will appear after the descriptions of the test excavations.

T.74 was at N1042–1043/E921, a little over 40 m northeast from the edge of the *banco* (figs. 8.1, 8.2). The surface elevation at the top southwest corner of T.74 was 99.75 m. We excavated three levels: Level 1 (0–0.20 m DBS), Level 2 (0.20–0.40 m DBS), and Level 3 (0.40–0.50 m DBS). We did not recover any cultural materials in this test pit and did not draw a profile. Two stratigraphic layers were detected in T.74. A top layer consisted of brown-colored topsoil, well trodden by cattle, reported in Level 1. Underlying it in levels 2 and 3 was a gray-brown clay deposit, harder packed and cloddy, that continued to a depth of at least 0.50 m DBS.

T.75 was at N1060–1061/E903, almost 40 m northeast from the edge of the *banco* (fig. 8.1). The surface elevation at the southwest corner of the test pit was 100.04 m. We excavated two levels in T.75: Level 1 (B26-263; 0–0.20m DBS) and Level 2 (B26-264; 0.20–0.40 m DBS). Cultural materials were recovered in levels 1 and 2 (tables 8.1, 8.2). The drawing of T.75's west profile (fig. 8.3) shows three stratigraphic layers. Layer A was silty topsoil, brown in color; it extended from the ground surface to 0.12–0.15 m DBS and lacked cultural material. Layer B consisted of a yellow-brown colored silty deposit that was harder packed and cloddy, with inclusions and some cultural materials. Layer B extended to 0.28 m DBS. Layer C was a sterile silty clay deposit that was yellow-brown in color and that continued throughout the test excavation to 0.40 m DBS where excava-

Figure 8.2. First day of excavation at B26, with T.74 in progress, looking northwest.

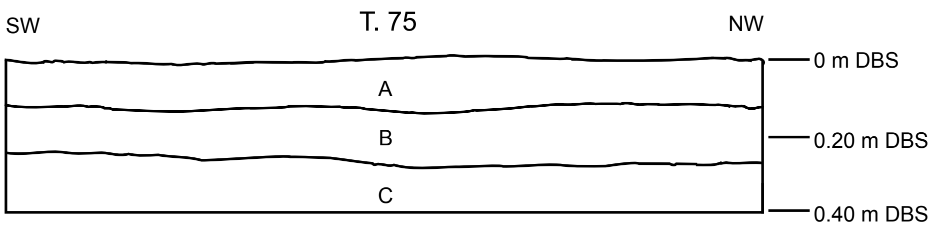

Figure 8.3. Profile drawing of the west face of T.75.

tion stopped. Our Level 1 penetrated Layer B, which extended in to the top half of Level 2.

The cultural materials recovered in Level 1 (B26-263; 0–0.20 m DBS) consisted of 15 Gaván-complex sherds, of which one was a diagnostic (table 8.1). Three fragments of chipped stone were recovered: one fragment of nonutilized chert and two fragments of utilized quartz (table 8.2). Level 1 yielded one coin envelope of charcoal.

Excavation Level 2 (B26-264; 0.20–0.40 m DBS) yielded 5 sherds, of which two were diagnostics (table 8.1).

T.76 was at N1066–1067/E1085, over 180 m east of T.75 (fig. 8.1). The surface elevation at the top southwest corner of the test pit was

99.72 m. We excavated two levels here: Level 1 (0–0.20 m DBS) and Level 2 (0.20–0.40 m DBS). No cultural materials were recovered. We did not draw a profile of the T.76's stratigraphy, but noted that the topmost layer exposed in our Level 1 was a silty topsoil deposit, brown in color. Underlying it, in our Level 2, was a brown-colored silty clay deposit that continued to a depth of 0.40 m DBS where excavation ceased. The absence of cultural materials in T.76 reflects its location beyond the southeastern edge of site B26's occupation.

T.77 was at N980–981/E999 in the Potrero Apamatal at the southern end of the *banco*, less than 20 m north of the farmhouse of the Gudiño family (figs. 8.1, 8.4). The surface elevation at the top southwest corner of the test pit was 100.03 m. We excavated three levels in T.77: Level 1 (B26-260; 0–0.20 m DBS), Level 2 (B26-261; 0.20–0.40 m DBS), and Level 3 (B26-262; 0.40–0.60 m DBS). The stratigraphy evident in the test pit's west profile consists of four layers (fig. 8.5). Layer A was alluvial sandy topsoil, brown in color, and devoid of cultural material. Layer A extended from the ground surface to about 0.12 m DBS. Layer B was a fine but more compact alluvial deposit, tan in color, with red-brown inclusions and some cultural ma-

Figure 8.4. View of first plane table position at B26 and of T.79 in progress, looking south-southwest toward the farm house of the Gudiño family.

terial; it extended down to 0.34–0.42 m DBS. Layer C was a fine but harder alluvial terracotta deposit, containing small (tooth-sized) burned dark red-brown pebbles and cultural material that extended down to 0.55 m DBS. Layer D consisted of the same burned alluvial deposit as Layer C, but it lacked any cultural material. Level 1 comprised Layer A and penetrated Layer B, accounting for the cultural material (B26-260) recovered below 0.12 m DBS. Level 2 corresponded with the remainder of Layer B and penetrated Layer C at the southern end of the test pit (fig. 8.4). Excavation Level 3 corresponded with Layer C and the underlying sterile Layer D.

A sparse amount of cultural material was recovered from Level 1 (B26-260; 0–0.20 m DBS); all nine sherds were nondiagnostic Gaván-complex ceramics (table 8.1). Level 1 yielded one fragment of chipped stone (nonutilized chert) (table 8.2). From Level 2 (B26-261; 0.20–0.40 m DBS) we recovered seven nondiagnostic sherds (table 8.1) and one fragment of chipped stone (nonutilized chert) (table 8.2).

Our excavation of Level 3 (B26-262; 0.40–0.60 m DBS) yielded more cultural material. We recovered 34 sherds, of which seven were diagnostics: two small outleaned-wall bowl rims and five annular base fragments (table 8.1). The single fragment of chipped stone obtained from Level 3 was a utilized chert flake (table 8.2). A flotation sample and a pollen/phytolith sample were obtained from the Layer C burned deposit in this level.

T.78 was at N1108–1109/E858, a little over 30 m east of the edge of the *banco* and southeast of the ravine that traverses the southwestern edge of the *banco* of the Potrero Urpianero (fig. 8.1). The surface elevation at the top southwest corner of the pit was 100.22 m. We excavated three levels here: Level 1 (0–0.20 m DBS), Level 2 (B26-271; 0.20–0.40 m DBS), and Level 3 (0.40–0.50 m DBS). The drawing of T.78's west profile (fig. 8.6) shows three stratigraphic layers. Layer A was sterile, gray-brown colored silty topsoil that reached down to 0.18 m DBS at the southern end of the pit. Layer B was a silty and clayey deposit, light brown in color, with inclusions and a small amount of cultural material. Layer B extended from 0.14–0.18 m DBS to 0.34–0.36 m DBS. Layer C was a sterile silty and clayey deposit, yellow-brown in color. Level 1 comprised Layer A and exposed the top of Layer B. Level 2 corresponded to the remainder of Layer B and exposed the surface of Layer C. Having determined that Layer C was culturally sterile, the excavation of Level 3 stopped at 0.50 m DBS.

Level 2 (B26-271; 0.20–0.40 m DBS) yielded two nondiagnostic sherds (table 8.1). Three fragments of chipped stone (chert) were recovered: one utilized chert flake and two fragments of nonutilized chert (table 8.2). Pollen and phytolith sample 114 from Level 2 was selected for pollen analysis carried out by Milagro Rinaldi (appendix C, table C.1). She identified high frequencies of maize (*Zea mays*) pollen in sample 114. The pollen of *Alternanthera* sp. and of *Dyckia* sp. was present in intermediate to high frequencies. The sample produced an intermediate frequency of indigo (*Indigofera tinctoria* or *I. anil*), which was probably used as a dye. Also present in intermediate frequencies was the pollen of arrowleaf (*Sida* sp.), commonly used for its fiber, but also reported to have medicinal properties. Rinaldi reported a low to intermediate frequency of pollen of *Symplocos* sp., a plant traditionally used as a dye as well as for its medicinal properties.

There was a low frequency of pollen of *Trigonia* sp., and of the ornamental flowering pipevine *Aristolochia ringens*, which is reported to have certain traditional medicinal uses, including as an antidote for snakebites (Duke, 1970: 354–355). Pollen of *verdolaga* (*Talinum paniculatum*) was observed in low frequencies; this leaf vegetable is recognized for its medicinal properties. Sample 114 also yielded very low pollen frequencies of the root crop *ocumo* (taro) (*Xanthosoma sagittifolium*), of the tree fruits guava (*Psidium guajava*) and cocoplum (*Chrysobalanus icaco*), and of the tree (*Piptadenia peregrina*), whose beans were ground and used as a hallucinogenic snuff by the indigenous societies of the Venezuelan llanos (Morey, 1975: 85–86). A very low frequency of spores of the ferns *Alsophila* sp. and *Polypodium* sp. was identified as well. Overall, this pollen sample 114 from T. 78 Level 2 contained the greatest diversity of pollen types; Rinaldi also noted that the palynomorphs from the sample were well preserved.

T.79 was at N1004–1005/E1006, in the Potrero Apamatal (southeastern end of the site) at the southern end of the *banco*, to the north of the Gudiño family's house (figs. 8.1, 8.5). The surface elevation at the top southwestern corner of the test pit was 99.94 m. We excavated T.79 in three levels: Level 1 (B26-265; 0–0.20 m DBS), Level 2 (B26-266; 0.20–0.40 m DBS), and Level 3 (0.40–0.50 m DBS). The drawing of the test pit's west profile (fig. 8.7) shows three stratigraphic layers. Layer A was silty topsoil, dark brown in color, that extended to 0.15 m DBS at the southern end of the pit and to 0.18 m DBS at the northern end of the pit. Layer B was a clayey and silty deposit, gray in color, with brown inclusions and cultural material. Layer B extended from 0.15–0.18 m DBS to approximately 0.38 m DBS. Layer C was sterile clay, gray-brown in color. Level 1 comprised Layer A and entered Layer B, accounting for the occurrence of cultural materials in Level 1, reported after 0.15–0.18 m DBS (B26-265). Excavation Level 2 corresponded to the remainder of Layer B down to approximately 0.35–0.38 m DBS, where the cultural materials gave out, and where the sterile clay of Layer C was encountered. The test pit's exposure of Layer C in Level 3 continued only to 0.50 m DBS.

Level 1 (B26-265; 0–0.20 m DBS) yielded 16 sherds, of which two were diagnostic Gaván ceramics. One was a solid cylindrical-shaped foot support of a vessel (table 8.1). Level 1 also yielded two fragments of chipped stone: one utilized chert flake and one fragment of nonutilized sandstone (table 8.2).

Level 2 (B26-266; 0.20–0.40 m DBS) recovered 187 sherds, of which 22 were diagnostics. The diagnostic sherds consisted of seven outleaned-wall bowl rims, four *olla* rims, two vessel foot-supports (one of them cylindrical in shape), eight slipped body sherds, and one reworked (drilled) body sherd (table 8.1). Of the 22 fragments of chipped stone recovered, 21 were chert: five utilized chert flakes, one fragment of reused, angular chert, and 15 fragments of nonutilized chert (table 8.2). A coin envelope of charcoal was recovered from this provenience.

T.80 was at N996–997/E957, some 20 m northeast from the edge of the *banco* in the Potrero Apamatal (figs. 8.1, 8.8). The surface elevation at the top southwest corner of the test pit was 100.10 m. We excavated two levels here: Level 1 (B26-267; 0–0.20 m DBS) and Level 2 (B26-268; 0.20–0.40 m DBS) (tables 8.1, 8.2). The drawing of T.80's east profile (fig. 8.9) shows three stratigraphic

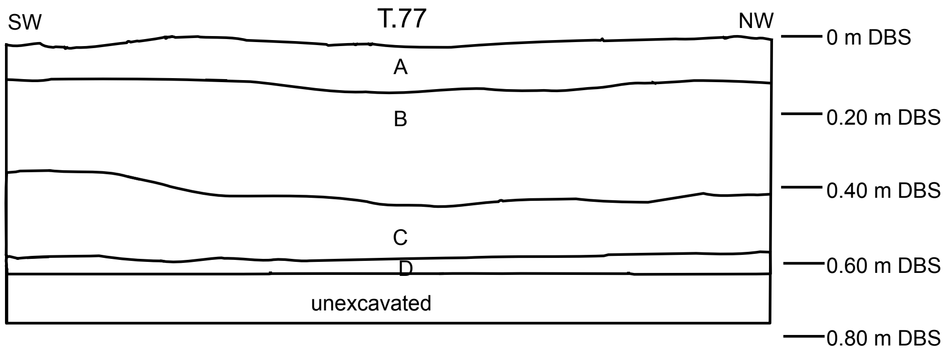

Figure 8.5. Profile drawing of the west face of T.77.

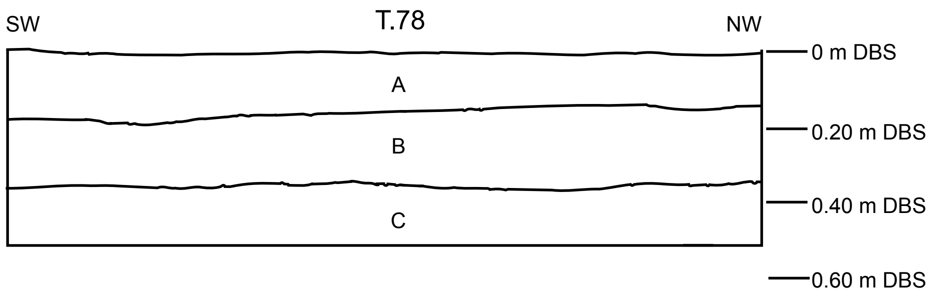

Figure 8.6. Profile drawing of the west face of T.78.

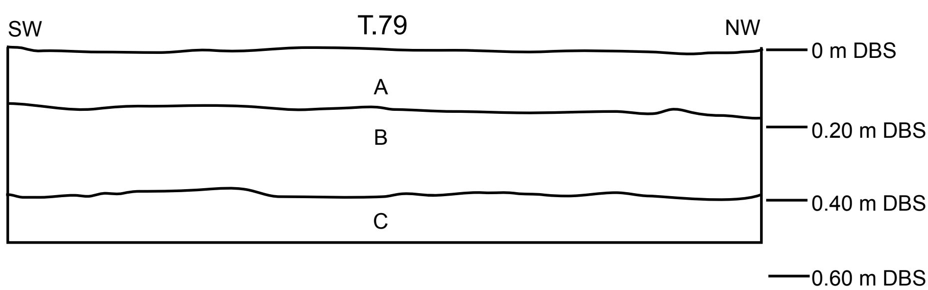

Figure 8.7. Profile drawing of the west face of T.79.

Figure 8.8. View of T. 80 under excavation, looking northwest.

layers. Layer A was loamy topsoil, brown in color, and sterile. Layer A extended to 0.10 m DBS at the southern end of the pit and to 0.13–0.14 m DBS elsewhere. Layer B was a harder alluvial deposit, yellow-brown in color, which contained Gaván-complex ceramics and chipped stone. Layer B extended from 0.10–0.14 m DBS to 0.30–0.33 m DBS. Layer C was the same yellow-brown colored alluvial deposit, but devoid of cultural materials; we noted that the cultural materials gave out at approximately 0.30 m DBS. Level 1 comprised Layer A and the top portion of Layer B, accounting for the cultural material recovered beginning below 0.10 m DBS. Level 2 corresponded with the remainder of Layer B until 0.30 m DBS, and with the top of the sterile substratum Layer C (fig. 8.8).

From Level 1 (B26-267; 0–0.20 m DBS) we recovered 67 sherds, of which 12 were Gaván-complex diagnostics. Among them were three outleaned-wall bowl rims, four *olla* rims, one convex-wall bowl rim, and one slipped body sherd (table 8.1). Of the three fragments of chipped stone recovered from Level 1, two were utilized chert flakes; one of the chert flakes was recorded as a utilized primary flake (V1039), a by-product of the knapping of chert flakes from a core.

Level 2 (B26-268; 0.20–0.40 m DBS) yielded 21 sherds, two of which were diagnostics. Both diagnostic ceramics were hollow *piriforme* foot supports (V294) (table 8.1).

Six of the seven fragments of chipped stone from Level 2 were chert; three were pieces of nonutilized chert, and three were utilized chert fragments. There were two chert flakes and one chert chopper, which was complete and deemed suitable for use-wear analysis (appendix B; B26-268-57). The chopper's dorsal side exhibited cortex. The chopper's lateral working edge showed both polish and edge damage. The action was transverse. Both ends showed hafting evidence (polish). The chopper was probably used for chopping wood and other plant material.

T.81 was at N998–999/E1005, 6 m south of T.79 in Potrero Apamatal (fig. 8.1, 8.5). The surface elevation at the top southwest corner of the pit was 99.98 m. We excavated two levels in the test pit: Level 1 (B26-272; 0–0.20 m DBS) and Level 2 (B26-273; 0.20–0.40 m DBS) (tables 8.1, 8.2). The drawing of T.81's west profile (fig. 8.10) reveals the three stratigraphic layers we exposed. Layer A was silty topsoil, dark brown in color. Layer A extended to 0.14–0.17 m DBS and lacked cultural material, other than a metal artifact from the southern end of the test pit at 0.10–0.20 m DBS. Layer B was a harder clay deposit, gray-brown in color, with small yellow inclusions and cultural material; it extended from the bottom of Layer A to 0.32 m DBS. Layer C was the same hard clay deposit as Layer B, gray brown in color, only devoid of cultural material. Level 1 comprised all of Layer A and the top of Layer B, with some cultural material appearing around 0.17–0.18 m DBS. Level 2 corresponded to the remainder of Layer B and penetrated the sterile Layer C, with the cultural material reportedly giving out at 0.32 m DBS.

Level 1 (B26-272; 0–0.20 m DBS) yielded some cultural material at 0.17–0.20 m DBS. We recovered 33 sherds, of which five were Gaván-complex diagnostics. They consisted of one *olla* rim, two solid conical foot supports, one slipped body sherd, and one partially drilled sherd (table 8.1). Of the nine fragments of chipped stone we recovered from Level 1, eight were chert (table 8.2). There were four fragments of nonutilized chert and four fragments of utilized chert; there were three utilized chert flakes and one utilized primary chert flake, a by-product of core reduction (see also B26-267 from T.80).

Level 2 (B26-273; 0.20–0.40 m DBS) yielded 21 nondiagnostic Gaván-complex ceramics (table 8.1). We recovered six fragments of chipped stone in Level 2, all chert (table 8.2). Five fragments were nonutilized chert and one was a utilized chert flake.

T.82 was at N997–998/E1038, a little over 30 m east of T.81 in the Potrero Apamatal (fig. 8.1). The surface elevation at the top southwest corner of the pit was 99.99 m. We excavated two levels here: Level 1 (B26-270; 0–0.20 m DBS) and Level 2 (0.20–0.30 m DBS) (tables 8.1, 8.2). The drawing of T.82's west profile (fig. 8.11) shows its three stratigraphic layers. Layer A was silty topsoil, gray brown in color and sterile. Layer A extended from the ground surface to 0.10–0.14 m DBS. Layer B was also a silty deposit, light brown in color, but with inclusions and a small amount of cultural material that appeared at 0.10–0.14 m DBS and gave out by 0.20 m DBS. The same silty deposit characterized Layer C, except that it lacked cultural material. Level 1 comprised Layer A and Layer B. The excavation of Layer C in Level 2 ended at 0.30 m DBS once it was determined that Layer C was sterile.

Level 1 (B26-270; 0–0.20 m DBS) recovered five nondiagnostic Gaván-complex ce-

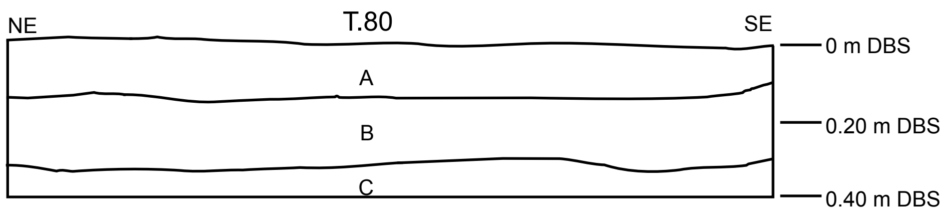

Figure 8.9. Profile drawing of the east face of T.80.

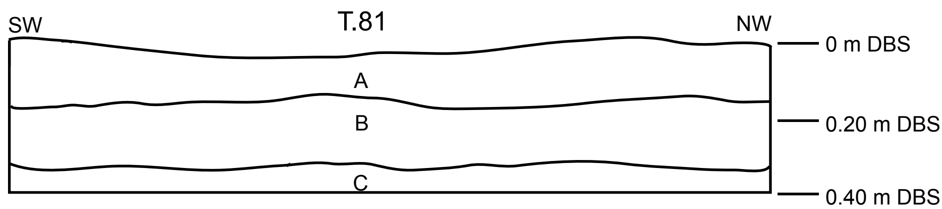

Figure 8.10. Profile drawing of the west face of T.81.

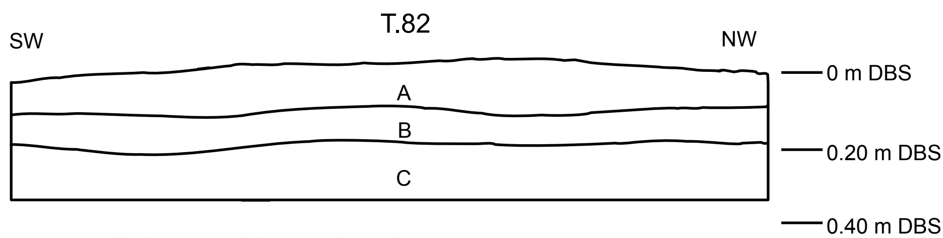

Figure 8.11. Profile drawing of the west face of T.82.

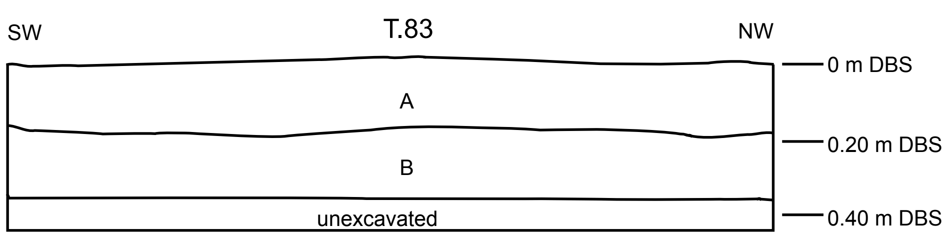

Figure 8.12. Profile drawing of the west face of T.83.

ramics (table 8.1). We also recovered one fragment of nonutilized chert (table 8.2).

T.83 was at N1154–1155/E841, some 12 m east of the edge of the gully that cuts into the southwestern edge of the *banco* of Potrero Urpianero (fig. 8.1). The surface elevation at the top southwest corner of the pit was 99.93 m. We excavated two levels in T.83: Level 1 (B26-269; 0–0.20 m DBS) and Level 2 (B26-275; 0.20–0.35 m DBS) (tables 8.1, 8.2). The drawing of the west profile of the test pit (fig. 8.12) shows two stratigraphic layers. Layer A was sterile silty topsoil, brown in color. Layer A extended from the ground surface down to 0.17–0.19 m DBS. Layer B consisted of a clay deposit, brown-gray in color, with small red-brown flecks and little cultural material; the few ceramics recovered came from the top 3 cm of Layer B (0.18–0.21 m DBS). There was no stratigraphic distinction between this cultural deposit and the underlying sterile substratum. Level 1 was made up of all of Layer A and the top 2 cm of Layer B, the latter of which accounted for the few ceramics recovered (B26-269). Level 2 corresponded to Layer B, which became sterile at approximately 0.21 m DBS. For this reason, the excavation of Level 2 stopped at 0.35 m DBS.

Level 1 (B26-269; 0–0.20 m DBS) yielded five sherds, of which two were diagnostic outflared, thickened *olla* rim sherds with an interior break (table 8.1).

From Level 2 (B26-275; 0.20–0.35 m DBS) we recovered one reworked body sherd (table 8.1).

T.84 was at N1148–1149/E783, 15 m north from the southwest edge of the *banco* in the Potrero Urpianero (fig. 8.1, 8.13). The surface elevation at the top southwest corner of the pit was 100.27 m. We excavated three levels here: Level 1 (0–0.20 m DBS), Level 2 (B26-276; 0.20–0.40 m DBS), and Level 3 (0.40–0.45 m DBS) (tables 8.1, 8.2). The drawing of the test pit's west profile (fig. 8.14) presents the four stratigraphic layers. Layer A was the silty root zone, brown in color, and devoid of cultural material; it extended from the ground surface to 0.15–0.18 m DBS. Beneath was Layer B, also an alluvial root zone, but darker brown in color and characterized by small yellow and red inclusions, but no cultural material. Layer B extended in the profile to 0.28–0.32 m DBS. Layer C was a thin sandy lens, tan in color that extended from 0.28–0.35 m DBS. The only cultural material recovered in T.84 came from Layer C (B26-276). Underneath was Layer D, a sterile alluvial deposit that was dark brown in color and characterized by pebbles and cobbles. Level 1 comprised Layer A and penetrated Layer B. Level 2 consisted of the remainder of Layer B, all of Layer C, and the top of Layer D. We stopped the excavation of Level 3 at 0.45 m DBS once it was determined that Layer D was sterile.

Level 2 (B26-276; 0.20–0.40 m DBS) yielded 45 nondiagnostic Gaván-complex ceramics (table 8.1). Two fragments of chipped stone were recovered: one piece of nonutilized chert and one utilized chert flake (table 8.2). Among the carbonized remains in Level 2 was some carbonized black grainy material that was not identified; it was similar to material recovered in T.87 (see B26-277).

T.85 was at N1186–1187/E794 about 30 m northwest of the ravine that crosscuts the southwestern edge of the *banco* of the Potrero Urpianero (fig. 8.1). The surface elevation at the top southwest corner of the pit was

100.13 m. We excavated two levels in T.85: Level 1 (B26-274; 0–0.20 m DBS) and Level 2 (0.20–0.35 m DBS) (tables 8.1, 8.2). The drawing of the test pit's west profile (fig. 8.15) shows three stratigraphic layers. Layer A was sterile silty topsoil, gray in color; it extended from the ground surface to about 0.15–0.16 m DBS. Layer B was a thin silty, clayey deposit, gray-brown in color, with inclusions and cultural material (B26-274). It extended from 0.15–0.16 m DBS to 0.18–0.20 m DBS (fig. 8.15). Layer C was sterile clay, gray-

Figure 8.13. View of the second plane table position at B26, looking west-southwest toward the Caño Colorado. T.84 is under excavation to the left.

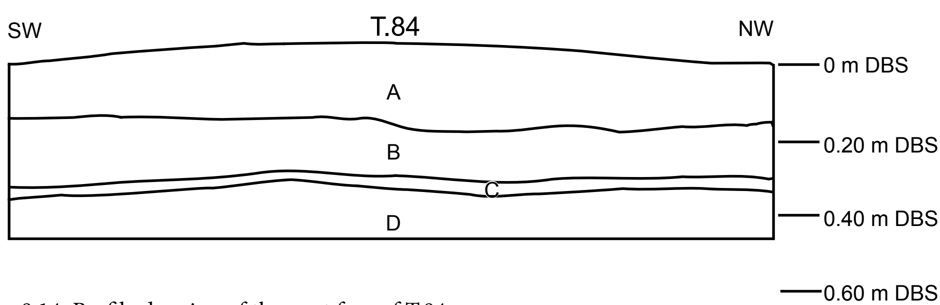

Figure 8.14. Profile drawing of the west face of T.84.

brown in color. Level 1 was made up of Layer A and Layer B, where the cultural material occurred. Excavation Level 2 corresponded to the underlying sterile clay Layer C; consequently, Level 2 was stopped at 0.35 m DBS.

Level 1 (B26-274: 0–0.20 m DBS) recovered some cultural material between 0.15 m and 0.20 m DBS. Of the 58 Gaván-complex ceramics recovered, six were diagnostics (table 8.1). We recorded three outleaned-wall bowl rims, two *olla* rims, and one reworked sherd disk. The four fragments of chipped stone from Level 1 included two pieces of utilized chert and one piece of utilized sandstone (table 8.2). The utilized chert fragments consisted of a utilized flake and a fragment of reused angular waste. Also, two fragments of indeterminate ground-stone artifacts were recovered from Level 1.

T.86 was at N1234–1235/E742 at the northeastern edge of Potrero Urpianero (fig. 8.1). The surface elevation at the top southwest corner of the pit was 100.26 m. We excavated two levels here: Level 1 (B26-279; 0–0.20 m DBS) and Level 2 (0.20–0.30 m DBS) (tables 8.1, 8.2). As shown in the drawing of the test pit's west profile (fig. 8.16), Layer A was silty, clayey topsoil, gray-brown in color, and devoid of cultural material; the topsoil was hard, characteristic of the savanna. Layer A extended to 0.14–0.16 m DBS. Layer B was a clay deposit, yellowish gray in color, with red-brown inclusions and cultural material; the cultural material (B26-279) was found on the top surface of the clay deposit, at ca. 0.17–0.18 m DBS. Level 1 comprised Layer A and the Gaván-phase surface occupation corresponding to the top of Layer B. Level 2 corresponded to the sterile clay substratum, and the excavation ended at 0.30 m DBS.

From Level 1 (B26-279; 0–0.20 m DBS) we recovered 11 Gaván-complex ceramics, affected by their savanna matrix in their degree of erosion and their grayish surface coat. Two sherds were diagnostics: one outleaned-wall rim from a small (<20 cm) bowl, and one vertical-wall rim from a small (<20 cm) bowl (table 8.1). Level 1 also yielded five fragments of chipped stone, all chert (table 8.2). There were two fragments of nonutilized chert and three fragments of utilized chert: one core and two utilized flakes.

T.87 was at N1200–1201/E705, 35 m northeast from the southwest edge of the *banco* on Potrero Urpianero at its western end (fig. 8.1). The surface elevation at the southwest corner of the test pit was 100.41 m. We excavated two levels: Level 1 (0–0.20 m DBS) and Level 2 (B26-277; 0.20–0.40 m DBS) (tables 8.1, 8.2). The drawing of the west profile of T.87 shows the three stratigraphic layers (fig. 8.17). The top Layer A was silty, sterile topsoil, gray in color. Layer A extended from the ground surface in the root zone to approximately 0.20 m DBS. Layer B was a silty deposit that was gray-brown in color, with inclusions and some cultural material (B26-277). Layer B extended to 0.28–0.30 m DBS. Beneath it was Layer C, a silty clayey sterile layer. Level 1 coincided largely with Layer A. Level 2 comprised Layer B and entered sterile Layer C.

Level 2 (B26-277; 0.20–0.40 m DBS) yielded 13 Gaván-complex ceramics. The single diagnostic sherd was an *olla* rim (table 8.1). All five fragments of chipped stone from Level 2 were chert. Three of the chert fragments were nonutilized, and two were reused angular fragments with minimal retouch (table 8.2). A coin envelope of charcoal was recovered that included carbonized black grainy matter, like that reported in T.84 (see B26-276).

T.88 was at N1292–1293/E665, the northernmost of the test pits excavated at B26 (fig. 8.1). The surface elevation at the top southwest corner of the test pit was 100.02 m. Two levels were excavated in T.88: Level 1 (0–0.20 m DBS) and Level 2 (0.20–0.40 m DBS). We did not recover any cultural material in this pit. It seems that B26's occupation did not extend this far north from the southwest edge of the *banco* on Potrero Urpianero at its western end. No profile was drawn, but we can report that the soil matrix of Level 1 consisted of a silty-clayey deposit, gray in color. The deposit associated with Level 2 was brownish-gray clay.

T.89 was at N1262–1263/E623, the farthest west of the test pits excavated at Potrero Urpianero, and a little over 70 m north of the edge of the *banco* that overlooks the alluvium traversed by the Caño Colorado (fig. 8.1). The surface elevation at the top southwest corner of the test pit was 100.23 m. We excavated two levels here: Level 1 (0–0.20 m DBS) and Level 2 (B26-278; 0.20–0.40 m DBS) (table 8.1). The drawing of test pit's west profile shows three stratigraphic layers (fig. 8.18). Layer A was silty, clayey sterile topsoil that was gray in color; Layer A extended from the ground surface to 0.13–0.14 m DBS. Layer B was a clay deposit that was gray yellow-brown in color, with inclusions and a sparse amount of cultural material; it extended from 0.13 m DBS to 0.22 m DBS. Layer C was sterile clay, grayish yellow-brown in color. Level 1 comprised Layer A and most of Layer B. Since the cultural material was reported as turning up around 0.21–0.25 m DBS, it corresponded to Level 2.

From Level 2 (B26-278; 0.20–0.40 m DBS), we recovered two Gaván-complex sherds, of which the one diagnostic was a small outleaned-wall bowl rim sherd (table 8.1).

Discussion of Excavation Results at B26

The objective of the test-pit program carried out at B26 (Potrero Urpianero) was to recover information about the site's areal extent and occupation. The 16 test pits revealed the extent of the third-tier settlement along the edge of the *banco* over an area of 3.4 ha. The site's elongated configuration extends along a bearing close to the orientation of the central axis of the regional center of B12, i.e., 53° west of magnetic north (Redmond and Spencer, 2007: 128). In the absence of house mounds evident on the surface at Potrero Urpianero—other than the two circular clay surfaces and pits seen in the eroding southwestern slope of the *banco* during the regional survey—any interpretation of the settlement's internal layout and orientation will remain speculative and subject to refinement by future investigators.

The test-pit program did yield assemblages of ceramics and chipped stone pertaining to domestic activities. The range of ceramic vessel types was narrower than that of the many ceramic vessel types recovered at the regional center (B12); small outleaned-wall bowls and *ollas* predominated throughout B26. Various kinds of reworked sherds were also recovered from the test excavations across the site. The assemblages of chipped stone consisted almost entirely of chert, which seems to have been procured by the inhabitants and worked throughout the settlement. Also, we recovered chert cores and chert by-products (primary chert flakes) and reused angular

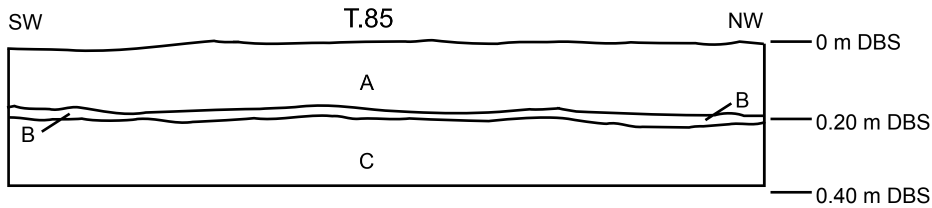

Figure 8.15. Profile drawing of the west face of T.85.

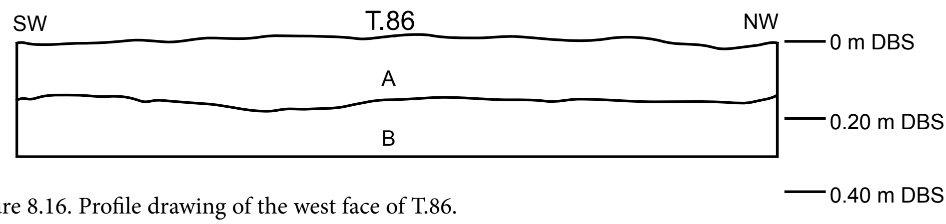

Figure 8.16. Profile drawing of the west face of T.86.

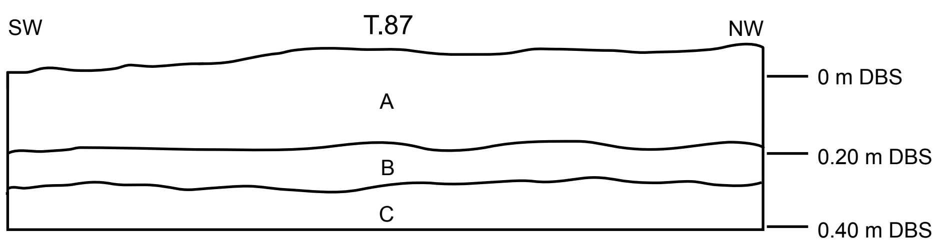

Figure 8.17. Profile drawing of the west face of T.87.

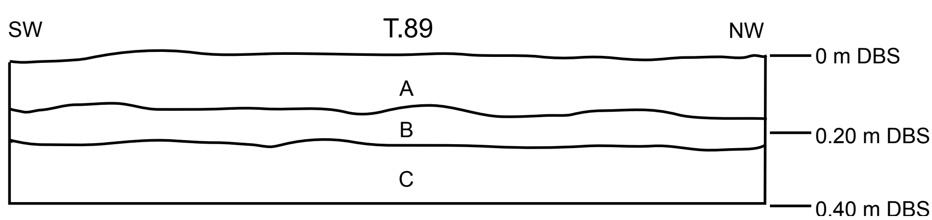

Figure 8.18. Profile drawing of the west face of T.89.

waste in some of the test pits (T.80, 81, 85, 86, 87) (table 8.2). The chert chopper from T.80 that was submitted for use-wear analysis (appendix B: B26-268-57) attests to the possible use of such chert tools for chopping wood and a range of plant-processing activities. The pollen analysis of the soil sample taken from T.78 identified high frequencies of maize, and lower frequencies of the pollen of other food plants (*ocumo*, *icaco*, guava, *verdolaga*) together with the pollen of plants having a variety of utilitarian, medicinal, and ritual uses (appendix C).

Patterns of intracommunity variation at B26 are difficult to discern, given the generally low frequencies of artifacts recovered in the test pits. At B12, B97, and B21, we observed that the distribution of ceramic feet (V150) appeared to be sensitive to social status differentiation: excavations in higher-status sectors of those sites yielded higher relative frequencies of ceramic feet than lower-status sectors. At B26, ceramic feet were found only in three test pits: T.79, T.80, and T.81 (table 8.3). Yet, while the other 10 test pits lacked ceramic feet, we should note that they yielded few diagnostic sherds overall, so any conclusions should be tempered with a measure of caution. At the same time, it is notable that all three of the test pits with ceramic feet were located in the easternmost part of the site, which might indicate that this was a sector of higher social status. In that connection, we should point out that the higher-status sectors of B12 and B21 were also located on the eastern side of those sites. Moreover, the eastern sector of B26 shows evidence of greater access to chert and greater engagement in chert-tool production than the site's western sector. The three-highest frequencies of chert (V1003) were found in the same three eastern-sector test pits that had ceramic feet: T.79, T.80, and T.81 (table 8.3). And, if we discard two test pits with very low sample sizes (T.75, T.82), the three-highest ratios of nonutilized chert divided by all chert ("NonUt/Chrt," a relative measure of chert-tool production/maintenance) were also found in eastern-sector test pits: T.78, T.79, and T.81 (table 8.3). As a tentative inference—subject, of course, to revision pending additional research at the site—we suggest there is evidence of social differentiation at B26, with the eastern sector being of higher social status than the western sector.

B26 covered 3.4 ha at its peak size in the Late Gaván phase (A.D. 550–1000). We found no evidence to suggest that the site was occupied during the Early Gaván phase (A.D. 300–550). Like B17—but unlike B12, B97, and B21—there were no deep test pits at B26; no cultural materials were excavated below 40 cm DBS. Also, none of our test pits at B26 recovered any examples of V245 (Composite-silhouette Bowl Rim Form 6), the ceramic rim form whose use seems to have been restricted to the Early Gaván phase (chap. 4). We can reasonably conclude that B26 was occupied only during Late Gaván times, making it part of the substantial increase in human population that our study region as a whole witnessed between the Early Gaván phase and the Late Gaván phase.

It appears that the Late Gaván settlement at B26 was never burned. We recovered no burned daub in the test pits. Little carbonized material was noted overall, and charcoal fragments were recovered in only four of the test excavations (T.75, T.79, T.84, T.87). Only the bottom level excavated in T.77 encountered a burned alluvial deposit, which probably predated the Gaván-phase occupation on the *banco*. The absence of signs of widespread burning at this third-tier settlement differentiates it from the second-tier sites and, especially, from the first-tier center of B12, where such evidence was widespread in the site's uppermost level. In times of war, the inhabitants of B26 probably made haste along the nearby *calzada* that linked them to B12, just 2 km away, where they could take refuge behind the regional center's protective earthwork—at least until the final attack on B12, which left it burned and abandoned.

B27 (El RECOSTÓN DE LA TIGRA)

The drained fields extend across the northern and eastern alluvium of the Canaguá River, at a distance of 250 m from the watercourse today. The drained fields are situated about 3 km southeast of the regional center of El Gaván (B12). The northernmost drained fields are located 200 m from the causeway (Calzada G) that leads from B12 in a southeasterly direction (fig. 7.2). The nearest habitation site is B26, which lies 1 km to the northwest on the edge of the *banco* overlooking the Caño Colorado. When the owners of two farms arrived here in the 1950s, the alluvium was completely forested, and formed part of the gallery forest known as the Montaña El Chuponal. Its soils, or mollisols, with their high organic content, are reported to be among the most fertile in the western llanos of Venezuela (Redmond and Spencer, 2007: 21). In 1984, secondary growth extended over most of the alluvium, and palm trees were the predominant arboreal species. Some areas had been cleared for cattle pastures. In addition to the maize and plantains we saw being cultivated here in July and August 1984, we were told that beans, manioc, *batata* (*Ipomoea batatas*), *ocumo* (*Xanthosoma sagittifolium*), and *ñame* (*Dioscorea alata*) were also cultivated. The modern-day farmers recognize the advantages of cultivating their crops, especially maize, on the drained fields. We will return to elaborate on this point.

We first surveyed the area in July and August 1984 and immediately recognized the pattern of fields and canals as a network of drained fields on the alluvium of two neighboring farms. The height of the secondary growth and the water-laden canals at this wet time of the year made it difficult to obtain measurements on the fields and search for artifacts. We determined that the drained fields extended from the Caño Colorado and Potrero de Los Becerros south and west to El Recostón de La Tigra, and included two oxbow lagoons of the Canaguá River.

In April 1988, we returned to map B27 with a plane table and alidade (fig. 8.19). The easternmost portion was so heavily vegetated that this area was mapped with a Brunton compass and tape measure in tandem with the use of the aerial photograph. In the process of mapping the field system, we sought to determine the expanse and the hydrological functioning of the drained fields. The inhabitants of B26 who most likely created and farmed the drained fields did so by modifying the course of the Caño Colorado and excavating a network of artificial canals across the fertile alluvium. The Caño Colorado flows into the network of canals at its northwestern corner and travels across an estimated 534 m of modified stretches of the *caño* and the estimated 3792 m of artificial canals. The canals link the Caño Colorado to two former river channels, or oxbow lagoons, of the Canaguá River, creating a patchwork of channelized fields across approximately 35

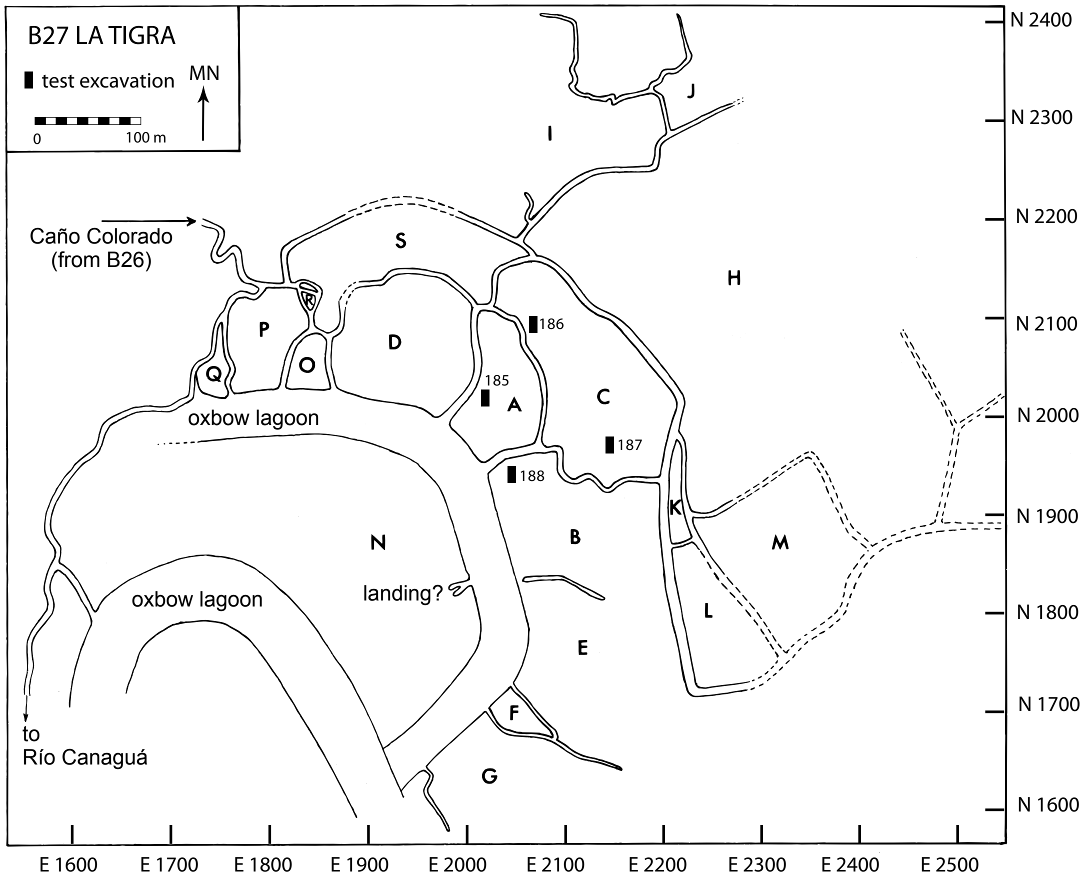

Figure 8.19. Topographic map of El Recostón de La Tigra (B27), showing locations of the numbered test excavations; a guide to the north and east grid coordinates is also presented.

ha. The fields are multisided and curvilinear in shape and they vary in size. The canals are also variable in size; most have widths of 4–6 m, but they range up to 8 m in width. Canal depths range from 0.3 m to 3 m, with the majority in the 0.5–1.5 m range. The morphology of the drained fields at La Tigra, involving the modification of natural hydrological and topographic features, is characteristic of pre-Hispanic agroecosystems reported in the Venezuelan llanos and elsewhere in the Neotropics. Karinya farmers in the eastern Venezuelan llanos were still creating drained fields by digging drainage ditches across the floodplain and river bottoms and practicing drained-field cultivation in the 1970s (Denevan, 1970; Denevan and Bergman, 1975; Denevan and Schwerin, 1978; Renard et al., 2012; Rostain, 2008; Zucchi, 1985).

In 1988, we learned about the advantages of drained-field cultivation from Oscar Díaz, who discovered the drained fields of La Tigra when he settled and cleared the forested alluvium to establish his farm there more than 30 years earlier. Like other farmers we spoke to in the Gaván locality, Díaz was of the opinion that the drained fields and canals had been constructed in antiquity; the region's ancient inhabitants ("*los Indios*") had built them, along with the mounds and causeways still visible across the llanos. After some "cleaning," the term he used to characterize clearing the secondary growth on the fields and removing the accumulated vegetation and silt from the network of canals, Díaz planted maize, beans, manioc, and other crops. In doing so, he learned that the canals facilitated drainage during the rainy season, especially from September through November, when heavy rains can cause flooding severe enough to damage crops. Moreover, the canals served to distribute the rainwater that falls sporadically during the dry season, from January to May, across the drained fields, effectively retaining moisture. According to Díaz, the network of canals and drained fields minimized the loss of crops through flooding and dehydration.

A key advantage of the network of canals and drained fields was that they extended the effective growing season. We learned from Díaz that the drained fields were better suited for the cultivation of maize rather than manioc; they were also good for growing beans. Most farmers we spoke to in the Gaván locality maintained that maize was the preferred crop because it has a shorter growing season, is easier to cultivate, and yields more food. While single cropping (one harvest per year) is the general practice in the area today, Díaz recalled that the La Tigra fields consistently yielded two successful harvests of maize each year, due to the longer growing season. He clearly remembered obtaining annual yields of 3600 kg of shelled maize per hectare on the drained fields, approximately double the amount harvested on other alluvial soils where single cropping was the rule.

Test-pit Program at B27

When we mapped B27 with an alidade and plane table, we established a grid system for the site. The central datum point established at the first plane table position on Field A had a coordinate of N2000/E2000 and an elevation of 100.00 m. The grid system was constructed so that the origin of the grid lay to the southwest of the site, causing the entire site to fall in the northeast quadrant of a Cartesian coordinate system. In this way, all of our grid designations could be expressed in terms of the distance (in m) north and east of the arbitrary origin, while all elevations were taken relative to the datum point of 100.00 m at the first plane table position on Field A. The grid system was designed so that every excavation would have a unique grid designation and be incorporated into the overall coordinate system.

The test excavations were designed to obtain information about the chronology and use of the drained fields through the recovery of artifacts, ecofacts, and soil samples in their stratigraphic context. The excavation strategy was influenced by the results of the survey as well as by time limitations. The field season was nearing its end by April 27, 1988, when we initiated the mapping and testing program at B27. Moreover, during our survey of the drained fields in 1984, we had received reports of ceramics having been seen when the Potrero de Los Becerros was cleared, as well as in the vicinity of a thatch-roofed *bajareque* structure that stood on Field A, even though we had not recovered any ceramics on the surface at B27. For these reasons, the locations of the four test excavations we carried out in 1988 were selected judgmentally, beginning with T.185 on Field A. The selected location of each test pit, which measured 1 × 2 m and was oriented north-south, was plotted on the map, and referenced by the grid designation of its southwest corner. A stake was driven in the ground at that corner and grid point. The surface elevation of that point was also a datum point, from which relative elevations within the test excavation could be measured, in addition to the depth below surface (DBS) measurements.

The drawings of the test-pit profiles accompany the descriptions of the four test excavations, which recovered stratigraphic information and associated soil samples, but no artifacts.

T.185 was at N2027–2028/E2013, on Field A and a little over 10 m southwest of the razed remains of the *bajareque* structure visited in 1984 (fig. 8.19, 8.20, 8.21). The surface elevation at the top southwest corner of the test pit was 99.97 m. We excavated four levels here: Level 1 (B27-765; 0–0.20 m DBS), Level 2 (B27-766; 0.20–0.40 m DBS), Level 3 (B27-772; 0.40–0.60 m DBS), and Level 4 (B27-774; 0.60–0.80 m DBS). The drawing of the test pit's west profile (fig. 8.22) shows the three stratigraphic layers exposed in T.185. The topmost Layer A exposed in our Level 1 was loose topsoil, gray and tan-yellow in color. Underlying it in our levels 2–3, and continuing into the topmost portion of Level 4, was Layer B, a similarly loose, deposit that was clayey and tan in color. The excavator reported the lack of any appreciable stratigraphic variation within Layer B. Layer C encountered in our Level 4 consisted of a soft, sandy deposit that was tan-yellow in color.

Although no artifacts were recovered from any of the levels of T.185, two flotation samples from levels 3 and 4 were studied by ethnobotanist Renée Bonzani (appendix G). Flotation sample 479 was taken from Level 3 (B27-772), corresponding to Layer B, while flotation sample 481 came from Level 4, which consisted mostly of Layer C (appendix G). Sample 481 recovered the macrobotanical remains of maize (*Zea mays* Poaceae), the bean family (Fabaceae) and mint family (Lamiaceae), *espinaca* or *bleo* (Colombia) (*Talinum triangulare* Portulacaceae), and the seed of a grape (*Vitis* sp. Vitaceae) (table G.3).

A small fragment of charcoal retrieved from flotation sample 479 by Bonzani in October 2011 was submitted to Beta Analytic, Inc. (as Beta-307541) with the aim of dating the construction and the use of the drained fields. We note that this sample was submitted for analysis in 2011, long after the publication of Spencer et al. (1994). The radiocarbon age obtained from the sample (Beta-307541) was modern or recent (appendix E). While this result from T. 185's Level 3 does not resolve the dating of the Field A's construction in antiquity, it is consistent with the ethnographic information we obtained from Oscar Díaz, who cleared the secondary growth from the drained fields and cleaned the canals in the mid-20th century. It is worth noting that the regular practice of clearing and burning brush from the fields and of cleaning the canals—every year in the case of the drained fields of the Karinya (Denevan and Schwerin, 1978: 28)—would have introduced layers of carbonized organic matter that might well have disturbed the platform's underlying deposits.

T.186 was at N2088–2089/E2054, on Field C (fig. 8.19). The surface elevation

Figure 8.20. View of southwest corner of Field A, looking northeast towards T.185 under excavation behind stadia rod in distance.

at the top southwest corner of the test pit was 99.44 m. We excavated three levels here: Level 1 (B27-771; 0–0.20 m DBS), Level 2 (B27-770; 0.20–0.40 m DBS), and Level 3 (B27-773; 0.40–0.60 m DBS). The drawing of test pit's east profile shows two stratigraphic layers (fig. 8.23). Layer A was loose sterile topsoil, gray-yellow in color; Layer A extended from the ground surface to 0.10–0.12 m DBS. Layer B was a loose clay deposit, tan in color; it extended from 0.10 m DBS to 0.60 m DBS, where excavation ceased. Excavation Level 1 comprised Layer A and entered Layer B. Excavation levels 2 and 3 included the remainder of Layer B.

T.186 did not yield any artifacts, but the soil and flotation samples from levels 2 and 3 have yielded information about some of the crops grown on the drained fields (appendices C and G). Pollen and phytolith sample 442 from Level 2 was subjected to pollen analysis carried out by Rinaldi (1990) (appendix C, table C.1). She identified high frequencies of maize (*Zea mays*) pollen in the sample. Present in much lower frequencies was the pollen of other crops: quinoa (*Chenopodium quinoa*), *guapo* (*Maranta arundinacea*), *ají* (*Capsicum frutescens*), tomato (*Lycopersicum esculentum*) and *corozo* (*Acrocomia sclerocarpa*). Present in very low frequencies was the pollen of a type similar to those of the genus *Ipomoea*, the pollen of *palomero* (*Myrica pubescens*) and of *yopo* (*Piptadenia peregrina*). Other pollen types identified by Rinaldi in sample 442 included a low frequency of walnut (*Juglans* sp.), and a very low frequency of *quiebraquiebra* (*Alternanthera* sp.), and *arnica* (*Camarea* sp.), which are recognized for their medicinal properties. The presence in very low frequencies of *yagrumo* (*Cecropia* sp.) pollen is not surprising, given the tree's propensity to colonize abandoned fields, and its multiple utilitarian and medicinal uses (Pittier, 1970: 420–421). Low frequencies of spores of the ferns *Alsophila* sp. and *Lycopodium* sp. were also reported.

Flotation sample 478 was taken from Level 2 (B27-770), which corresponded to the underlying tan clay deposit recognized as Layer B, and flotation sample 480 came from Level 3 (B27-773), also corresponding to Layer B (see appendix G). In flotation sample 478, Bonzani identified the remains of quinoa (*Chenopodium* sp. Chenopodiaceae), spurge (*Euphorbia* sp. Euphorbiaceae), goosegrass (*Eleusine indica* Poaceae), and purslane or *verdolaga* (*Portulaca* sp. Portulacaceae) (table G.3).

A small fragment of charcoal retrieved from flotation sample 478 by Bonzani in October 2011 was submitted to Beta Analytic, Inc., in 2011, with the aim of dating the construction and the use of the drained

Figure 8.21. View of razed *bajareque* structure on Field A, looking northeast.

fields (appendix E). We note that this sample was submitted for analysis seven years after the publication of Spencer et al. (1994). This sample, Beta-307540, yielded a date that was modern or recent. This date is obviously not consistent with our proposed dating of the B27 drained-field construction to the Late Gaván phase (A.D. 550–1000), the peak period of human habitation in the Gaván locality (Spencer and Redmond, 1998). Yet the radiocarbon result does agree with Oscar Díaz's account of clearing the secondary growth from the drained fields and cleaning the canals for reuse in the 1950s. We suggest that the carbonized organic matter produced by the clearing and burning activities after many centuries of abandonment may have penetrated and disturbed the underlying platform of Field C, the original construction of which we would still assign to the Late Gaván phase.

T.187 was at N1966–1967/E2137, at the southeastern end of Field C (fig. 8.19). The surface elevation at the top southwest corner of the test pit was 99.59 m. We excavated three levels here: Level 1 (B27-776; 0–0.20 m DBS), Level 2 (B27-800; 0.20–0.40 m DBS), and Level 3 (B27-802; 0.40–0.60 m DBS). The drawing of the test pit's west profile (fig. 8.24) shows the three stratigraphic layers exposed in T.187. The topmost Layer A exposed in our Level 1 was loose topsoil, light gray in color. Underlying it in the lower portion of Level 1 and continuing down to 0.27–0.36 m DBS in our Level 2 was Layer B. Layer B was a loose clayey deposit, gray-yellow in color. Layer C consisted of a very soft and humid sandy deposit that was tan-brown in color. Layer C extended from 0.27 m DBS to 0.60 m DBS where the excavation stopped. The excavator's observation that Layer C was humid is worthy of mention, given the date of this observation on April 28, 1988, at the end of the dry season; it highlights the drained fields' capacity to retain moisture.

No artifacts were recovered from T.187. Flotation sample 484 from Level 2 (B27-800) was the subject of macrobotanical analysis (appendix G).

T.188 was at N1944–1945/E2037, at the northernmost end of Field B (fig. 8.19). The surface elevation at the top southwest corner of the test pit was 99.08 m. Three levels were excavated in T.188: Level 1 (B27-775; 0–0.20 m DBS), Level 2 (B27-801; 0.20–0.40 m DBS), and Level 3 (B27-803; 0.40–0.60 m DBS). The drawing of T.188's east profile (fig. 8.25) reveals the three stratigraphic layers exposed in the test pit. Layer A was exposed in Level 1 and consisted of a soft-textured clayey deposit, which was light gray and tan in color; Layer A extended from the ground surface to 0.17–0.20 m DBS. Evident at the bottom of Layer A at the southern end of the T.188 was a lense of carbon (0.02–0.04 m thick) that extended approximately 0.35 m. Layer B was a soft-textured clayey deposit, which was tan or brown-yellow in color. Layer B corresponded to our Level 2 and the top 0.40–0.50 m DBS of Level 3. Layer C was a very loose sandy deposit, tan-yellow in color, excavated in the bottom 0.50–0.60 m DBS of Level 3. The workmen who excavated T.188 commented that the very loose soil of Level 3 would be good for planting manioc and *ñame* (*Dioscorea alata*).

We did not recover any artifacts from T.188. Flotation sample 489 taken from Level 3 (B27-803) was selected for macrobotanical analysis (appendix G).

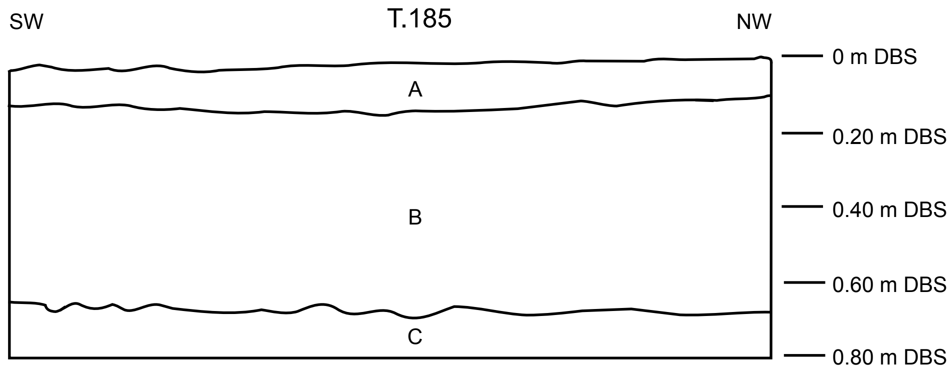

Figure 8.22. Profile drawing of the west face of T.185.

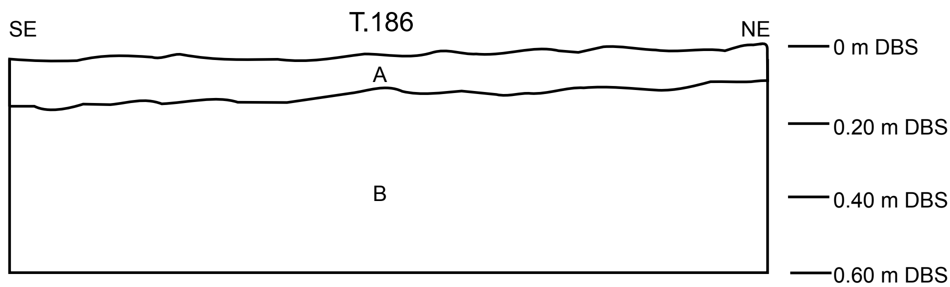

Figure 8.23. Profile drawing of the east face of T.186.

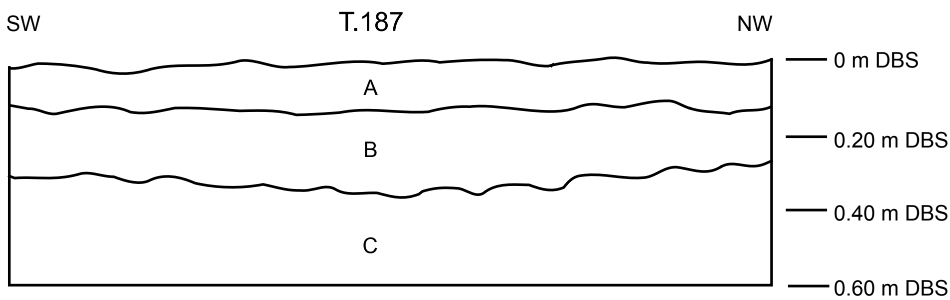

Figure 8.24. Profile drawing of the east face of T.187.

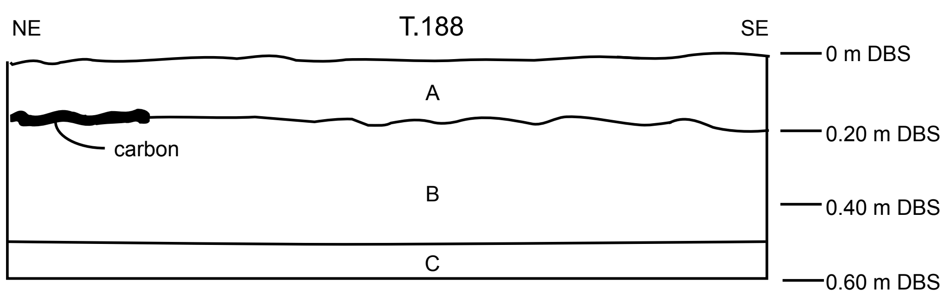

Figure 8.25. Profile drawing the east face of T.188.

Area F Excavation at B27

In the final week of fieldwork at B27, Inés Frías carried out an ethnoarchaeological investigation of her own on the house-mound remains of the thatch-roof *bajareque* structure on Field A that was standing when we surveyed the drained fields in August of 1984, but which had been razed by the time we returned in 1988 (fig. 8.21). A tenant of Oscar Díaz, Eriberto Méndez, had occupied the structure until shortly before we visited it in 1984, when we spent some time reconnoitering the exterior of the structure and two lime trees nearby where a previous tenant had reported recovering ceramics (Redmond and Spencer, 2007: 184).

Frías began her investigation with a series of test pits (T.189–T.197) she excavated directly to the north, east, and south of the house mound. The majority of the 1 × 2 m test units stopped at the conclusion of Level 1, which exposed a soft-textured clayey deposit, light gray and tan in color, but were devoid of any cultural material. Two test units were carried down into Level 2: T. 191 on the northern edge of the house mound where the compact clayey deposit of Level 1 continued; and T. 197, which was situated in a borrow pit southwest of the house mound and consisted of a loose sandy deposit with abundant cultural material, although the final 10 cm of Level 2 (0.30–0.40 m) entered a soft-textured clayey deposit, devoid of cultural material.

Frías then gridded the surface and sides of the 0.50 m tall house mound into 1 m^2 units, over an area of approximately 10 × 10 m (fig. 8.26). Her intention was to pursue the same horizontal excavation methodology as the one that had been carried out on prehistoric house mounds at B12 (chap. 1), including the taking of flotation and pollen/phytolith samples. Some 60 excavation units (each measuring 1 m^2) were cleared (Level 1), and then excavated through the compact yellow clay floor of the structure (Level 2). Two borrow pits to the southwest and southeast of the house mound were also excavated. It appears that soil was removed from these pits for the house mound's construction, after which the pits were used for trash deposition.

The cultural materials recovered from the Area F excavation Level 1 included ground stone, burned wood, nails, staples, cloth, fragments of cans, turtle shell, and firewood. In the process of taking up the floor of the *bajareque* structure, Frías and María Andueza recorded a range of architectural materials (nails, burned daub fragments, brick fragments staples, wire), carbonized *corozo* palm nuts and charcoal, and a range of domestic materials and artifacts (fragments of plastic, glass, cans). The greatest diversity of architectural materials and household refuse were recovered in the borrow pit southwest of the house mound, where T.197 was located and excavated in two levels. The household refuse included food items (animal bone, turtle shell), containers (cans, bottles, bottle caps and plastic and fragments of glass cups and plates), medicine containers, razor blades, a toothbrush, soap dish, a spool of thread, the sole of a plastic sandal, batteries, and a fragment of a radio.

The destruction of the thatch-roofed *bajareque* structure sometime between 1984 and 1988 must have involved fire, in view of the amount of burned daub, burned wood, carbonized *corozo* palm nuts, and wood charcoal recovered in Area F.

The Area F field notes and the drawing of the exposed surface are in the possession of Inés Frías B. She tabulated the cultural ma-

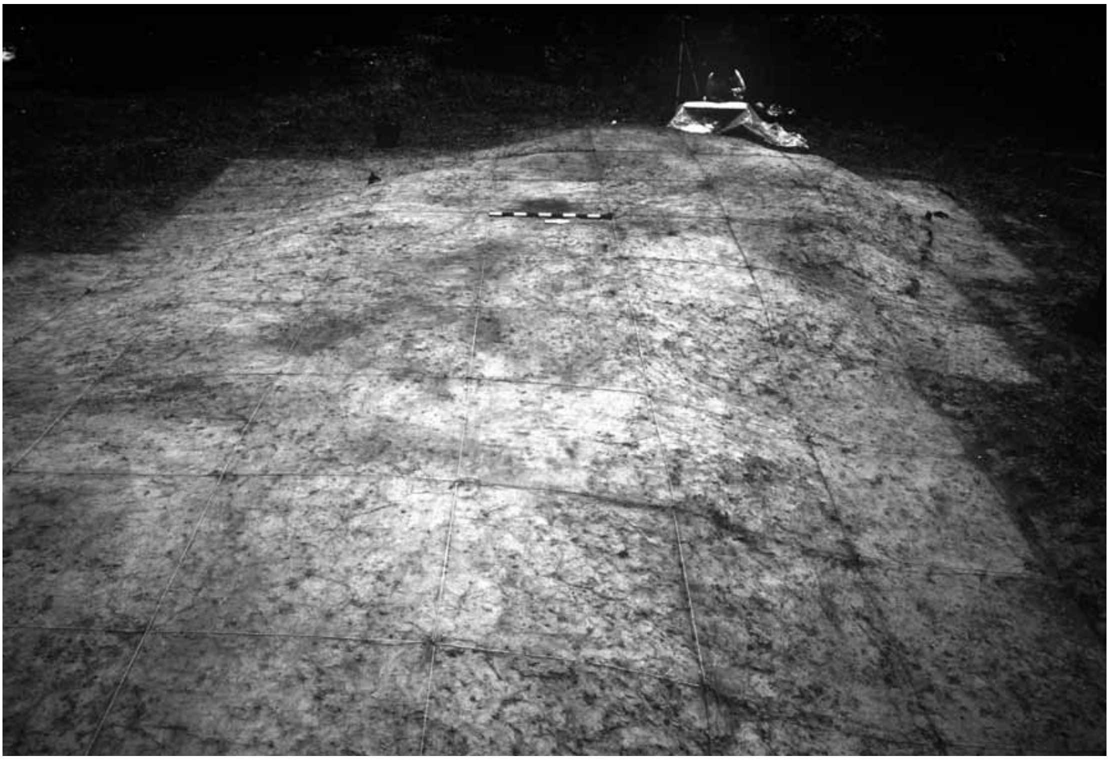

Figure 8.26. View of Area F excavation of house mound on Field A, looking west.

terials in the Laboratorio de Arqueología at IVIC, where the materials are stored. Flotation sample 493, from Level 1 of T.193 (B27-787), was selected for macrobotanical analysis (appendix G). Ethnobotanist Bonzani identified the remains of goosegrass (*Eleusine indica* Poaceae), a weed that is characteristic of open, disturbed areas and localities near water (table G.3).

Discussion of Survey and Excavation Results at B27

The mapping and program of test excavations at B27 in 1988 were designed to determine the extent and functioning of the drained fields, and to obtain information about their chronology and use. We suspected that the drained-field system had been constructed in the Late Gaván phase, in view of the evidence of a regional settlement hierarchy and causeway network in the Gaván locality at this time. The drained fields at La Tigra were 1 km from the nearest Late Gaván phase habitation site of B26, and only 200 m from the causeway (Calzada G) that leads from B12 regional center in a southeasterly direction (fig. 7.2).

We were able to map the 35 ha field system that was created on the alluvium of the Canaguá River. In the process of mapping the field system we determined that a network of artificial canals drew water from the

Caño Colorado and linked the modified *caño* across the expanse of multisided, channelized fields to two oxbow lagoons of the Canaguá River. The fields varied in size and shape, and the canals varied in width. The expedient modification of a natural watercourse combined with the artificial construction of canals and fields of variable dimensions are characteristic of pre-Hispanic drained-field systems recognized elsewhere in the Venezuelan llanos (Zucchi, 1985: 173). Designed to distribute water effectively across the patchwork of fields and retain it, the canals also effectively drained the alluvium, providing moist but flood-free fields for much of the year. The advantages of drained-field cultivation are recognized by farmers in the Gaván locality today, who maintain that the drained fields are better suited for cultivating maize than manioc; they are also good for growing beans. In general, maize is the preferred crop in the area because it has a shorter growing season, is easier to cultivate, and yields more food. Just as important is the fact that, while single cropping is the general practice in the area, the La Tigra fields consistently yielded two successful harvests of maize each year, due to the extended growing season they offer. Annual yields of 3600 kg of shelled maize per hectare could be obtained on the drained fields, approximately double the amount harvested on other alluvial soils in the area. Consequently, we expected to recover evidence of maize cultivation here in the Late Gaván phase.

The objectives of the test excavations at B27 were to obtain information about the chronology and use of the drained fields through the recovery of artifacts, ecofacts, and soil samples in their stratigraphic context. The four test excavations carried out on three of the drained fields recovered stratigraphic information and associated soil samples, but no artifacts. The stratigraphic profiles of the four test excavations were similar. They showed a loose topsoil (Layer A) overlying a substantial soft-textured and clayey deposit, between 40–50 cm in depth, that probably represented the original platform of the drained field (Layer B). The occurrence of a charcoal deposit directly overlying Layer B in one test pit (T.188) was probably associated with the original clearing and construction of the fields and canals. The construction of drained fields by the Karinya is a multiple-step process that involves digging the network of drainage ditches, followed by the clearing of the undergrowth and many of the trees. The cleared debris is allowed to dry and then burned, producing ash concentrations (Denevan and Schwerin, 1978: 24–25). A sandy alluvial deposit (Layer C) underlay the likely cultivated platforms of the drained fields. The fact this underlying alluvial deposit was still humid when it was encountered in one test pit (T.187) at the end of the dry season in late April underscores the drained fields' capacity to retain moisture.

The absence of artifacts in the test excavations was disappointing but not entirely surprising. The archaeological investigations of other pre-Hispanic drained fields elsewhere in the Venezuelan llanos have yielded a similar dearth of artifacts (Denevan and Zucchi, 1978: 243; Gassón, 1998: 68). The pre-Hispanic farmers in the Gaván locality did not live in the immediate vicinity of the drained fields, nor did they seem to have discarded nonperishable trash here. The nearest habitation site was 1 km away, the Late Gaván phase village site B26. In an attempt to recover information about the chronology of the drained fields' construction and use, small fragments of charcoal were retrieved by paleoethnobotanist Bonzani for radiocarbon-dating analysis from two flotation samples taken from two of the test excavations carried out at La Tigra. Both flotation samples came from Layer B, which we presume corresponds to the original platform of the drained fields. One radiocarbon sample (Beta-307541) originated from T.185 Level 3 on Field A, while another (Beta-307540) came from T.186 Level 2 on Field C. They were submitted to Beta Analytic, Inc., in October 2011. Both charcoal samples yielded similar and recent radiocarbon ages (see appendix E). The resulting radiocarbon dates obtained from the La Tigra drained fields do not agree with our proposed dating of the construction and use of the drained fields in the Late Gaván phase (A.D. 550–1000), the time of peak human population in the area, when all the nearest settlements in the Gaván locality were occupied (fig. 7.2). In view of the absence of any later Caño Seco complex (A.D. 1000–1550) settlements in the Gaván locality (Redmond and Spencer, 2007: fig. 4.3), we suggest that when the regional hierarchy of Late Gaván settlements and their associated earthworks and causeways were abandoned (around A.D. 900–1000), so too were the drained fields of La Tigra. The two recent radiocarbon dates are consistent with the ethnographic information we obtained from those farmers who cleared the secondary growth from the long-abandoned drained fields by clearing and burning brush and cleaning the canals some 60 years ago in order to cultivate maize, beans, manioc, and other crops. In their study of the Karinya, Denevan and Schwerin (1978: 29) report that abandoned drained fields tend to be covered with especially thick overgrowth and require much clearing and burning to make them suitable for reuse. We suggest that such activities, even after many centuries of abandonment, intruded into the original platforms of the B27 drained fields and were responsible for the radiocarbon dates that we obtained.

The soil samples for pollen and phytolith analyses have yielded information on the natural vegetation and range of crops cultivated on the drained fields (Milagro Rinaldi, 1990; appendix C, table C.1). The high frequencies of maize (*Zea mays*) pollen in Sample 442 from T.186 on Field C (Layer B) point to the predominance of maize as a crop here. The smaller size of the maize pollen grains, attributed by Rinaldi to a variety of maize different from that cultivated today, lends support to the proposed antiquity of the drained fields and their use for the cultivation of maize, and other crops. Present in much lower frequencies was the pollen of other secondary crops: quinoa (*Chenopodium quinoa*), *guapo* (*Maranta arundinacea*), *ají* (*Capsicum frutescens*), *corozo* (*Acrocomia sclerocarpa*), and tomato (*Lycopersicon esculentum*). The pollen grains of tomato were smaller in size than those of today, and attributed to a variety different from that of today. Pollen grains of a type similar to those of the genus *Ipomoea* (of the morning glory and sweet potato plant family) were observed in very low frequency. The *corozo* palm has long been tapped for a fermented drink made from its sap, and an oil from its mesocarp and kernel (Pittier, 1970: 214; Plotkin and Balick, 1984: 161). Also present in very low frequencies was the pollen of the shrub or small tree *palomero* (*Myrica pubescens*), a source of wax and other medicinal products, and of the leguminous tree *Piptadenia per-*

egrina, the beans of which were ground into a hallucinogenic snuff (*yopo*) by the indigenous societies of the western Venezuelan llanos (Morey, 1975: 85–86). The evident diversity of crops being cultivated on the drained fields should be considered in tandem with the crops represented in the pollen count at the nearby habitation site of B26, where equally high frequencies of maize were obtained, and lower frequencies of other food plants (*ocumo*, *icaco*, guava, *verdolaga*), as well as the pollen of plants having a range of utilitarian, medicinal, and ritual uses. The overlapping range of the plants cultivated in gardens at the village site and on the drained fields is consistent with ethnohistorical and ethnographic information on the diverse agricultural strategies practiced by indigenous llanos groups (Denevan and Schwerin, 1978: table 2; Morey, 1975: 45–55).

The results of the macrobotanical analysis of seven flotation samples from B27 featured the identification of eight families, seven genera, and three species, above all maize (*Zea mays* Poaceae) and quinoa (*Chenopodium* sp. Chenopodiaceae) (appendix G). These findings indicate the diversity of plants being cultivated on the drained fields in the Late Gaván phase.

The fundamental advantage offered by the drained fields, we learned, is their potential for the double cropping of maize each year. In view of the evident predominance of maize in the pollen count from the B27 fields and the B26 village site, we can take up the question of why the drained fields might have been constructed in the Late Gaván phase. It is unlikely that the construction of the drained fields was motivated by a condition of population pressure at the time (Darch, 1983: 7; Denevan, 1982: 193). We have calculated that the six settlements in the Gaván locality amounted to 46 ha of human occupation. Population estimates were based on a density of 20.3–30.3 persons/ha of occupation, derived from the density of house mounds at the B12 site, and ethnohistorical data on Caquetío family households (Spencer et al., 1994: table 4). The six settlements in the Gaván locality were situated on higher ground with direct access to the arable alluvium (fig. 7.2). Our estimates of the population that could have been supported by farming the *vega* soils in the Gaván locality (Spencer et al., 1994: table 6) demonstrated that by cultivating a single crop of maize on the alluvium, farmers from each of the settlements could have easily sustained their households. For all six sites, the potential population that could have been sustained with a single crop of maize per year grown on the *vega* was considerably higher than the estimated population (Spencer et al., 1994: tables 5, 6, fig. 13). In sum, there was enough farmland and enough labor to meet the subsistence requirements of the estimated Late Gaván phase populations by pursuing a single-cropping strategy on the *vega*.

The potential of the drained fields for the generation of agricultural surplus, we think, was a major motivation in their construction in the Late Gaván phase. Although much of the alluvium was being cultivated on a single-cropping basis, the drained fields were created and farmed to produce a surplus. The initial digging of the canals, followed by the clearing of the fields, would have been carried out prior to the rainy season by a communal work party composed of a half dozen farmers in the case of the Karinya (Denevan and Schwerin, 1978: 25–29).

A work group of this size is commensurate with the estimated labor force at B26. Hence it is entirely possible that the drained fields at B27 could have been constructed and cultivated by farmers from the nearby B26 site (Spencer et al., 1994: table 5). The construction of the drained fields allowed the existing labor force to double its yearly output without doubling the amount of land under cultivation. The potential maize yields that could be reaped on the B27 fields by means of double cropping greatly exceeded the subsistence requirements of the estimated 12 to 18 households at B26, thereby generating a considerable surplus (Spencer et al., 1994: table 6). We think it was the potential for surplus maize production on the drained fields that motivated their construction in the Late Gaván phase. Since a causeway connected the B27 drained fields and the B26 village to the first-tier center of B12, we have proposed that the agricultural surplus was sent to B12. The agricultural surplus mobilized from the drained fields of La Tigra would have figured importantly in the regional political economy controlled by the regional leadership.

TABLE 8.1
Ceramics from B26.

V3	V5	V1	Location	Depth	V4	V8	V9	V10	V13	V101
T. 75	Level 1	263	N1060–1061/E903	0–0.20 m DBS	0	2	0.2	0.4	1	34
T. 75	Level 2	264	N1060–1061/E903	0.20–0.40 m DBS	0	2	0.2	0.4	1	34
T. 77	Level 1	260	N980–981/E999	0–0.20 m DBS	0	2	0.2	0.4	1	62
T. 77	Level 2	261	N980–981/E999	0.20–0.40 m DBS	0	2	0.2	0.4	1	4
T. 77	Level 3	262	N980–981/E999	0.40–0.60 m DBS	0	2	0.2	0.4	1	75
T. 78	Level 2	271	N1108–1109/E858	0.20–0.40 m DBS	0	2	0.2	0.4	1	12
T. 79	Level 1	265	N1004–1005/E1006	0–0.20 m DBS	0	2	0.2	0.4	1	62
T. 79	Level 2	266	N1004–1005/E1006	0.20–0.40 m DBS	0	2	0.2	0.4	1	561
T. 80	Level 1	267	N996–997/E957	0–0.20 m DBS	0	2	0.2	0.4	1	281
T. 80	Level 2	268	N996–997/E957	0.20–0.40 m DBS	0	2	0.2	0.4	1	108
T. 81	Level 1	272	N998–999/E1005	0–0.20 m DBS	0	2	0.2	0.4	1	153
T. 81	Level 2	273	N998–999/E1005	0.20–0.40 m DBS	0	2	0.2	0.4	1	106
T. 82	Level 1	270	N997–998/E1038	0–0.20 m DBS	0	2	0.2	0.4	1	10
T. 83	Level 1	269	N1154–1155/E841	0–0.20 m DBS	0	2	0.2	0.4	1	43
T. 83	Level 2	275	N1154–1155/E841	0.20–0.35 m DBS	0	2	0.2	0.4	1	6
T. 84	Level 2	276	N1148–1149/E783	0.20–0.40 m DBS	0	2	0.2	0.4	1	249
T. 85	Level 1	274	N1186–1187/E794	0–0.20 m DBS	0	2	0.2	0.4	1	427
T. 86	Level 1	279	N1234–1235/E742	0–0.20 m DBS	0	2	0.2	0.4	1	152
T. 87	Level 2	277	N1200–1201/E705	0.20–0.40 m DBS	0	2	0.2	0.4	1	22
T. 89	Level 2	278	N1262–1263/E623	0.20–0.40 m DBS	0	2	0.2	0.4	1	15

V3	V5	V1	V102	V103	V104	V105	V106	V108	V109	V110	V111	V113	V114	V116
T. 75	Level 1	263	15	2	1	32	14	0	1	0	0	1	0	1
T. 75	Level 2	264	5	6	2	28	3	2	0	0	0	2	0	2
T. 77	Level 1	260	9	0	0	62	9	0	0	0	0	0	0	0

TABLE 8.1
Ceramics from B26.
(Continued)

V3	V5	V1	V102	V103	V104	V105	V106	V108	V109	V110	V111	V113	V114	V116
T. 77	Level 2	261	7	0	0	4	7	0	0	0	0	0	0	0
T. 77	Level 3	262	34	19	7	56	27	7	0	0	0	7	0	7
T. 78	Level 2	271	2	0	0	12	2	0	0	0	0	0	0	0
T. 79	Level 1	265	16	12	2	50	14	2	0	0	0	2	0	2
T. 79	Level 2	266	187	126	22	435	165	9	11	1	1	21	1	22
T. 80	Level 1	267	67	128	12	153	55	6	6	0	0	12	0	12
T. 80	Level 2	268	21	52	2	56	19	0	2	0	0	0	2	2
T. 81	Level 1	272	33	54	5	99	28	1	4	0	0	5	0	5
T. 81	Level 2	273	21	0	0	106	21	0	0	0	0	0	0	0
T. 82	Level 1	270	5	0	0	10	5	0	0	0	0	0	0	0
T. 83	Level 1	269	5	34	2	9	3	2	0	0	0	0	2	2
T. 83	Level 2	275	1	6	1	0	0	0	0	1	0	1	0	1
T. 84	Level 2	276	45	0	0	249	45	0	0	0	0	0	0	0
T. 85	Level 1	274	58	110	6	317	52	2	4	0	0	5	1	6
T. 86	Level 1	279	11	45	2	107	9	0	2	0	0	2	0	2
T. 87	Level 2	277	13	7	1	15	12	0	1	0	0	1	0	1
T. 89	Level 2	278	2	9	1	6	1	0	1	0	0	1	0	1

V3	V5	V1	V118	V119	V120	V122	V123	V126	V127	V129	V130	V131	V132	V134
T. 75	Level 1	263	0	1	0	0	0	0	1	0	0	0	0	0
T. 75	Level 2	264	0	0	2	0	0	0	2	1	0	7	0	1
T. 77	Level 1	260	0	0	0	0	0	0	0	0	0	0	0	0
T. 77	Level 2	261	0	0	0	0	0	0	0	0	0	0	0	0
T. 77	Level 3	262	7	0	0	0	0	0	0	0	0	2	0	0
T. 78	Level 2	271	0	0	0	0	0	0	0	0	0	0	0	0
T. 79	Level 1	265	2	0	0	0	0	0	0	0	0	0	0	0
T. 79	Level 2	266	12	2	8	0	2	7	1	0	0	0	0	0
T. 80	Level 1	267	11	0	1	0	0	1	0	0	1	3	0	0
T. 80	Level 2	268	2	0	0	0	0	0	0	0	0	0	0	0
T. 81	Level 1	272	3	1	1	0	1	1	0	0	0	0	0	0
T. 81	Level 2	273	0	0	0	0	0	0	0	0	0	0	0	0
T. 82	Level 1	270	0	0	0	0	0	0	0	0	0	0	0	0
T. 83	Level 1	269	2	0	0	0	0	0	0	0	0	0	0	0
T. 83	Level 2	275	1	0	0	0	0	0	0	0	0	0	0	0
T. 84	Level 2	276	0	0	0	0	0	0	0	0	0	0	0	0
T. 85	Level 1	274	5	1	0	1	0	0	0	0	0	3	0	0
T. 86	Level 1	279	2	0	0	0	0	0	0	0	0	1	1	0
T. 87	Level 2	277	1	0	0	0	0	0	0	0	0	0	0	0
T. 89	Level 2	278	1	0	0	0	0	0	0	0	0	1	0	0

V3	V5	V1	V139	V146	V148	V150	V155	V156	V158	V163	V164	V167	V168	V189
T. 75	Level 1	263	0	0	0	0	0	0	0	0	0	0	0	0
T. 75	Level 2	264	0	0	0	0	1	0	0	0	0	0	1	0
T. 77	Level 1	260	0	0	0	0	0	0	0	0	0	0	0	0
T. 77	Level 2	261	0	0	0	0	0	0	0	0	0	0	0	0
T. 77	Level 3	262	0	0	5	0	0	0	0	0	2	0	0	0

TABLE 8.1
Ceramics from B26.
(Continued)

V3	V5	V1	V139	V146	V148	V150	V155	V156	V158	V163	V164	V167	V168	V189
T. 78	Level 2	271	0	0	0	0	0	0	0	0	0	0	0	0
T. 79	Level 1	265	0	0	0	1	0	0	1	0	0	0	0	0
T. 79	Level 2	266	4	0	0	2	8	1	0	0	6	1	0	0
T. 80	Level 1	267	4	1	0	0	1	0	2	1	3	0	0	1
T. 80	Level 2	268	0	0	0	2	0	0	0	0	0	0	0	0
T. 81	Level 1	272	1	0	0	2	1	1	0	0	0	0	0	0
T. 81	Level 2	273	0	0	0	0	0	0	0	0	0	0	0	0
T. 82	Level 1	270	0	0	0	0	0	0	0	0	0	0	0	0
T. 83	Level 1	269	2	0	0	0	0	0	0	0	0	0	0	0
T. 83	Level 2	275	0	0	0	0	0	1	0	0	0	0	0	0
T. 84	Level 2	276	0	0	0	0	0	0	0	0	0	0	0	0
T. 85	Level 1	274	2	0	0	0	0	1	0	0	2	1	0	0
T. 86	Level 1	279	0	0	0	0	0	0	0	0	2	0	0	0
T. 87	Level 2	277	1	0	0	0	0	0	0	0	0	0	0	0
T. 89	Level 2	278	0	0	0	0	0	0	0	0	1	0	0	0

V3	V5	V1	V217	V218	V219	V220	V221	V222	V227	V228	V230	V260	V264	V265
T. 75	Level 1	263	0	0	0	0	0	0	0	0	0	0	0	0
T. 75	Level 2	264	0	0	0	0	0	0	0	0	0	0	0	0
T. 77	Level 1	260	0	0	0	0	0	0	0	0	0	0	0	0
T. 77	Level 2	261	0	0	0	0	0	0	0	0	0	0	0	0
T. 77	Level 3	262	0	0	2	0	0	0	0	1	1	0	0	0
T. 78	Level 2	271	0	0	0	0	0	0	0	0	0	0	0	0
T. 79	Level 1	265	0	0	0	0	0	0	0	0	0	0	0	0
T. 79	Level 2	266	2	1	3	0	0	0	1	6	1	1	1	0
T. 80	Level 1	267	0	0	2	0	0	1	0	3	0	0	0	2
T. 80	Level 2	268	0	0	0	0	0	0	0	0	0	0	0	0
T. 81	Level 1	272	0	0	0	0	0	0	0	0	0	1	0	0
T. 81	Level 2	273	0	0	0	0	0	0	0	0	0	0	0	0
T. 82	Level 1	270	0	0	0	0	0	0	0	0	0	0	0	0
T. 83	Level 1	269	0	0	0	0	0	0	0	0	0	0	0	0
T. 83	Level 2	275	0	0	0	0	0	0	0	0	0	0	0	0
T. 84	Level 2	276	0	0	0	0	0	0	0	0	0	0	0	0
T. 85	Level 1	274	0	0	1	0	2	0	0	3	0	0	2	0
T. 86	Level 1	279	0	1	1	0	0	0	0	2	0	0	0	0
T. 87	Level 2	277	0	0	0	0	0	0	0	0	0	0	1	0
T. 89	Level 2	278	0	0	1	0	0	0	0	1	0	0	0	0

V3	V5	V1	V266	V267	V269	V288	V289	V291	V292	V294	V297	V301	V304	V306
T. 75	Level 1	263	0	0	0	0	0	0	0	0	0	0	0	0
T. 75	Level 2	264	0	0	0	0	0	0	0	0	0	0	1	0
T. 77	Level 1	260	0	0	0	0	0	0	0	0	0	0	0	0
T. 77	Level 2	261	0	0	0	0	0	0	0	0	0	0	0	0
T. 77	Level 3	262	0	0	0	0	0	0	0	0	0	0	0	0
T. 78	Level 2	271	0	0	0	0	0	0	0	0	0	0	0	0
T. 79	Level 1	265	0	0	0	0	1	0	1	0	0	0	0	0

TABLE 8.1
Ceramics from B26.
(Continued)

V3	V5	V1	V266	V267	V269	V288	V289	V291	V292	V294	V297	V301	V304	V306
T. 79	Level 2	266	1	1	0	1	1	0	1	0	1	1	0	1
T. 80	Level 1	267	0	0	2	0	0	0	0	0	0	0	0	0
T. 80	Level 2	268	0	0	0	2	0	0	0	2	0	0	0	0
T. 81	Level 1	272	0	0	0	0	2	2	0	0	0	0	0	0
T. 81	Level 2	273	0	0	0	0	0	0	0	0	0	0	0	0
T. 82	Level 1	270	0	0	0	0	0	0	0	0	0	0	0	0
T. 83	Level 1	269	2	0	0	0	0	0	0	0	0	0	0	0
T. 83	Level 2	275	0	0	0	0	0	0	0	0	0	0	0	0
T. 84	Level 2	276	0	0	0	0	0	0	0	0	0	0	0	0
T. 85	Level 1	274	0	0	0	0	0	0	0	0	0	0	0	0
T. 86	Level 1	279	0	0	0	0	0	0	0	0	0	0	0	0
T. 87	Level 2	277	0	0	0	0	0	0	0	0	0	0	0	0
T. 89	Level 2	278	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V311	V312	V316	V321	V322	V324	V328	V330	V331	V332
T. 75	Level 1	263	0	0	0	0	0	0	0	0	0	0
T. 75	Level 2	264	0	0	2	0	1	1	0	0	0	0
T. 77	Level 1	260	0	0	0	0	0	0	0	0	0	0
T. 77	Level 2	261	0	0	0	0	0	0	0	0	0	0
T. 77	Level 3	262	0	0	0	0	0	0	0	0	0	0
T. 78	Level 2	271	0	0	0	0	0	0	0	0	0	0
T. 79	Level 1	265	0	1	0	0	0	0	0	0	0	0
T. 79	Level 2	266	8	0	10	2	8	0	1	0	1	0
T. 80	Level 1	267	1	0	1	0	1	0	0	0	0	0
T. 80	Level 2	268	0	0	0	0	0	0	0	0	0	0
T. 81	Level 1	272	1	0	1	0	1	0	0	1	0	0
T. 81	Level 2	273	0	0	0	0	0	0	0	0	0	0
T. 82	Level 1	270	0	0	0	0	0	0	0	0	0	0
T. 83	Level 1	269	0	0	0	0	0	0	0	0	0	0
T. 83	Level 2	275	0	0	0	0	0	0	0	0	0	0
T. 84	Level 2	276	0	0	0	0	0	0	0	0	0	0
T. 85	Level 1	274	0	0	0	0	0	0	0	0	0	1
T. 86	Level 1	279	0	0	0	0	0	0	0	0	0	0
T. 87	Level 2	277	0	0	0	0	0	0	0	0	0	0
T. 89	Level 2	278	0	0	0	0	0	0	0	0	0	0

TABLE 8.2
Other Artifacts from B26.

V3	V5	V1	Location	Depth	V4	V8	V9	V10	V13	V1001
T. 75	Level 1	263	N1060–1061/E903	0–0.20 m DBS	0	2	0.2	0.4	1	3
T. 77	Level 1	260	N980–981/E999	0–0.20 m DBS	0	2	0.2	0.4	1	1
T. 77	Level 2	261	N980–981/E999	0.20–0.40 m DBS	0	2	0.2	0.4	1	1
T. 77	Level 3	262	N980–981/E999	0.40–0.60 m DBS	0	2	0.2	0.4	1	1
T. 78	Level 2	271	N1108–1109/E858	0.20–0.40 m DBS	0	2	0.2	0.4	1	3
T. 79	Level 1	265	N1004–1005/E1006	0–0.20 m DBS	0	2	0.2	0.4	1	2
T. 79	Level 2	266	N1004–1005/E1006	0.20–0.40 m DBS	0	2	0.2	0.4	1	22
T. 80	Level 1	267	N996–997/E957	0–0.20 m DBS	0	2	0.2	0.4	1	3
T. 80	Level 2	268	N996–997/E957	0.20–0.40 m DBS	0	2	0.2	0.4	1	7
T. 81	Level 1	272	N998–999/E1005	0–0.20 m DBS	0	2	0.2	0.4	1	9
T. 81	Level 2	273	N998–999/E1005	0.20–0.40 m DBS	0	2	0.2	0.4	1	6
T. 82	Level 1	270	N997–998/E1038	0–0.20 m DBS	0	2	0.2	0.4	1	1
T. 84	Level 2	276	N1148–1149/E783	0.20–0.40 m DBS	0	2	0.2	0.4	1	2
T. 85	Level 1	274	N1186–1187/E794	0–0.20 m DBS	0	2	0.2	0.4	1	4
T. 86	Level 1	279	N1234–1235/E742	0–0.20 m DBS	0	2	0.2	0.4	1	5
T. 87	Level 2	277	N1200–1201/E705	0.20–0.40 m DBS	0	2	0.2	0.4	1	5

V3	V5	V1	V1002	V1003	V1004	V1005	V1006	V1007	V1008	V1011	V1012	V1013	V1014	V1015
T. 75	Level 1	263	14	1	3	2	11	0	0	0	0	0	0	1
T. 77	Level 1	260	7	1	7	0	0	0	0	0	0	0	0	1
T. 77	Level 2	261	9	1	9	0	0	0	0	0	0	0	0	1
T. 77	Level 3	262	6	1	6	0	0	0	0	0	0	1	6	0
T. 78	Level 2	271	142	3	142	0	0	0	0	0	0	1	2	2
T. 79	Level 1	265	303	1	5	1	298	0	0	0	0	1	5	0
T. 79	Level 2	266	96	21	94	0	0	1	2	0	0	6	29	15
T. 80	Level 1	267	108	2	80	0	0	1	120	1	28	2	80	0
T. 80	Level 2	268	525	6	405	0	0	1	120	0	0	3	71	3
T. 81	Level 1	272	81	8	73	0	0	1	8	0	0	4	18	4
T. 81	Level 2	273	45	6	45	0	0	0	0	0	0	1	28	5
T. 82	Level 1	270	102	1	102	0	0	0	0	0	0	0	0	1
T. 84	Level 2	276	21	2	21	0	0	0	0	0	0	1	12	1
T. 85	Level 1	274	90	2	25	0	0	1	50	1	15	2	25	0
T. 86	Level 1	279	112	5	112	0	0	0	0	0	0	3	100	2
T. 87	Level 2	277	36	5	36	0	0	0	0	0	0	2	16	3

V3	V5	V1	V1016	V1017	V1018	V1021	V1022	V1023	V1024	V1031	V1032	V1033	V1035	V1036
T. 75	Level 1	263	3	2	11	0	0	0	0	0	0	0	0	0
T. 77	Level 1	260	7	0	0	0	0	0	0	0	0	0	0	0
T. 77	Level 2	261	9	0	0	0	0	0	0	0	0	0	0	0
T. 77	Level 3	262	0	0	0	0	0	0	0	0	0	0	0	1
T. 78	Level 2	271	140	0	0	0	0	0	0	0	0	0	0	1
T. 79	Level 1	265	0	0	0	0	0	1	298	0	0	0	0	1
T. 79	Level 2	266	65	0	0	0	0	0	0	0	0	0	0	5
T. 80	Level 1	267	0	0	0	0	0	0	0	1	28	0	0	1
T. 80	Level 2	268	334	0	0	0	0	1	120	0	0	0	1	2
T. 81	Level 1	272	55	0	0	0	0	1	8	0	0	0	0	3

TABLE 8.2
Other Artifacts from B26.
(Continued)

V3	V5	V1	V1016	V1017	V1018	V1021	V1022	V1023	V1024	V1031	V1032	V1033	V1035	V1036
T. 81	Level 2	273	17	0	0	0	0	0	0	0	0	0	0	1
T. 82	Level 1	270	102	0	0	0	0	0	0	0	0	0	0	0
T. 84	Level 2	276	9	0	0	0	0	0	0	0	0	0	0	1
T. 85	Level 1	274	0	0	0	1	50	0	0	0	0	0	0	1
T. 86	Level 1	279	12	0	0	0	0	0	0	0	0	1	0	2
T. 87	Level 2	277	20	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V1038	V1039	V2001	V2002	V2011	V2012	V2015	V2016
T. 75	Level 1	263	0	0	0	0	0	0	0	0
T. 77	Level 1	260	0	0	0	0	0	0	0	0
T. 77	Level 2	261	0	0	0	0	0	0	0	0
T. 77	Level 3	262	0	0	0	0	0	0	0	0
T. 78	Level 2	271	0	0	0	0	0	0	0	0
T. 79	Level 1	265	0	0	0	0	0	0	0	0
T. 79	Level 2	266	1	0	0	0	0	0	0	0
T. 80	Level 1	267	0	1	0	0	0	0	0	0
T. 80	Level 2	268	0	0	0	0	0	0	0	0
T. 81	Level 1	272	0	1	0	0	0	0	0	0
T. 81	Level 2	273	0	0	0	0	0	0	0	0
T. 82	Level 1	270	0	0	0	0	0	0	0	0
T. 84	Level 2	276	0	0	0	0	0	0	0	0
T. 85	Level 1	274	1	0	2	170	2	170	2	170
T. 86	Level 1	279	0	0	0	0	0	0	0	0
T. 87	Level 2	277	2	0	0	0	0	0	0	0

TABLE 8.3
Distribution of Ceramic Diagnostics, Vessel Feet, Total Chert, and Nonutilized Chert at B26.

Test Pit	V104	V150	V1003	V1015	NonUt/Chrt
T.75	3	0	1	1	1
T.77	7	0	3	1	0.33
T.78	0	0	3	2	0.66
T.79	24	3	22	15	0.68
T.80	14	2	8	3	0.38
T.81	5	2	14	9	0.64
T.82	0	0	1	1	1
T.83	3	0	0	0	0
T.84	0	0	2	1	0.5
T.85	6	0	2	0	0
T.86	2	0	5	2	0.4
T.87	1	0	5	3	0.6
T.89	1	0	0	0	0

V104 = total count of diagnostic sherds; V150 = total count of ceramic foot fragments; V1003 = total count of chert fragments; V1015 = total count of nonutilized chert fragments; NonUt/Chrt = total count of nonutilized chert fragments (V1015) divided by total count of chert fragments (V1003).

CHAPTER 9

EXCAVATIONS AT B21 (BUENOS AIRES)

The site of Buenos Aires (B21) was one of the five second-tier Gaván-complex settlements that we located during the regional survey (fig. 1.3; Redmond and Spencer, 2007). Situated on a *banco* east of the Caño Mericacoy in the area of Chuponal, the settlement overlooks a large zone of fertile *vega* or floodplain. The site covered 4.56 ha and featured four earthen mounds that are visible on the surface (fig. 9.1). The largest, Mound A, was located at the northern end of a 250 m long open space that we interpreted as a central avenue. Mound A had a maximum basal diameter of 40 m and reached 2 m in height. At the southern end of the site's central axis (oriented 8° west of magnetic north) was Mound B, with a basal diameter of 22 m and a height of 1 m. At the midpoint of the central axis, the 10 m wide avenue was flanked by Mound C and Mound D, less than 1 m in height. Mound C probably supported two structures on its broad surface.

The layout of B21's mounds was similar to the configuration of mounds flanking the central avenue at the regional center of El Gaván (B12) (see fig. 6.2). At B21, the distance between Mound A and Mound B was roughly half the distance that separated the two large mounds (Mound A and Mound E) lying at either end of the central avenue at B12. We were not able to determine whether B21's avenue was lined with numerous house mounds, as we observed at B12, but we suspect this absence of evidence was due more to visibility and preservation issues than an actual absence of households. It is also noteworthy that we discovered two causeway segments at B21: one takes off from the *banco* on which the site sits in a west-southwest direction toward the Caño Mericacoy; the other causeway (Calzada C) leads in a southeasterly direction toward the Caño Mitiao Hondo and, eventually, toward the regional center (B12), some 7.5 km away.

In March of 1986, we carried out an excavation strategy at Buenos Aires (B21) that entailed two random-sampling procedures, resulting in the excavation of 29 test pits. We also located six test pits judgmentally.

Our grid system for B21 was designed so that each excavation unit would have a unique grid designation and be incorporated into the overall system. The central datum point established atop Mound B had a coordinate of N1000/E1000 and an elevation of 100.00 m. The grid system was constructed so that the origin of the grid lay to the southwest of the site, causing the entire site to fall in the northeast quadrant of a Cartesian coordinate system. In this way, all of our grid designations could be expressed in terms of the distance (in m) north and east of the arbitrary origin, while all elevations were taken relative to the datum point atop Mound B.

TEST-PIT PROGRAM

The dense grass cover at Fundo Buenos Aires made the detection of the site's boundaries and of any house mounds difficult, so we knew we would have to rely on a test-pit program for information about the site's areal extent and about its layout. The single surface collection made while mapping the site in July 1985 contained some Gaván-complex ceramics from the pastures where the mounds stood. Mostly Caño Seco and Chuponal ceramics were collected from the eastern bank of Caño Mericacoy where the *fundo* house lies. A comprehensive test-pit program would help to establish the extent of the Gaván-complex mound site and of the Caño Seco and Chuponal occupations here. Based on the linear arrangement of mounds along the site's central axis, similar to that already observed at the regional center (B12), we wondered whether a similar pattern of house mounds would obtain at B21. We also wondered whether the site's Gaván-complex

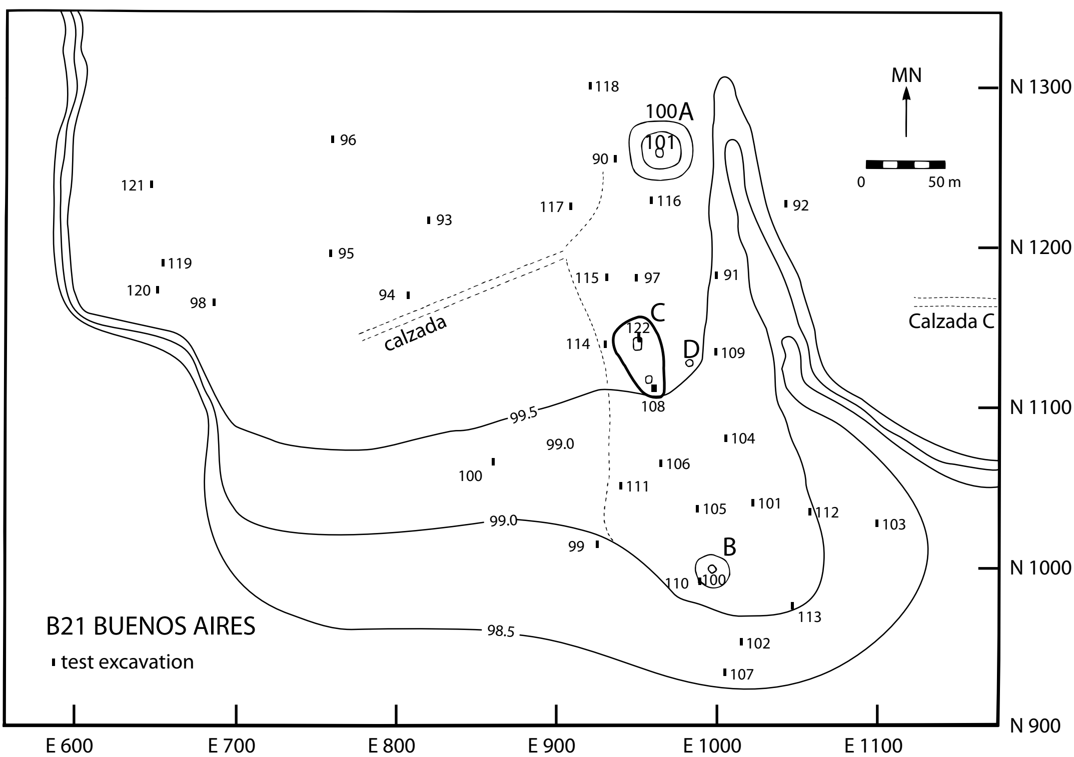

Figure 9.1. Topographic map of Buenos Aires (B21) showing the locations of the mounds labeled with letters, causeway (*calzada*) segments, and the numbered test excavations; a guide to the north and east grid coordinates is also presented. Note that T.123 and T.124 were located directly west and contiguous with T.108.

occupation included the areas traversed by one or both of the causeway segments, or whether it was confined to the central spine of the site.

The distribution of the 29 test pits excavated at B21 followed two probabilistic sampling programs, which we called Probability-1 and Probability-4; both followed the principles of a systematically stratified, randomized design. The Probability-1 design yielded a sampling fraction of 0.02% and was implemented following the procedure outlined in detail in chapter 6 whereby the entire site was stratified into square units measuring 100 × 100 m, a task made easier by the fact that we had mapped the site (at a scale of 1:1000) onto metric graph paper. Within each 100 × 100 m block, we selected a test-pit location by drawing grid coordinates from a table of random numbers (Arkin and Colton, 1963: table 25). Each test pit was oriented to magnetic north, and was referenced by the grid designation of its southwest corner. The Probability-1 program chose the location of one test pit for each 100 × 100 m block, 15 test pits in all. For the Probability-4 design, we repeated the procedure for the central part of the B21 site in which the mounds were concentrated. The central area was stratified into square units of 50 × 50 m and within each stratum a test-pit location was chosen, adding four test pits per ha, 14 in all. The sampling fraction for the Probability-4 design was 0.08%. The combined sampling fraction of the Probability-1 and Probability-4 designs in the central part of B21 was therefore 0.1%.

After selecting the coordinate designations for the test pits, we located them in the field by plotting the point on our plane table map, aligning the alidade to that point from the plane table position, and then sending an assistant with the stadia rod out along the bearing until the appropriate distance was reached. Fine-tuning of the rod position was accomplished with the aid of walkie-talkies. When the position was established, a stake was driven in the ground to mark the southwestern corner of the test pit. A surface elevation was taken at this point. Although the excavation levels in test pits were generally recorded as depth below the surface (DBS), these figures could easily be converted into elevations relative to the site datum through simple subtraction. The judgmental test pits were treated differently; usually they were located first on the ground and then later entered onto the site map in order to obtain their coordinates. In the end, the 35 test pits excavated at Buenos Aires were as follows: 15 Probability-1 test pits (T.90–T.103, T.118); 14 Probability-4 test pits (T.104–T.117); and six judgmental test pits (T.119–T.124). We expanded T.108, at the southern end of Mound C, in order to expose more of a living surface recovered at 44–50 cm below the surface. That horizontal exposure involved two excavation units (each measuring 1 × 2 m) adjacent to the west side of the original T.108, designated T.123 and T.124. The expansion of T.122 at the northern end of Mound C involved a 2 × 2 m area adjacent to east side of the original T.122 in order to expose more of a subfloor cache or burial pit exposed at 48–55 cm below the surface. Because three of the judgmental test pits excavated on the eastern bank of the Caño Mericacoy (T.119–T.121) recovered only Chuponal ceramics associated with what became designated a separate site (B99), those test pits will be described in a future publication that deals with the sites associated with this later ceramic complex.

Test-pit profile drawings, excavation plans, and artifact drawings accompany the descriptions of the various operations. Tables of ceramic and nonceramic artifact data (tables 9.1, 9.2) appear after the descriptions of the test pits.

Probability-1 Test Pits (T.90–T.103, T.118)

T.90 was at N1256–1257/E936, about 12 m west of Mound A (fig. 9.1). The surface elevation at the top southwest corner of the pit was 100.02 m. We excavated two levels: Level 1 (B21-0280; 0–0.20 m DBS) and Level 2 (0.20–0.40 m DBS) (tables 9.1, 9.2). The drawing of the pit's west profile (fig. 9.2) shows three stratigraphic layers. Layer A was gray-colored silty topsoil that lacked cultural material, and that extended from ground level to about 0.10–0.12 m DBS. Layer B was a gray-colored silty and clayey deposit with brown inclusions and cultural materials; it extended down to 0.20 m DBS. Level 1 comprised both Layer A and Layer B, accounting for the small amount of cultural material recovered beginning around 0.18 m DBS. Layer C was sterile, gray-brown clay that extended from the bottom of Layer B to 0.40 m DBS.

Level 1 (B21-280; 0–0.20 m DBS) yielded some cultural material in the bottom 2 cm (0.18–0.20 m DBS). We recovered seven sherds, three of which were diagnostics (table 9.1). We also found six fragments of chipped stone that consisted of one piece of utilized chert (a core), one piece of nonutilized chert, one fragment of nonutilized quartz, and three pieces of utilized sandstone (table 9.2). One of the pieces of utilized sandstone was a sandstone flake tool scraper that was complete and deemed suitable for use-wear analysis (appendix B; B21-280-58). The scraper's dorsal side exhibited cortex. The scraper's use zone was continuous over three sides. There was edge rounding, polish, and some pitting. The action was longitudinal. The scraper was probably used for cutting or grooving dry hides. In Level 2 of T.90 we found no cultural materials.

T.91 was at N1183–1184/E1002, some 50 m northeast of Mound D (fig. 9.1). The surface elevation at the top southwest corner was 99.32 m. We excavated two levels: Level 1 (B21-283; 0–0.20 m DBS) and Level 2 (B21-284; 0.20–0.40 m DBS). Cultural materials were found in both Level 1 and Level 2 (tables 9.1, 9.2). As shown in the drawing of the west profile (fig. 9.3), Layer A extended from the ground surface to about 0.10–0.16 m DBS; fine, gray-colored silty topsoil comprised this layer, which lacked cultural materials. Layer B did have cultural materials and extended from the bottom of Layer A to about 0.30 m DBS; the soil matrix of Layer B was a gray-brown colored silty and harder clayey deposit having brown inclusions. Level 1 therefore included Layer A and penetrated Layer B. Level 2 comprised the remainder of Layer B and penetrated Layer C. Layer C was a tan silty and clayey layer beginning at approximately 0.30 m DBS that lacked cultural materials.

Level 1 (B21-283; 0–0.20 m DBS) yielded 89 sherds, of which 12 were diagnostics (table 9.1). There were five pieces of chipped stone, of which four were chert, and one was amphibolite (table 9.2). Three of the chert fragments were classified as utilized flakes, while one was nonutilized. Also recovered in Level 1 were three polished stone artifacts: two fragments of amphibolite axes or celts; and one phyllite ornament of indeterminate form. We recovered four fragments of burned daub in Level 1. Finally, the head of an anthropomorphic figurine (fig. 9.4) was found in Level 1.

Level 2 (B21-284; 0.20–0.40 m DBS) contained 59 sherds, of which six were diagnostics (table 9.1). We found one sherd classified as a misfired sherd or kiln waster; it had a pitted surface (table 9.1; appendix F). The five pieces of chipped stone in Level 2 were chert; two were classified as utilized flakes, while three were nonutilized (table 9.2). Also present in Level 2 were three polished stone artifacts: an axe; an axe or celt; and one of an undetermined function (table 9.2).

T.92 was at N1228–1229/E1045, about 65 m southeast of Mound A, and some 10 m east of the *desaguadero* (drainage channel) (fig. 9.1). The surface elevation at the top southwest corner of the pit was 99.32 m. We excavated two levels here: Level 1 (B21-285; 0–0.20 m DBS) and Level 2 (0.20–0.40 m DBS). The only cultural artifact we recovered was a fragment of nonutilized sandstone in the top excavation level (B21-285) (table 9.2). It appears that B21's occupation did not extend east of the *desaguadero*. The west profile of the pit (fig. 9.5) shows two stratigraphic layers: Layer A (0–0.22 m DBS) was described as a fine buff-colored silty topsoil; Layer B (0.22–0.40 m DBS) was characterized as a fine light yellow-brown silty deposit.

T.93 was at N1222–1223/E820, in the pasture at a distance of 130 m southwest of Mound A and some 45 m northwest of a causeway segment that emanated from the site's central axis (fig. 9.1). The surface elevation at the top southwest corner of the pit was 100.02 m. We excavated two levels here: Level 1 (0–0.20 m DBS) and Level 2 (0.20–0.40 m DBS). Although we excavated the two levels to a depth of 0.40 m DBS, we found no cultural material, implying that there was no occupation north of the causeway segment in this pasture of Buenos Aires. No profile was drawn, but the soil matrix of the topmost layer consisted of a

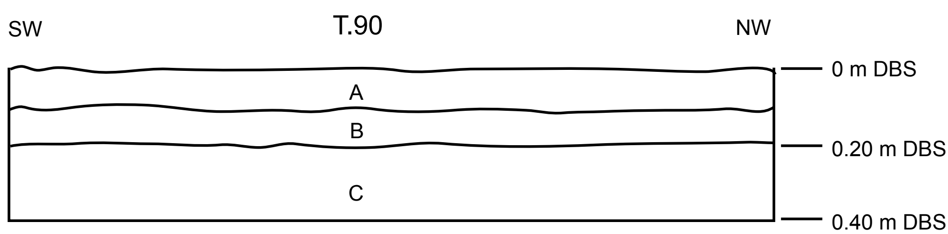

Figure 9.2. Profile drawing of the west face of T.90.

Figure 9.3. Profile drawing of the west face of T.91.

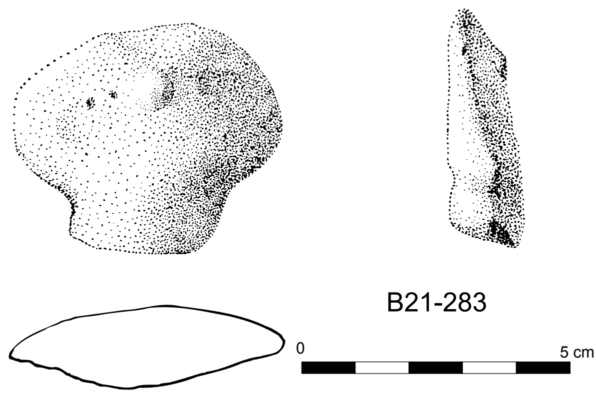

Figure 9.4. Illustration of ceramic human figurine head from B21 (B21-283).

gray-brown silty topsoil down to approximately 0.14 m DBS, where a yellow-brown layer of clay and sand with orange inclusions began and continued down to 0.40 m DBS, where we halted the excavation of the test pit.

T.94 was at N1170–1171/E805, in the pasture midway between the area of mounds and the *fundo* (farm) house at Buenos Aires, a little more than 10 m north of the causeway segment (fig. 9.1). The surface elevation at the top southwest corner of the pit was 99.77 m. We excavated two levels here: Level 1 (0–0.20 m DBS) and Level 2 (0.20–0.40 m DBS), neither of which recovered any evidence of occupation in this second test excavation north of the causeway. We did not draw the test pit's profile, but noted that the soil matrix of the topmost layer consisted of a fine buff-colored silty deposit down to approximately 0.15 m DBS, giving way to a yellow-gray clay and sandy layer with small red-brown inclusions that continued to the bottom of Level 2.

T.95 was at N1196–1197/E758, in the pasture between the mounded area and the *fundo* house at Buenos Aires, and a little over 50 m northwest of the causeway segment (fig. 9.1). The surface elevation at the top southwest corner of the pit was 100.08 m. We excavated two levels here: Level 1 (0–0.20 m DBS) and Level 2 (0.20–0.40 m DBS), both of which failed to recover any cultural material. This was the third test excavation in the pasture west of the mounded area and north of the causeway segment that yielded no evidence of occupation. We did not draw a profile of the test pit's stratigraphy, but we noted that the topmost layer consisted of a fine gray silty deposit down to about 0.15 m DBS. Beneath it was a gray-colored silty and clay layer with brown inclusions that continued down to the bottom of Level 2.

T.96 was at N1268–1269/E759, in the pasture between Mound A and the *fundo* house at Buenos Aires, 10–12 m south of the dirt road that skirts the base of Mound A (fig. 9.1). The surface elevation at the top southwest corner of the pit was 100.50 m. We excavated three levels in T. 96: Level 1 (0–0.20 m DBS), Level 2 (0.20–0.40 m DBS), and Level 3 (0.40–0.50 m DBS); in none of them did we recover any cultural material. This was the fourth test excavation in the pasture west of the area of mounds and north of the causeway segment that lacked cultural materials. We did not draw a profile of the test pit, but noted that the top layer of topsoil was a sandy buff-colored deposit. At about 0.19 m DBS the topsoil gave way to a tan-colored sand and clay layer that continued throughout levels 2 and 3.

T.97 was at N1184–1185/E950, some 25 m north of Mound C (fig. 9.1). The surface elevation at the top southwest corner of the pit was 99.84 m. We excavated two levels here: Level 1 (B21-281; 0–0.20 m DBS) and Level 2 (0.20–0.40 m DBS) (tables 9.1, 9.2). The drawing of the pit's west profile (fig. 9.6) shows three stratigraphic layers. Layer A was a gray-colored silty topsoil that lacked cultural material; it extended from ground level to about 0.10–0.12 m DBS. Layer B was a gray-colored silty and clayey layer characterized by brown inclusions that did contain cultural materials; it extended down to 0.24 m DBS. Level 1 comprised both Layer A and Layer B, accounting for the only cultural material recovered in this pit, beginning around 0.10–0.12 m DBS. Layer C was sterile, gray-brown clay that extended from the bottom of Layer B to 0.40 m DBS.

Level 1 (B21-280; 0–0.20 m DBS) yielded some cultural material between 0.10–0.20 m DBS. We recovered 89 sherds, of which 17 were diagnostics (table 9.1). The 28 fragments of chipped stone consisted of 20 pieces of chert (seven of them utilized), seven fragments of sandstone (three of them utilized), and 1 fragment of nonutilized amphibolite (table 9.2).

T.98 was at N1166–1167/E682, on the eastern bank of the Caño Mericacoy in the pasture south of the *fundo* house at Buenos Aires (fig. 9.1). The surface elevation at the top southwest corner of the pit was 100.25 m. We excavated three levels here: Level 1 (0–0.20 m DBS), Level 2 (0.20–0.40 m DBS), and Level 3 (0.40–0.45 m DBS) (tables 9.1, 9.2). The stratigraphy evident in the pit's west profile is made up of three layers (fig. 9.7). Layer A consisted of dark-brown sandy topsoil that was devoid of cultural material, corresponding to Level 1. Layer B was a gray-brown clay layer, also sandy, that yielded cultural materials in the top few cm of Level 2 (B21-286). Layer C was tan-colored clay with orange inclusions, still sandy, that began at about 0.30 m DBS and lacked cultural materials.

We recovered a total of four Gaván-complex sherds in Level 2 (B21-286; 0.20–0.40 m DBS), of which three were diagnostics (table 9.1). Because numerous Caño Seco-complex ceramics were also recovered in this second level of excavation, we designated T.98 part of B99, a Caño Seco habitation site separate from the Gaván-complex mound site B21. The three pieces of chipped stone from Level 2 (table 9.2) included one fragment of nonutilized chert and two fragments of nonutilized sandstone; they could be associated with either B21 or B99. We should note that the three judgmental test pits (T.119, T.120, and T.121) excavated to the north and west at B99 yielded Chuponal-complex materials. The discussion of the Caño Seco ceramics recovered in T.98 will appear in a future publication. In view of the uninhabited area between B21 and B99, it is not clear what we should make of the four Gaván-complex sherds found in T.98; they might be evidence of an isolated household or just some midden debris scattered on the eastern bank of the Caño Mericacoy, well beyond the edge of the Gaván-complex settlement.

T.99 was at N1014–1015/E926, some 65 m northwest of Mound B (fig. 9.1), at the western edge of the *banco* on which the site extends. The surface elevation at the top southwest corner of the pit was 98.99 m. We excavated two levels here: Level 1 (B21-287; 0–0.20 m DBS) and Level 2 (0.20–0.40 m DBS) (tables 9.1, 9.2). The drawing of the pit's west profile (fig. 9.8) shows three stratigraphic layers. Layer A was gray-colored silty topsoil that lacked cultural material, and that extended from ground level to about 0.10–0.12 m DBS. Layer B was a gray-colored silty and clayey layer characterized by brown inclusions that did contain cultural materials; it extended down to 0.18–0.20 m DBS. Level 1 comprised both Layer A and Layer B, accounting for the cultural material recovered beginning around 0.10 m DBS. Layer C was a sterile, gray-brown silty clay layer with brown inclusions that extended from the bottom of Layer B to 0.40 m DBS.

Level 1 (B21-287; 0–0.20 m DBS) yielded some cultural material between 0.10–0.20 m DBS. We recovered 50 sherds, of which four were diagnostics (table 9.1). The six fragments of chipped stone consisted of four utilized chert flakes, one fragment of utilized quartz and one fragment of utilized sandstone (table 9.2).

T.100 was at N1066–1067/E861, in the pasture between the mounded area and the eastern bank of the Caño Mericacoy, 105 m southwest of Mound C (fig. 9.1). The surface elevation at the top southwest corner of the pit was 99.39 m. We excavated two levels here: Level 1 (0–0.20 m DBS) and Level 2 (0.20–0.40 m DBS); neither yielded any cultural materials. The absence of cultural material in T.100 accords with a similar lack of occupation evidence in the test excavations that we carried out in the pasture west of the mounded area and north of the causeway segment. We did not draw a profile of the test pit's stratigraphy, but noted that the topmost layer consisted of a fine brown silty deposit down to about 0.10 m DBS. Beneath it lay a gray-brown colored silty and clay layer with red-brown inclusions down to the bottom of Level 2 at 0.40 m DBS.

T.101 was at N1040–1041/E1024, some 38 m northeast of Mound B (fig. 9.1). The surface elevation at the top southwest corner of the pit was 99.14 m. We excavated two levels here: Level 1 (B21-282; 0–0.20 m DBS) and Level 2 (B21-295; 0.20–0.40 m DBS) (tables 9.1, 9.2). Both excavation levels yielded cultural material associated with a probable living surface (Feature 5) exposed at 0.20 m DBS. The drawing of the pit's west profile (fig. 9.9) shows four stratigraphic layers. Layer A was sterile brown-gray silty topsoil that reached down to 0.10 m DBS. Layer B was a harder, brown-gray colored silty and clay layer with cultural material that extended from 0.10 m DBS to the probable living surface (Feature 5) at 0.20 m DBS. Our Level 1 comprised both Layer A and Layer B. Layer C was the hard gray-brown clay living surface encountered at 0.20 m DBS that we designated Feature 5. The surface extended throughout the test pit. Two troughlike depressions extending from east to west in an undulating configuration about 1 m apart penetrated the surface to 0.23–0.25 m DBS (figs. 9.10, 9.11). The undulating depressions were filled with a light gray ash deposit containing some charcoal flecks and were outlined by gray-stained burned areas of the hard surface. The fill of these depressions was excavated separately and the cultural material recovered was assigned a separate provenience (B21-294); a

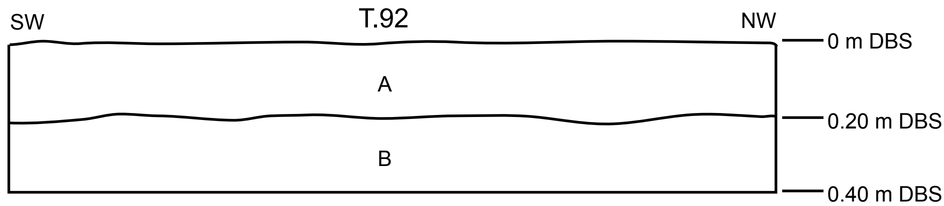

Figure 9.5. Profile drawing of the west face of T.92.

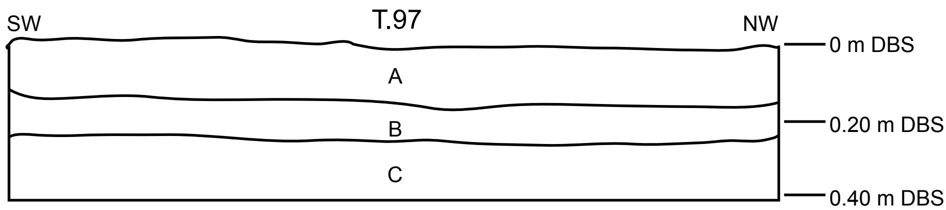

Figure 9.6. Profile drawing of the west face of T.97.

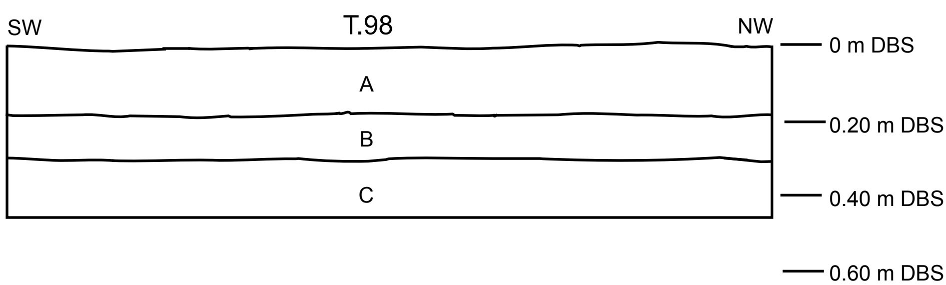

Figure 9.7. Profile drawing of the west face of T.98.

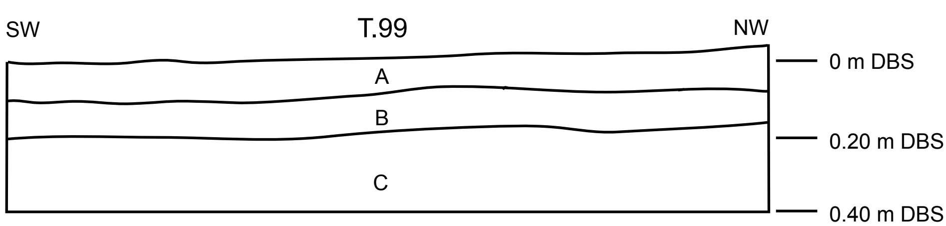

Figure 9.8. Profile drawing of the west face of T.99.

coin envelope of charcoal was saved and a flotation sample taken. We interpreted Feature 5 as a probable living surface bearing the remains of two lines of postholes. The test pit's west profile revealed that Layer C comprised the hard gray-brown clay living surface characterized by small red-brown inclusions, charcoal, and cultural material and that Layer C reached down to approximately 30 cm DBS (fig. 9.9). Layer D was a sterile tan-yellow silty clay deposit. Level 2 (B21-295) comprised both Layer C and D.

Level 1 (B21-282; 0–0.20 m DBS) recovered substantial cultural material above the living surface (Feature 5). Of the 375 sherds recovered, 27 were diagnostics (table 9.1). We noted the occurrence of burned rock and recovered 130 fragments of chipped stone overlying the surface (table 9.2). The chipped stone consisted of 34 pieces of chert (11 of them utilized flakes), 78 pieces of quartz (14 of them utilized), 10 pieces of sandstone (three of them utilized), two pieces of nonutilized amphibolite, and three pieces of other nonutilized stone. One of the utilized chert flakes was an intact double side-scraper that was selected for use-wear analysis (appendix B; B21-282-59). Its dorsal surface still had substantial cortex. The scraper exhibited both polish and striations. The polish on the ventral surface was continuous along the edge and up to 10 mm from the edge. The polish on the dorsal side was continuous along the edge as well as scattered across the entire dorsal surface; there were scattered striations on the dorsal surface. The action was transverse. The double side-scraper may have been used to work dry hides. Level 1 yielded five grinding stones: one mano, one pestle, and three indeterminate fragments. One polished sandstone celt was also recovered from Level 1 above the surface (table 9.2). Two coin envelopes of charcoal were saved from here.

From the ashy fill of the depressions dug into the living surface (B21-294) we recovered 15 sherds, of which one was a diagnostic *olla* rim sherd (table 9.1). One piece of chipped stone was recovered, classified as a utilized chert flake (table 9.2). One coin envelope of charcoal was recovered as well.

Level 2 (B21-295; 0.20–0.40 m DBS) was excavated through the living surface; the excavation recovered a total of 52 sherds, of which six were diagnostics (table 9.1). Nine pieces of chipped stone were recovered: one piece of nonutilized chert, seven fragments of quartz (of which one was utilized), and one piece of utilized sandstone. The excavation of this level yielded one coin envelope of charcoal.

We interpret the living surface exposed in T.101 as part of a household, associated with domestic food-preparation activities and the production and use of chipped stone artifacts.

T.102 was at N952–953/E1018, about 38 m southeast of Mound B (fig. 9.1). The surface elevation at the top southwest corner of the pit was 98.79 m. We excavated three levels here: Level 1 (0–0.20 m DBS), Level 2 (B21-288; 0.20–0.40 m DBS), and Level 3 (B21-289; 0.40–0.70 m DBS) (tables 9.1, 9.2). The drawing of the pit's west profile (fig. 9.12) shows four stratigraphic layers. Layer A was gray-brown silty topsoil that lacked cultural material and that corresponded to Level 1, extending from ground level to about 0.20 m DBS. Layer B, essentially coterminous with Level 2, was a gray-brown silty and clayey layer with inclusions that did contain cultural materials (at the northern end of the test pit); it extended down to 0.40–0.42 m DBS.

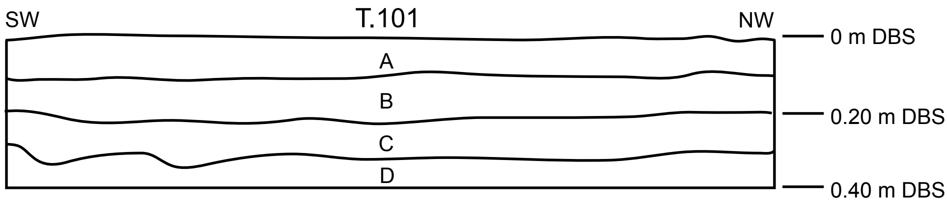

Figure 9.9. Profile drawing of the west face of T.101.

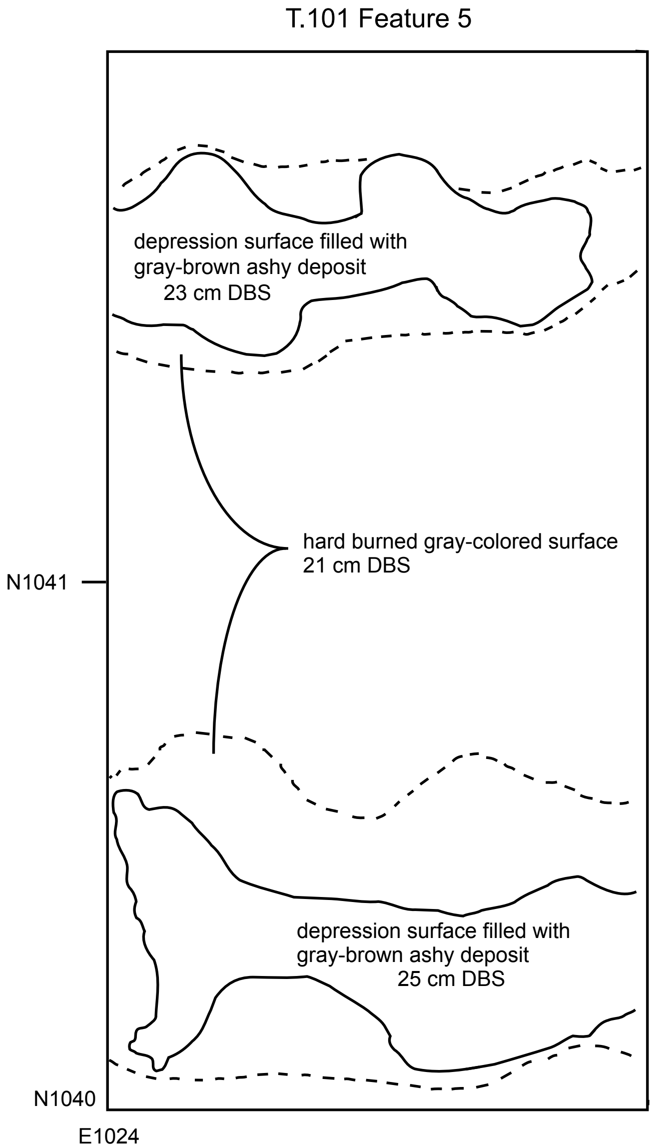

Figure 9.10. Plan of living surface (Feature 5) T.101 at B21. The dotted lines show the extent of the hard burned gray-stained areas of the surface surrounding the depressions.

Figure 9.11. View of living surface (Feature 5), T.101 facing N.

Layer C was a light yellow-brown silty deposit with inclusions and sparse cultural materials that extended from the bottom of Layer B to 0.50–0.52 m DBS. Layer D was a light yellow-brown silty deposit, devoid of cultural materials. Level 3 comprised both Layer C and Layer D and reached a bottom depth of 0.70 m DBS.

Level 2 (B21-288; 0.20–0.40 m DBS) yielded cultural materials. We recovered 46 sherds, of which 12 were diagnostics (table 9.1). The 14 fragments of chipped stone included seven fragments of chert (three of them utilized flakes), one fragment of utilized quartz, three fragments of nonutilized sandstone, and one fragment of nonutilized amphibolite (table 9.2). One polished stone pendant of phyllite originating from the Lower Paleozoic Mucuchachí Formation (R. Sifontes, personal commun., 1989) was recovered (fig. 9.13). Level 2 yielded one coin envelope of charcoal.

Little cultural material was recovered in Level 3 (B21-289; 0.40–0.70 m DBS). One nondiagnostic sherd was recovered (table 9.1). Level 3 yielded seven fragments of chipped stone: four fragments of chert (one a utilized chert flake); and three fragments of sandstone (one a fragment of utilized sandstone) (table 9.2). Two polished stone ornaments of phyllite originating from the Mucuchachí Formation (R. Sifontes, personal commun., 1989) were recovered, of which one was a pendant (table 9.2) (figs. 9.14, 9.15). One coin envelope of charcoal was saved.

T.103 was at N1026–1027/E1103, 96 m northeast of Mound B (fig. 9.1). The surface elevation at the top southwest corner of the pit was 98.95 m. We excavated two levels here: Level 1 (0–0.20 m DBS) and Level 2 (0.20–0.40 m DBS), both of which failed to recover any cultural material. We did not draw a profile of the test pit's stratigraphy, but noted that the topmost layer consisted of a gray silty deposit down to about 0.10 m DBS. Beneath it lay a light gray-brown colored silty and clay layer with brown inclusions down to the bottom of Level 2 at 0.40 m DBS. Some probing down to 0.50 m DBS failed to expose any cultural material. The absence of cultural material in T.103 agrees with the test excavation T.92 carried out east of the mounded area and east of the *desaguadero* that also showed no evidence of occupation and helped to delimit the site's southeastern boundary.

T.118 was at N1302–1303/E921, about 38 m northwest of Mound A in the pasture north of the road that skirted the mound (fig. 9.1). The surface elevation at the top southwest corner of the pit was 100.21 m. We excavated two levels here: Level 1 (0–0.20 m DBS) and Level 2 (0.20–0.40 m DBS). Neither level produced any evidence of human occupation. We did not draw the west profile of T.118, but noted its stratigraphy. Layer A consisted of sterile gray silty topsoil that extended from the surface to approximately 0.15 m DBS. Layer B was a sterile yellow-gray clay deposit that extended from 0.15–0.20 m DBS to 0.40 m DBS where the excavation stopped. The lack of evidence of human occupation in T.118 allows us to view Mound A as the northern end of B21.

Probability-4 Test Pits (T.104–T.117)

T.104 was at N1080–1081/E1008, 47 m southeast of Mound D (fig. 9.1). The surface elevation at the top southwest corner of the pit was 99.23 m. We excavated two levels here: Level 1 (B21-292; 0–0.20 m DBS) and Level 2

(B21-293; 0.20–0.40 m DBS) (tables 9.1, 9.2). Both excavation levels yielded cultural material. The drawing of the pit's west profile (fig. 9.16) shows three stratigraphic layers. Layer A was sterile gray-brown silty topsoil that reached down to 0.14 m DBS. Layer B was a harder, gray-brown colored clay deposit with small red-brown inclusions and cultural material that extended from approximately 0.14 m DBS to 0.30 m DBS. Level 1 comprised Layer A and included a portion of Layer B. Layer C was sterile tan-yellow silty clay. Level 2 was composed of both Layer B and C.

Level 1 (B21-292; 0–0.20 m DBS) recovered diverse cultural materials from Layer B. Of the 72 ceramics recovered, 10 were diagnostics (table 9.1). The 30 fragments of chipped stone (table 9.2) consisted of 20 pieces of chert (10 of them utilized chert flakes), one piece of nonutilized quartz, four pieces of sandstone (one utilized sandstone), three pieces of amphibolite (one utilized amphibolite), and two pieces of other nonutilized stone. Level 1 yielded one indeterminate grinding stone fragment. A fragment of a polished stone (graphitic sericitic slate) pendant was also recovered from Level 1 (fig. 9.17, table 9.2). Two fragments of burned daub were recovered from Level 1, and a coin envelope of charcoal was saved from here.

Level 2 (B21-293; 0.20–0.40 m DBS) yielded less cultural material. A total of 13 sherds were recovered, of which three were diagnostics (table 9.1). The four fragments of chipped stone recovered from Level 2 consisted of two pieces of chert (including one utilized chert flake), one piece of utilized sandstone, and one piece of other nonutilized stone (table 9.2).

T.105 was at N1036–1037/E990, 30 m north of Mound B along the site's central axis (fig. 9.1). The surface elevation at the top southwest corner of the pit was 99.15 m. We excavated two levels: Level 1 (0–0.20 m DBS) and Level 2 (B21-290; 0.20–0.40 m DBS) (tables 9.1, 9.2). The drawing of the pit's west profile (fig. 9.18) shows three stratigraphic layers. Layer A was gray silty topsoil, brown in color at 0.15–0.20 m DBS, that lacked cultural material. Layer B was a gray-brown silty and clayey layer with brown inclusions and cultural materials; it extended from approximately 0.20–0.30 m DBS. Level 1 comprised Layer A. Level 2 comprised Layer B, accounting for the cultural material recovered from 0.20–0.30 m DBS (B21-290), and entered Layer C. Layer C was a sterile, gray-brown silty and clayey layer that extended from the bottom of Layer B down to 0.50 m DBS where excavation ceased.

Level 2 (B21-290; 0.20–0.40 m DBS) yielded 21 nondiagnostic ceramics (table 9.1) and nine fragments of chipped stone. The chipped stone consisted of two pieces of chert (one utilized chert), five pieces of quartz (three utilized quartz), and two pieces of sandstone (one utilized sandstone) (table 9.2). The one utilized sandstone was a large side-scraper (fig. 9.19). One coin envelope of charcoal was recovered from Level 2.

T.106 was at N1064–1065/E967, 42 m south of Mound C, and west of B21's central axis (fig. 9.1). The surface elevation at the southwestern corner of the test pit was 99.42 m. We excavated two levels: Level 1 (0–0.20 m DBS) and Level 2 (B21-291; 0.20–0.40 m DBS) (tables 9.1, 9.2). The drawing of T. 106's west profile (fig. 9.20) shows three stratigraphic layers. Layer A consisted of sterile brown silt. Layer B was a brown silt deposit with inclusions and cultural materials; it extended

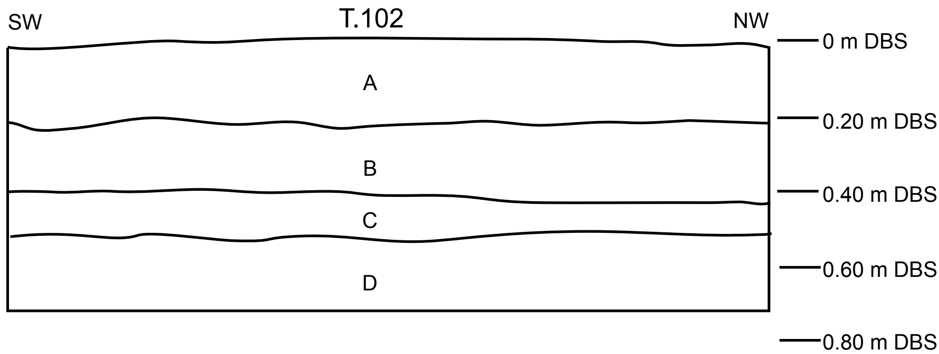

Figure 9.12. Profile drawing of west face of T.102.

Figure 9.13. Illustration of polished stone (phyllite) pendant from B21 (B21-288).

Figure 9.14. Illustration of polished stone (phyllite) ornament from B21 (B21-289).

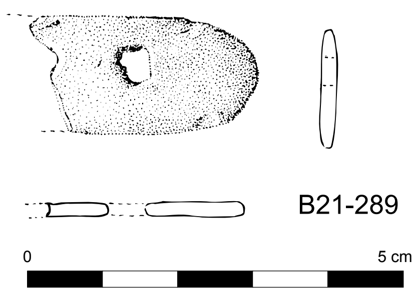

Figure 9.15. Illustration of polished stone (phyllite) pendant from B21 (B21-289).

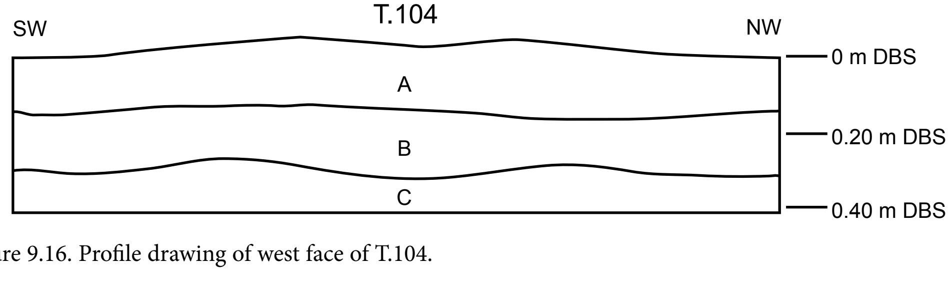

Figure 9.16. Profile drawing of west face of T.104.

from approximately 0.20–0.36 m DBS. Level 1 coincided with Layer A and lacked cultural material. Level 2 comprised Layer B, which yielded cultural materials, and penetrated Layer C. Layer C consisted of a light yellow-brown colored silty deposit that was sterile. Layer C continued to at least 0.50 m DBS at which point the excavation of T.106 stopped.

From Level 2 (B21-291; 0.20–0.40 m DBS) we recovered 101 sherds, of which 10 were diagnostics (table 9.1). A total of 22 fragments of chipped stone were recovered here, of which 17 pieces were chert (five of them utilized chert flakes), four pieces were sandstone (one utilized sandstone), and one was a fragment of nonutilized amphibolite (table 9.2). No other cultural materials were recovered from T.106.

T.107 was at N932–933/E1008, 56 m south of Mound B (fig. 9.1). The surface elevation at the top southwest corner of the pit was 98.56 m. We excavated two levels here: Level 1 (B21-298; 0–0.20 m DBS) and Level 2 (B21-299; 0.20–0.40 m DBS) (tables 9.1, 9.2). The drawing of the pit's west profile (fig. 9.21) shows three stratigraphic layers. Layer A was gray-brown silty topsoil that lacked cultural material and that extended from ground level to about 0.18–0.20 m DBS. Layer B was a gray-brown silty and clayey layer with brown inclusions and some cultural materials; it extended down to approximately 0.30 m DBS. Layer C was a light gray silty deposit with brown inclusions but devoid of cultural materials that extended from the bottom of Layer B to 0.50 m DBS where the excavation of T.107 ceased. Level 1 comprised Layer A and in the northern end of the pit entered Layer B. Level 2 comprised Layer B and a portion of Layer C.

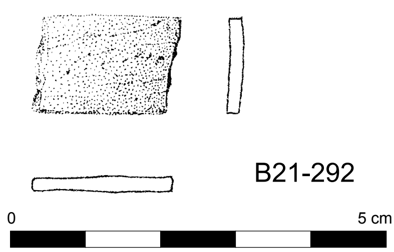

Figure 9.17. Illustration of polished stone (graphitic sericitic slate) pendant fragment from B21 (B21-292).

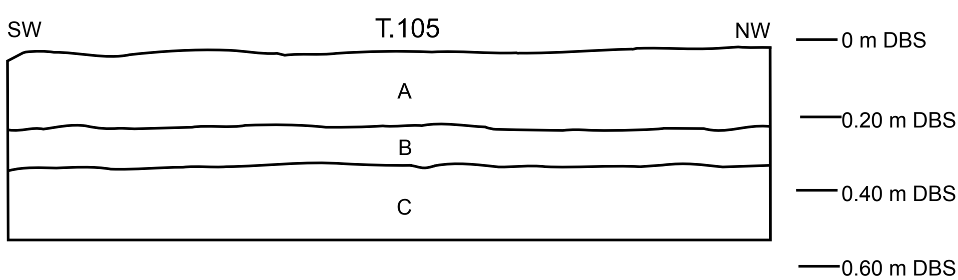

Figure 9.18. Profile drawing of west face of T.105.

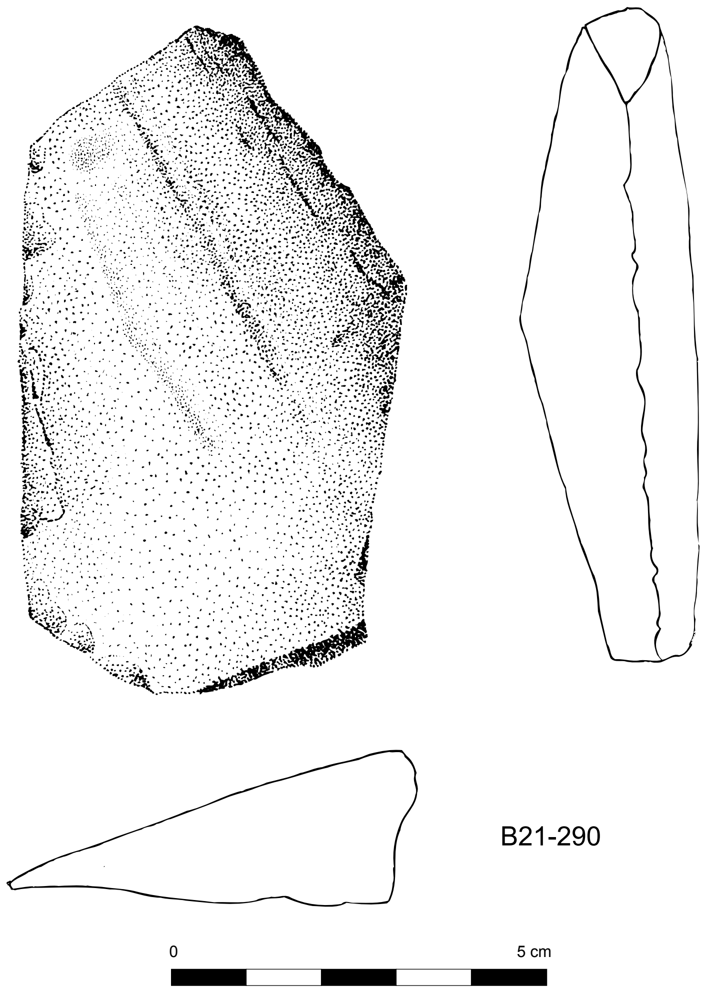

Figure 9.19. Illustration of sandstone scraper from B21 (B21-290). The dashed lines outline the harder, brown-gray burned portion of the living surface (Feature 6) where it was first detected.

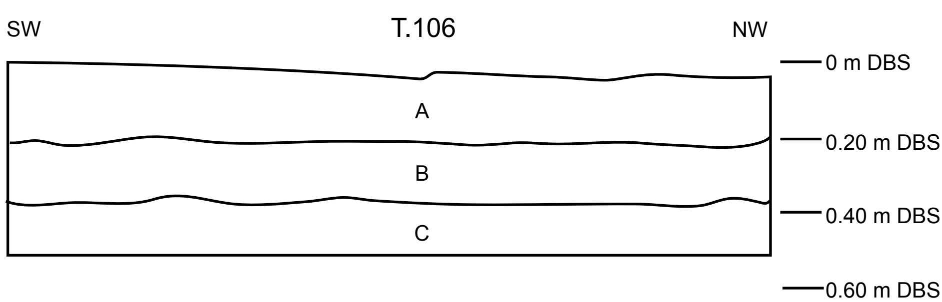

Figure 9.20. Profile drawing of west face of T.106.

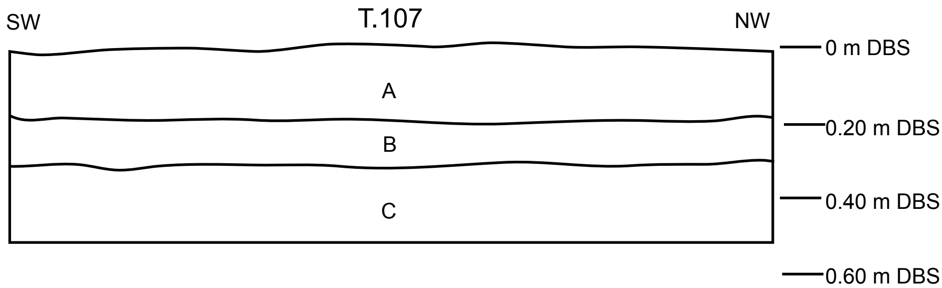

Figure 9.21. Profile drawing of west face of T.107.

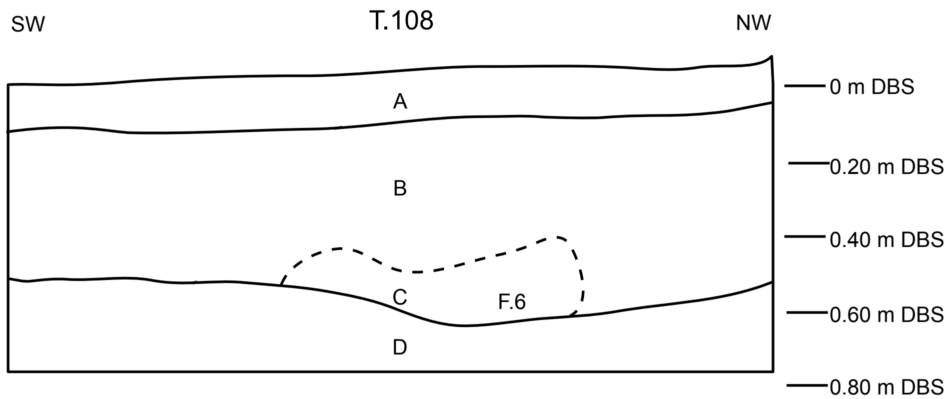

Figure 9.22. Profile drawing of west face of T.108.

Level 1 (B21-298; 0–0.20 m DBS) yielded a little cultural material. We recovered five sherds, of which one was a diagnostic Gaván-complex sherd (table 9.1). The single fragment of chipped stone obtained from Level 1 was nonutilized chert (table 9.2).

Level 2 (B21-299; 0.20–0.40 m DBS) produced 10 nondiagnostic sherds (table 9.1). No chipped stone occurred in Level 2.

T.108 was at N1112–1113/E962, at the southern end and slope of Mound C, about 2 m southeast of the flat surface measuring 4 × 4 m of a structure that stood on the mound's southern end (fig. 9.1). The surface elevation at the top southwest corner of T.108 was 99.72 m. We excavated the test pit in five levels: Level 1 (0–0.20 m DBS), Level 2 (B21-296; 0.20–0.40 m DBS), Level 3 (B21-297; 0.40–0.50 m DBS), Level 4 (B21-305; 0.50–0.60 m DBS), and Level 5 (0.60–0.75 m DBS) (tables 9.1, 9.2). Levels 2–4 yielded cultural material associated with Mound C and the living surface (Feature 6) exposed at 0.44–0.50 m DBS. The drawing of the pit's west profile (fig. 9.22) shows four stratigraphic layers. Layer A was sterile brown silty topsoil that reached down to 0.10 m below the sloping surface at the test pit's southwestern corner. Layer B was a yellow-brown silty, fine-textured deposit with some pebbly inclusions; it extended from 0.10 m DBS to the compact yellow-brown living surface (Feature 6) at 0.44–0.50 m DBS. Layer B is best interpreted as mound fill that overlies the original living surface (Feature 6), whose harder, brown-gray burned area is dotted in on the profile of T.108 (fig. 9.22). Level 1 comprised both Layer A and a portion of Layer B. Level 2 continued in Layer B, which began to yield charcoal flecks and cultural materials at 0.34 m DBS, overlying the living surface (Feature 6). Level 3 corresponded to the lower portion of Layer B directly overlying the living surface with cultural materials and flecks and some larger chunks of charcoal. Layer C corresponds to a central area of the living surface where it was first detected in Level 3 at 0.44–0.50 m DBS and characterized as a harder, brown-gray burned clay surface with charcoal flecks and areas of very loose brown soil, and designated Feature 6. In the process of scraping the surface with trowels and brushes we determined that the compact yellow-brown clayey but grainy surface extended throughout T. 108. Inclusions such as small sherds and charcoal flecks

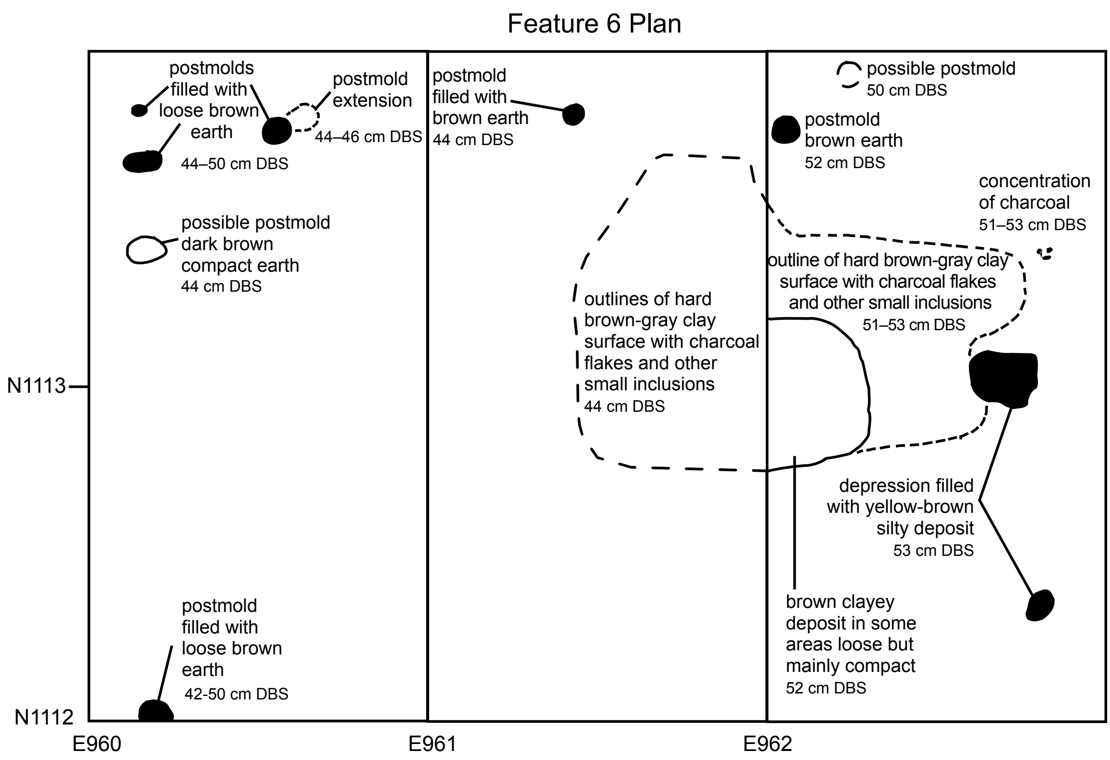

Figure 9.23. Plan of living surface (Feature 6), T. 108, T.123, and T.124 on Mound C at B21. The dotted lines show the extent of a harder brown-gray burned area of the compact clay living surface. The darkened areas represent postholes.

were pressed into it. We detected some discolorations and minor cracks and depressions on the surface. Most notable were the remains of posts (postmolds) containing a loose brown fill (figs. 9.23, 9.24). The postmolds occurred outside the harder, brown-gray burned central area of the yellow-brown living surface. A concentration of charcoal chunks in N1113/E962 was plotted on the plan view (fig. 9.23). Level 4 involved going

Figure 9.24. View of living surface (Feature 6) first detected in T.108, looking north.

through the hard yellow-brown clay surface itself. More large chunks of charcoal from the concentration of charcoal indicated on the plan view of the living surface exposed in Level 3 were obtained from Level 4. This concentration of large charcoal fragments, first exposed in Level 3 above the surface and continuing into the surface itself in Level 4, may represent the remains of a carbonized post (fig. 9.23). It too was situated outside the central burned area of the living surface. Beneath the living surface at 0.60 m DBS was Layer D, a hard yellow-brown clayey and silty deposit characterized by red-orange inclusions but devoid of cultural material (fig. 9.22). Level 5 excavated Layer D to a depth of 0.75 m DBS.

Level 2 (B21-296; 0.20–0.40 m DBS) recovered cultural material and charcoal flecks in the fine, tan-colored mound fill (0.34–0.40 m DBS) above the living surface (Feature 6). Of the 35 sherds recovered, seven were diagnostics, including five sherds with slipped surfaces (table 9.1). There were 15 fragments of chipped stone in Level 2 (table 9.2). The chipped stone consisted of seven pieces of chert (one of them a utilized chert flake), one piece of nonutilized quartz, five pieces of nonutilized sandstone, and two pieces of amphibolite (one of them utilized). One coin envelope of charcoal was also saved from Level 2 (B21-296).

Level 3 (B21-297; 0.40–0.50 m DBS) excavated through the same fine, tan-colored mound fill (Layer B) down to the living surface (at 0.44–0.50 m DBS). We noted an increase in the amount of cultural materials and charcoal flecks in this excavation level directly overlying the surface. Of the 132 sherds recovered from Level 3, 14 were diagnostics, including eight sherds with slipped surfaces (table 9.1). Twenty-nine pieces of chipped stone were recovered: 24 fragments of chert (11 utilized chert flakes), four fragments of nonutilized sandstone, and one piece of utilized amphibolite (table 9.2). The excavation of this level yielded one coin envelope of charcoal and a radiocarbon sample (Beta-235040; see appendix E), which was taken from the concentration of large chunks of charcoal on the living surface (0.40–0.50 m DBS) just east of the harder, brown-gray burned area indicated on the plan view (fig. 9.23). Also, five fragments of burned daub and one figurine limb fragment were recorded.

Level 4 (B21-305; 0.50–0.60 m DBS) proceeded through the living surface and recovered some cultural materials and charcoal associated with the living surface. Beginning at the northern end of the yellow-brown surface in N1113/E962, another radiocarbon sample (Beta-235041; see appendix E) was taken from the concentration of large charcoal fragments sampled in the previous level, only deeper into the surface itself; the remaining charcoal from here was saved in a separate coin envelope. Then we excavated through the same yellow-brown surface in N1112/E962, which was sterile. We took a flotation sample from this southern portion of the surface. Finally, we excavated through the surface's central harder, brown-gray burned area and its associated depressions containing a loose brown fill. A total of six sherds were recovered from here, of which five were diagnostics (two were sherds with slipped surfaces) (table 9.1) Three fragments of chipped stone were recovered from this central area of the living surface, one fragment of utilized sandstone and two pieces of utilized chert; the utilized chert consisted of one chert core and one chert flake (table 9.2).

The living surface (Feature 6) in T.108 is the easternmost exposure of a submound surface that predates Mound C. The compact clay surface features a burned portion, postmolds, and a concentration of charcoal from a possible carbonized post. Two radiocarbon samples taken from that concentration of charcoal were submitted to Beta Analytic, Inc. (appendix E). Beta-235040 was a charcoal sample in Level 3 (just above the floor between 0.40 m and 0.50 m DBS). Beta-235041 was a charcoal sample in Level 4 from the floor surface itself (0.50–0.60 m DBS). Beta-235040 yielded a radiocarbon age of 1230 ± 40 B.P., or a conventional radiocarbon date of A.D. 700 ± 40, and a 2 σ calibrated result of A.D. 670–880 (appendix E). It would correspond to the Late Gaván phase. Beta-235041 yielded a radiocarbon age of 3030 ± 40 B.P., or a conventional radiocarbon date of 1070 B.C. ± 40, and a 2 σ calibrated result of 1400–1130 B.C. (appendix E). This is a surprising result, in view of the fact that Beta-235041 was based on large chunks of charcoal from what appeared to be the same concentration of charcoal as that drawn on the plan view and sampled by Beta-235040. We have no ready explanation for this disparity, but we think that more confidence should be attributed to Beta-235040 than to Beta-235041.

Associated with the living surface is evidence of the production of chert flakes. A fuller discussion will follow the descriptions of T.123 and T.124, where more of Feature 6 was exposed.

T.109 was at N1134–1135/E1002, 11 m northeast of Mound D (fig. 9.1). The surface elevation at the top southwest corner of the pit was 99.46 m. We excavated two levels here: Level 1 (0–0.20 m DBS) and Level 2 (B21-301; 0.20–0.40 m DBS) (tables 9.1, 9.2). The drawing of the pit's west profile (fig. 9.25) shows three stratigraphic layers. Layer A was sterile gray-brown silty topsoil that reached down to 0.14–0.16 m DBS. Layer B was a harder, gray-brown clay deposit with small brown inclusions and cultural material that extended from approximately 0.14 m DBS to 0.30–0.32 m DBS. Level 1 comprised Layer A and included a portion of Layer B. Layer C was sterile tan-yellow clay. Level 2 (B21-301) comprised both Layer B and C.

Level 2 (B21-301; 0.20–0.40 m DBS) recovered a little cultural material from Layer B. Of the 13 sherds recovered, three were diagnostics (table 9.1). The four fragments of chipped stone consisted of three pieces of nonutilized chert and one piece of nonutilized quartz (table 9.2). One coin envelope of charcoal was also saved from here.

T.110 was at N990–991/E992, at the western base of Mound B (fig. 9.1). The surface elevation at the top southwest corner of the pit was 99.05 m. We excavated two levels: Level 1 (0–0.20 m DBS) and Level 2 (B21-290; 0.20–0.40 m DBS) (tables 9.1, 9.2). The drawing of the pit's west profile (fig. 9.26) shows three stratigraphic layers. Layer A was gray silty topsoil that lacked cultural material. Layer B was a gray-brown silty deposit with brown inclusions that extended from approximately 0.12–0.28 m DBS. A thin scattering of cultural materials was evident at the base of Layer B, at 0.28–0.30 m DBS in the same gray-brown silty deposit, which we designated Layer C (fig. 9.26). Level 1 comprised Layer A and a portion of Layer B. Level 2 consisted of the remainder of Layer B, the entire Layer C with its thin deposit of cultural materials (B21-300), and entered Layer D. Layer D was a gray-brown silty deposit with brown inclusions, similar to the layers overlying it, only devoid of cultural materials. Layer D extended from the bottom of Layer C at 0.30 m DBS to 0.50 m DBS where we stopped the excavation.

Level 2 (B21-300; 0.20–0.40 m DBS) yielded a total of 43 ceramics, of which six were diagnostics, representing various Gaván-complex vessel forms (table 9.1). The seven fragments of chipped stone consisted of six pieces of nonutilized chert and one piece of nonutilized sandstone (table 9.2). One coin envelope of charcoal was recovered from Level 2.

T.111 was at N1050–1051/E942, 60 m southwest of Mound C, and near the western edge of the *banco* on which B21 lies (fig. 9.1). The surface elevation at the southwestern corner of the test pit was 99.36 m. We excavated two levels: Level 1 (0–0.20 m DBS) and Level 2 (B21-302; 0.20–0.40 m DBS) (tables 9.1, 9.2). The drawing of T.111's west profile (fig. 9.27) shows four stratigraphic layers. Layer A consisted of sterile gray-brown silt. Layer B was a gray-brown silt deposit with brown inclusions but devoid of cultural materials; it extended from approximately 0.12–0.21 m DBS. Layer C consisted of a gray-brown silty and clayey deposit with brown inclusions and cultural materials, appearing at 0.20–0.21 m DBS and continuing to 0.32–0.33 m DBS. Level 1 comprised layers A and B. Level 2 consisted of Layer C, which yielded substantial cultural materials (B21-302), and penetrated Layer D. Layer D consisted of a light gray silty and clayey deposit with brown inclusions that was sterile. Layer D continued to at least 0.50 m DBS where the excavation of T.111 stopped.

From Level 2 (B21-302: 0.20–0.40 m DBS) we recovered 587 sherds, of which 55 were Gaván-complex diagnostics, representing a variety of vessel shapes, and more than twice as many outleaned-wall bowls as convex-wall bowls (table 9.1). We found two sherds classified as misfired sherds or kiln wasters; one exhibited a spalled, cracked surface, and the other was a blowout (table 9.1; appendix F). A total of 51 fragments of chipped stone were recovered here, of which 40 pieces were chert (eight of them utilized), one piece was utilized quartz, eight pieces were sandstone (two of them utilized sandstone), one was a fragment of nonutilized amphibolite, and one was a fragment of nonutilized other stone (table 9.2). The utilized chert consisted of five utilized flakes and three fragments of reused angular waste. One of the utilized chert flakes was a primary flake tool, an adze, which was selected for use-wear analysis (appendix B; B21-302-60). The adze exhibited cortex on its dorsal surface. The adze had a single working edge and had been retouched only on the ventral side. The working edge exhibited polish and edge damage. The polish was scattered over the entire dorsal surface; there was no polish on the ventral surface. The action was transverse. The adze was evidently used for planing, whittling, and smoothing wood. Level 2 yielded one indeterminate fragment of ground stone. Two fragments of polished stone (phyllite) were recovered, of which one was classified as an indeterminate ornament, and the second fragment was classified as other (table 9.2).

T.112 was at N1034–1035/E1061, some 60 m northeast of Mound B (fig. 9.1). The surface elevation at the top southwest corner of the pit was 99.01 m. We excavated two levels here: Level 1 (0–0.20 m DBS) and Level 2 (B21-303; 0.20–0.40 m DBS) (tables 9.1, 9.2). The drawing of the pit's west profile (fig. 9.28) shows four stratigraphic layers. Layer A was

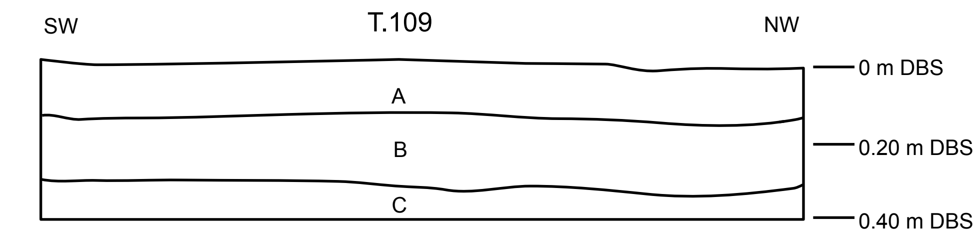

Figure 9.25. Profile drawing of west face of T.109.

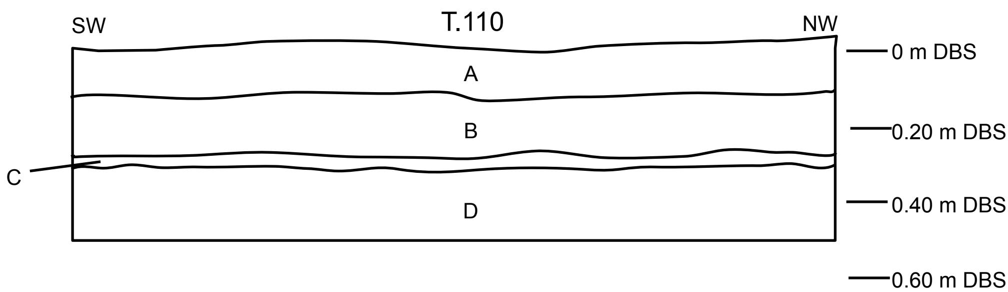

Figure 9.26. Profile drawing of west face of T.110.

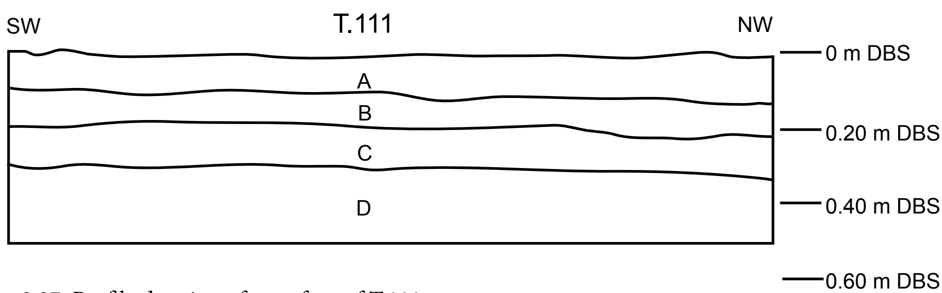

Figure 9.27. Profile drawing of west face of T.111.

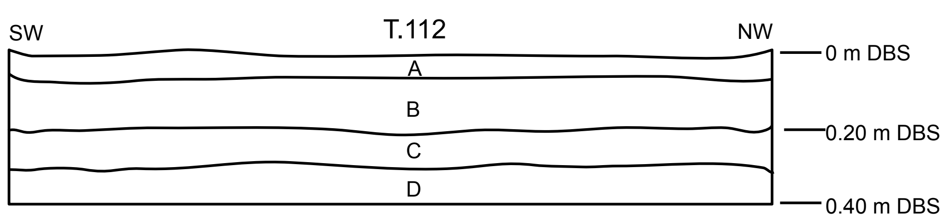

Figure 9.28. Profile drawing of west face of T.112.

sterile gray silty topsoil that reached down to 0.08–0.10 m DBS. Layer B was a gray-colored silty/clayey deposit with brown inclusions but devoid of cultural material, extending from 0.10 m to approximately 0.20 m DBS. Level 1 comprised both Layer A and Layer B. Layer C was the same gray silty and clayey deposit with brown inclusions as above, but with cultural materials. Layer C extended from 0.20 m DBS down to 0.30 cm DBS (fig. 9.28). Layer D consisted of a gray clay deposit more yellow in color, with brown inclusions, but culturally sterile. Layer D extended from 0.30 m to 0.40 m DBS. Level 2 (B21-303) comprised both Layer C and D.

Level 2 (B21-303; 0.20–0.40 m DBS) recovered some cultural material from Layer C. Of the 16 sherds recovered, only one was a diagnostic: a *tecomate* rim sherd (table 9.1). We recovered five fragments of chipped stone here; they consisted of one utilized chert flake and four fragments of quartz (one of them utilized) (table 9.2).

T.113 was at N974–975/E1050, 44 m southeast of Mound B (fig. 9.1). The surface elevation at the top southwest corner of the pit was 99.02 m. We excavated two levels here: Level 1 (0–0.20 m DBS) and Level 2 (B21-304; 0.20–0.40 m DBS) (tables 9.1, 9.2). The drawing of the pit's west profile (fig. 9.29) reveals three stratigraphic layers. Layer A was medium dark-brown silty topsoil that lacked cultural material; it extended from ground level to about 0.30 m DBS. Layer B was the same medium dark-brown silty deposit, only it contained sparse cultural materials (B21-304). Layer B extended from approximately 0.30 m DBS to 0.38–0.40 m DBS. Layer C was a light yellow-brown silty deposit without cultural materials. Level 2 comprised the bottom portion of Layer A, all of Layer B and the very top of Layer C. The test pit's excavation through Layer C continued to 0.50 m DBS, where it stopped.

Level 2 (B21-304; 0.20–0.40 m DBS) yielded a small amount of cultural material. We recovered a total of five Gaván-complex sherds, none of which was a diagnostic (table 9.1). The seven fragments of chipped stone consisted of two fragments of utilized chert, four fragments of nonutilized sandstone (one of them utilized), and one fragment of utilized amphibolite (table 9.2). We recovered one coin envelope of charcoal.

T.114 was at N1142–1143/E931, 8 m west of Mound C and near the western edge of the *banco* on which the site lies (fig. 9.1). The surface elevation at the top southwest corner of the pit was 99.67 m. We excavated two levels here: Level 1 (B21-306; 0–0.20 m DBS) and Level 2 (B21-310; 0.20–0.40 m DBS) (tables 9.1, 9.2). The drawing of the pit's west profile (fig. 9.30) shows three stratigraphic layers. Layer A was sterile brown-gray silty topsoil that extended from ground level to about 0.12–0.16 m DBS. Layer B was a harder, gray-brown clayey/silty deposit containing red-brown flecks and cultural materials; it extended down to 0.28–0.36 m DBS. Level 1 comprised all of Layer A and the top portion of Layer B, accounting for the cultural material recovered beginning around 0.10–0.12 m DBS. Level 2 included the remainder of Layer B and entered Layer C. Layer C was sterile, tan-yellow clay that extended from the bottom of Layer B to 0.40 m DBS.

Level 1 (B21-306; 0–0.20 m DBS) yielded some cultural material between 0.10–0.20 m DBS. We recovered 180 sherds, of which 18 were diagnostics (including three slipped sherds) (table 9.1). Two sherds were classified as misfired sherds or kiln wasters; one had a spalled, cracked surface, and the other had a pitted surface (table 9.1; appendix F). The 11 fragments of chipped stone consisted of nine pieces of chert (four of them chert cores), two pieces of nonutilized quartz, and one piece of utilized sandstone (table 9.2).

Level 2 (B21-310; 0.20–0.40 m DBS) produced fewer artifacts. We recorded a total of 37 Gaván-complex ceramics, none of which were diagnostics (table 9.1). Three pieces of chipped stone were recovered; two of them were nonutilized chert, and one was nonutilized sandstone (table 9.2).

We note that the assemblage from T.114, off the northern end of Mound C, is similar in certain respects to the assemblage from the living surface exposed in T.108, at the southern end of Mound C. Both assemblages included slipped ceramics and chert cores. The latter are evidence of the manufacture of chert flakes.

T.115 was at N1180–1181/E933, 33 m north of Mound C (fig. 9.1). The surface elevation at the top southwest corner of the pit was 99.87 m. We excavated two levels here: Level 1 (B21-307; 0–0.20 m DBS) and Level 2 (B21-309; 0.20–0.40 m DBS) (tables 9.1, 9.2). The drawing of the pit's west profile (fig. 9.31) shows three stratigraphic layers. Layer A was brown-gray silty topsoil that lacked cultural material, and that extended from ground level to about 0.15–0.18 m DBS. Layer B was a gray-brown clayey and silty deposit with small red-brown inclusions and cultural materials; it extended down to 0.30 m DBS. Level 1 comprised Layer A and the top of Layer B, accounting for the cultural material recovered (B21-307). Level 2 corresponded to the remainder of Layer B with its evidence of human occupation (B21-309), and the beginning of Layer C. Layer C was a sterile, gray-brown silty clay deposit that extended from 0.30 m to 0.40 m DBS, where we stopped the excavation.

Level 1 (B21-307; 0–0.20 m DBS) yielded substantial cultural materials between 0.15–0.20 m DBS. We recovered 357 sherds, of which 15 were diagnostics, representing diverse vessel forms, although outleaned-wall bowl sherds and vertical-wall bowl sherds predominated (table 9.1). The 22 fragments of chipped stone consisted of 14 pieces of chert (six of them utilized chert), six fragments of sandstone (one of them utilized sandstone), and 2 fragments of nonutilized amphibolite (table 9.2). Ramón Sifontes (personal commun., 1989) identified one of the pieces of dark chert as originating from the La Quinta Formation. He identified the amphibolite as metamorphic amphibolite from the Paleozoic Sierra Nevada Formation. He considered the sandstone to be metamorphic quartzite originating from a Paleozoic formation (El Águila Formation, Mucuchachí Formation, or Sierra Nevada Formation). The utilized chert included a reused core and five flakes (table 9.2). An indeterminate fragment of a grinding stone was recovered, as were six fragments of burned daub, and one coin envelope of charcoal.

In Level 2 (B21-309; 0.20–0.40 m DBS) we recovered cultural materials around 0.20–0.30 m DBS. Of the 164 ceramics recorded, 33 were diagnostics (table 9.1). A range of Gaván ceramic vessels were represented, including annular-based and footed vessels. There were 12 sherds with slipped surfaces, one of which was also painted. Three sherds classified as misfired sherds or kiln wasters were also found; all three had pitted surfaces (table 9.1; appendix F). Nineteen fragments

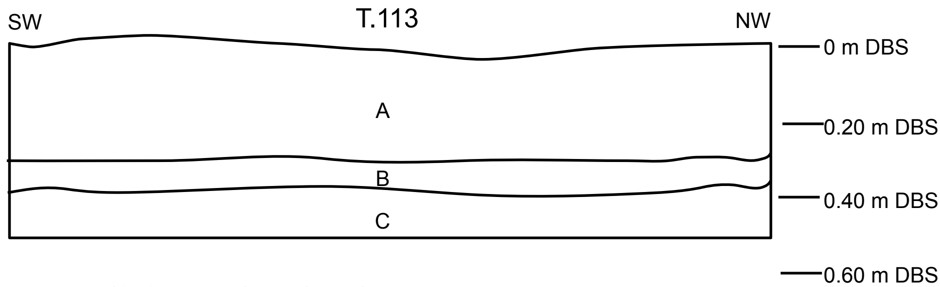

Figure 9.29. Profile drawing of west face of T.113.

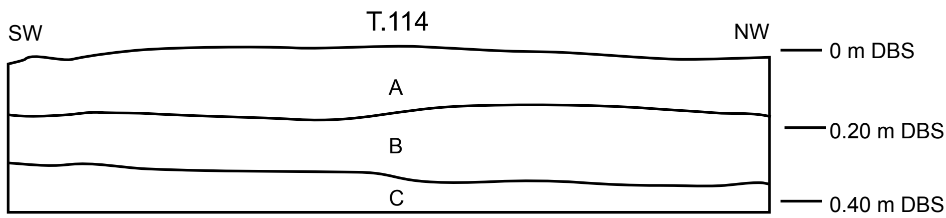

Figure 9.30. Profile drawing of west face of T.114.

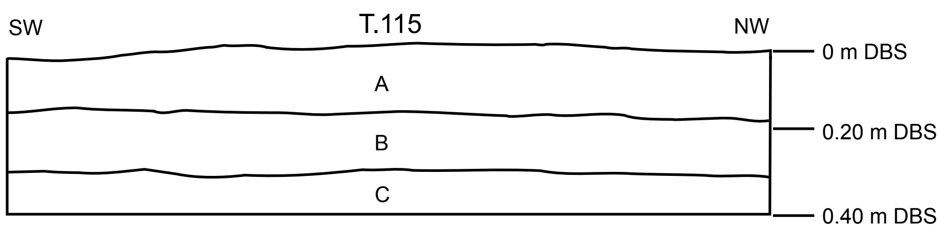

Figure 9.31. Profile drawing of west face of T.115.

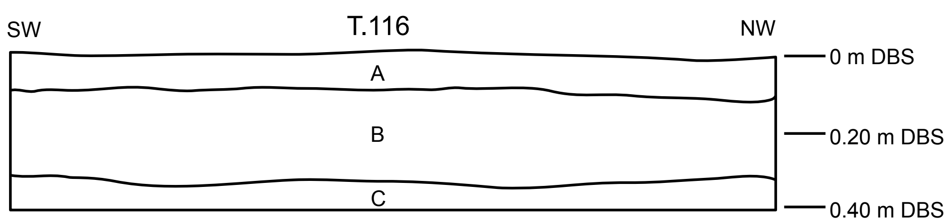

Figure 9.32. Profile drawing of west face of T.116.

of chipped stone were recovered: 13 of them were chert (four utilized chert flakes); four were quartz (one utilized quartz); one was utilized sandstone; and one was classified as "other stone" (table 9.2).

The assemblage of T.115 reflects a domestic function for this area west of the central avenue. Ceramics may have been fired here. Moreover, the relative abundance of chert and the occurrence of a chert core raise the possibility that chert tools were produced here.

T.116 was at N1230–1231/E961, 12 m south of Mound A (fig. 9.1). The surface elevation at the top southwest corner of the pit was 100.12 m. We excavated two levels here: Level 1 (0–0.20 m DBS) and Level 2 (B21-308; 0.20–0.40 m DBS) (tables 9.1, 9.2). The drawing of the pit's west profile (fig. 9.32) shows three stratigraphic layers. Layer A was tan-brown colored silty topsoil that lacked cultural material and that extended from ground level to about 0.10 m DBS. Layer B was a compact tan-brown clayey and silty deposit with pebbly inclusions and cultural materials; it extended down to 0.34 m DBS. Level 1 comprised all of Layer A and entered Layer B. Level 2 consisted of the remainder of Layer B and all of Layer C. Layer C was a sterile, tan silty deposit that extended from the bottom of Layer B to 0.40 m DBS, where the excavation ended.

Level 2 (B21-308; 0.20–0.40 m DBS) yielded some cultural material between 0.20 m and 0.34 m DBS. We recovered 11 sherds, of which one was a diagnostic outleaned-wall bowl rim sherd (table 9.1). The two fragments of chipped stone consisted of one piece of utilized chert (a chert flake) and one piece of nonutilized other stone (table 9.2). This level also produced one fragment of burned daub and one coin envelope of charcoal.

T.117 was at N1226–27/E908, 47 m southwest of Mound A (fig. 9.1). The surface elevation at the top southwest corner of the pit was 99.90 m. We excavated two levels here: Level 1 (0–0.20 m DBS) and Level 2 (0.20–0.30 m DBS). Both were devoid of cultural materials. We did not draw the west profile of T.117, but made notes about the stratigraphy. Layer A, a sterile gray silty topsoil, extended from the surface to 0.10 m DBS. Layer B, a sterile yellow-gray clay deposit, extended from approximately 0.10 m to 0.30 m DBS, at which point the excavation of T.117 ended. The absence of evidence of human occupation in T.117 is consistent with the sterile test pits to the west and north of the causeway segment (T.93–T.96) described above.

Judgmental Test Pits (T.122–T.124)

T.122 was located on the top surface of Mound C, at the northeast corner of a structure measuring approximately 7 × 4 m that stood at the mound's northern end (fig. 9.1). The test pit's coordinates were N1142–1143/E953 and the surface elevation at the top southwest corner of the pit was 100.31 m. We excavated four levels in T.122: Level 1 (0–0.20 m DBS), Level 2 (0.20–0.31 m DBS), Level 3 (B21-317; 0.31–0.40 m DBS), and Level 4 (B21-318; 0.40–0.60 m DBS). The drawing of the pit's west profile shows the four stratigraphic layers (fig. 9.33). Layer A was tan-brown silty topsoil, without any cultural material. Layer B consisted of the same tan-brown silty deposit, only with brown inclusions; like Layer A, Layer B was sterile. Layer B extended from about 0.18–0.20 m DBS to 0.34–0.38 m DBS. Here between 0.31 m and 0.38 m DBS lay a hard-packed clay floor, white to light brown in color, with inclusions, which we designated Feature 7. The earthen surface had a rectangular form with a possible corner in N1143/E953; although it extended beyond the eastern and western walls of T.122, the orientation of the portion exposed and delimited in the test pit agreed with that of the site's central axis (8° west of magnetic north) (fig. 9.34). Layer C corresponded to the white-brown clay floor itself, and the subfloor deposit that was first a white to light brown silty soil, giving way between 0.48–0.50 m DBS to a darker brown silty clay, which extended to approximately 0.60 m DBS. It was in this subfloor deposit that a cache consisting of ultimately four objects lay between 0.48 m and 0.55 m DBS. This subfloor cache was designated Feature 8. Layer D was a sterile gray clay with brown inclusions that extended from roughly 0.60 m to 0.70 m DBS, where the excavation of T.122 ceased.

Level 1 corresponded with Layer A. Level 2 comprised Layer B, and stopped at the hard-packed white floor (Feature 7) (fig. 9.33). Level 3 corresponded with the floor itself between 0.31 m and 0.40 m DBS. Level 4 coincided with Layer C, the subfloor deposit where Feature 8 occurred, and extended to 0.60 m DBS, where Layer D began.

No cultural materials were recovered from levels 1 and 2. From the white floor in Level 3 we recovered only one coin envelope of charcoal. Level 4 yielded the first two objects of Feature 8 (bagged as B21-322). Object 1 was a small ceramic *olla*, 12 cm tall and having a maximum body diameter of 14 cm. It was found mouth up at N1143.12/E953.88 at a depth of 0.48 m DBS (figs. 9.35, 9.36). Object 2 was a polished serpentinite pendant, 12.8 cm long and 1.5 cm wide, having two perforations (figs. 9.37, 9.38). Ramón Sifontes (personal commun., 1989) identified the raw material as either a chlorite schist originating in the Sierra Nevada Formation, or a serpentinite not from the Venezuelan Andes. It was found at N1143.24/E954.00 (the eastern wall of T.122) at a depth of 0.54–0.51 m DBS, just north of Object 1, in a northwest–southeast orientation, with the northwest end bearing the two perforations at 0.54 m DBS; the southeast end of the pendant lay at 0.51 m DBS (figs. 9.35, 9.36). Some pigment

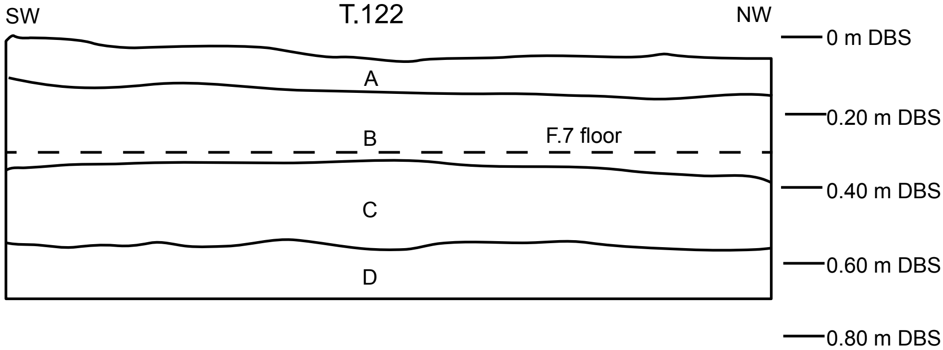

Figure 9.33. Profile drawing of west face of T.122.

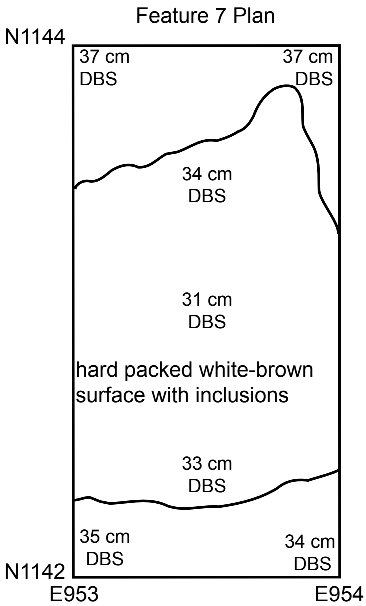

Figure 9.34. Plan of white-light brown floor (Feature 7), T.122 on Mound C at B21.

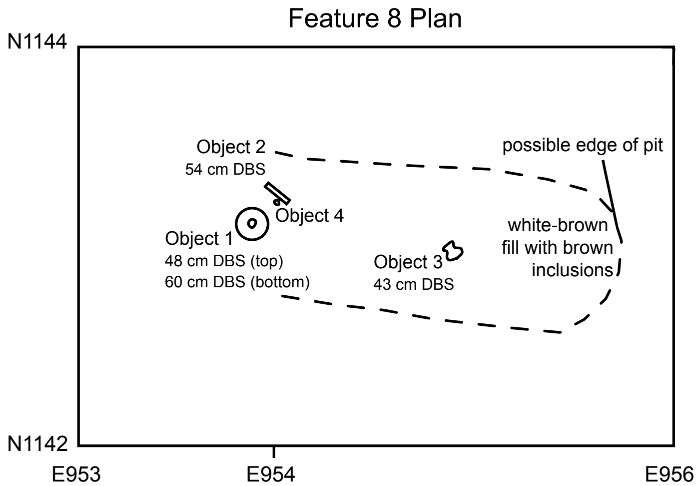

Figure 9.35. Plan of cache (Feature 8) in T.122 and its expansion on Mound C at B21.

Figure 9.36. Close-up view of objects 1 and 2, Feature 8, T.122, looking southeast.

was associated with Object 2, on its north side, and was saved in the bag containing the pendant.

Also, in Level 4 we recovered a small quantity of cultural materials (B21-318; 0.40–0.60 m DBS). Four sherds were recorded, one of them a diagnostic outleaned-wall bowl rim sherd (table 9.1). One fragment of nonutilized chert (table 9.2) and one coin envelope of charcoal were recovered. A pollen sample was taken from the soil matrix associated with objects 1 and 2. A soil sample for flotation was also taken from Level 4.

T.122 Expansion: In view of the Feature 8's location, at the eastern edge of T.122, and our interest in delimiting the entire feature, be it a subfloor cache or burial pit, we decided to expand T.122 to the east by excavating a 2 × 2 m area to the east (fig. 9.35). The four grid squares (N1142–1143/E954-955) were excavated together to 0.40 m DBS, measuring from the top southwest corner of T.122. The same light brown silty sterile deposit of layers A and B obtained, hard-packed, and turning whiter in color beginning at 0.30 m DBS, where the Feature 7 surface was expected. At 0.40 m DBS the area was swept and it was possible to delimit an oblong pit characterized by a white fill with brown inclusions and extending over a maximum area of 1.94 × 0.75 m (fig. 9.35). Another whole vessel, Object 3, was exposed here.

Object 3 was a miniature olla, 4.5 cm tall with a maximum body diameter of 4.5 cm (fig. 9.39). It lay on its side, with its mouth to the northwest, at N1142.99/E954.90 and at 0.46 m DBS (fig. 9.35). Pigment associated with the miniature olla was saved in a separate bag.

No human bone was recovered from Feature 8. In the process of clearing the deposit between objects 1 and 2 (fig. 9.40), a cluster of serpentinite and ceramic beads appeared, designated Object 4.

Object 4 was a cluster of 16 tiny disk-shaped serpentinite beads (fig. 9.41) and 8 tubular ceramic beads (fig. 9.42). They were found directly alongside and south of the serpentinite pendant (Object 2), at N1143.23/E954.01 and at a depth of 0.54 m DBS (fig. 9.35).

The additional cultural remains associated with Feature 8 (B21-322) consisted of 121 sherds, 14 of them diagnostic (table 9.1). Two flanged bottle rim sherds (fig. 4.27), four bottle inflections or bases (fig. 4.29), and two body sherds with flanges were recorded, as well as one *olla* rim sherd, and five annular bases; three of the bottle body sherds featured slipped surfaces. One piece of nonutilized chert was recovered from Feature 8 (B21-322) (table 9.2). One coin envelope of charcoal was saved.

We interpret Feature 8 as a subfloor cache of offerings that may have accompanied the burial of an esteemed human individual in a pit under the white floor of a structure that stood on top of the northern end of Mound C. In the absence of human skeletal remains, the soil sample taken for phytolith/pollen analysis may shed additional light on the possibility that Feature 8 was a burial pit.

T.123 was at N1112-1113/E961, directly west and adjacent to T.108 at the southern end and slope of Mound C, about 2 m southeast of the flat surface measuring 4 × 4 m of a structure that stood on the mound's southern end (fig. 9.1). The surface elevation for measuring was the same datum point of 99.72 m at the southwest corner of T.108. T.123 was designed to expose more of the living surface (Feature 6) discovered

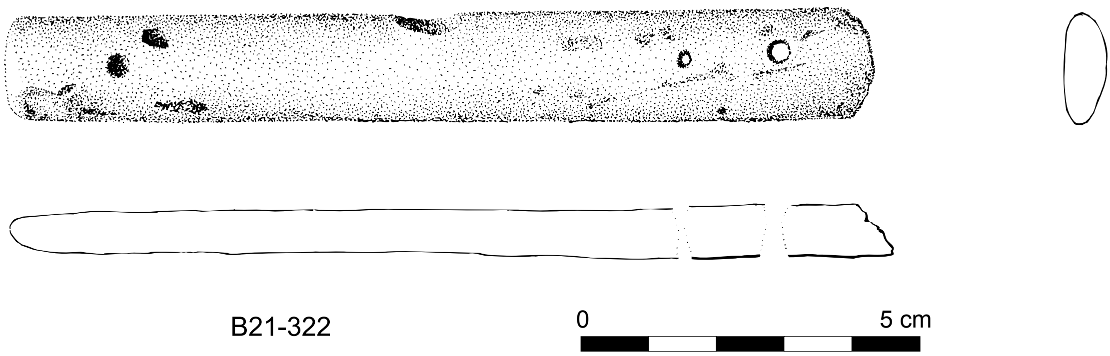

Figure 9.37. Illustration of polished serpentinite pendant (Object 2), Feature 8, at B21 (B21-322).

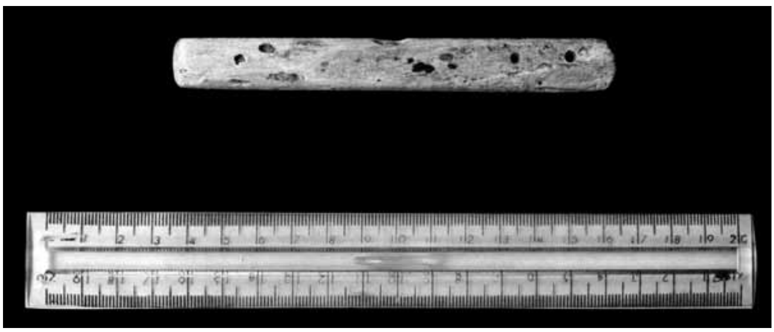

Figure 9.38. Object 2, Feature 8 at B21 (B21-322).

Figure 9.39. Object 3, Feature 8 at B21 (B21-322).

Figure 9.40. Exposing Object 4 in the fill directly south of the serpentinite pendant (Object 2), Feature 8.

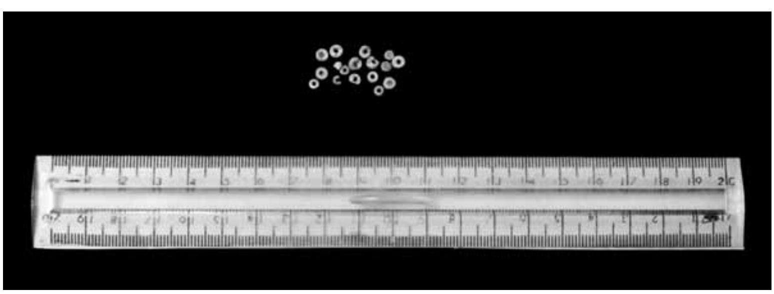

Figure 9.41. Sixteen serpentinite beads of Object 4, Feature 8 at B21 (B21-322).

in Level 3 of T.108. We excavated the test pit in three levels: Level 1 (0–0.20 m DBS), Level 2 (B21-319, 0.20–0.40 m DBS), and Level 3 (B21-320; 0.40–0.44 m DBS) (tables 9.1, 9.2). Levels 2–3 yielded cultural material associated with Mound C and the living surface (Feature 6) exposed at 0.44–0.50 m DBS. The drawing of the pit's eastern profile (the same as T.108's western profile) (fig. 9.22) shows four stratigraphic layers. Layer A was sterile brown silty topsoil that reached down to 0.10 m below the sloping surface at the test pit's southwestern corner. Layer B was a yellow-brown silty, fine-textured deposit with some pebbly inclusions that extended from 0.10 m DBS to the compact yellow-brown living surface (Feature 6) at 0.44–0.50 m DBS. Layer B is best interpreted as mound fill that overlies the original living surface (Feature 6), whose harder, brown-gray burned portion at 0.44 m DBS is dotted in on the profile of T.108 (fig. 9.22). Level 1 comprised both Layer A and a portion of Layer B. Level 2 continued in Layer B, which began to yield charcoal flecks, other carbonized macrobotanical remains and cultural materials at 0.20 m DBS, overlying the living surface (Feature 6). Level 3 corresponded to the lower portion of Layer B directly overlying the living surface with cultural materials and flecks of charcoal. Layer C corresponded to a central area of the living surface where it was first detected in Level 3 at 0.44–0.50 m DBS and characterized as a harder, brown-gray burned clay surface with charcoal flecks and areas of very loose brown fill and designated Feature 6 (fig. 9.23). In the process of scraping the surface with trowels and brushes we determined that the compact yellow-brown clayey but grainy surface extended throughout T.123. A variety of small inclusions, among them tiny sherds and charcoal flecks, were pressed into the hard grainy surface. We detected some discolorations and minor cracks and depressions on the surface. As in T.108, on the surface we exposed the remains of a postmold containing a loose brown fill (figs. 9.23, 9.43). And like the postmolds associated with the F.6 surface in T.108, the one exposed at the northern end of T.123 occurred outside the harder, brown-gray burned central area of the yellow-brown living surface (fig. 9.23). Since the excavation of T.123 was designed only to expose more of the living surface, we did not go any deeper than 0.44 m DBS in Level 3.

In Level 2 (B21-319; 0.20–0.40 m DBS) we recovered cultural material, charcoal flecks, and carbonized macrobotanical remains in the fine, tan-colored mound fill (0.20–0.40 m DBS) above the living surface (Feature 6). Of the 181 sherds recovered, 27 were diagnostics, including 11 sherds with slipped surfaces. A range of vessel forms obtained, though large outleaned-wall bowls dominated the assemblage (table 9.1). There were 49 fragments of chipped stone in Level 2 (table 9.2). The chipped stone consisted of 41 pieces of chert (six of them utilized chert flakes), two pieces of utilized quartz, five pieces of nonutilized sandstone, and one piece of nonutilized amphibolite. Ramón Sifontes (personal commun., 1989) identified the red chert recovered in this level, with its abundant iron oxides, as originating from the La Quinta Formation. A portion of the sandstone belonged to Cretaceous base rock from the Andes. Other sandstone he identified as metamorphosed quartzite that originated from a Paleozoic metamorphic formation (El Águila Formation, Mucuchachí

Formation, or Sierra Nevada Formation). Sifontes identified the amphibolite as fine-grained metamorphic amphibolite of Paleozoic origin. One indeterminate fragment of ground stone was recorded. Two coin envelopes of charcoal and other carbonized macrobotanical remains were saved from Level 2. From 0.20–0.30 m DBS (B21-319, bagged on March 19, 1986) we recovered charcoal flecks, a carbonized seed fragment, and brown-black spongy, wrinkled carbonized matter (maize?), and from 0.30–0.40 m DBS (B21-319, bagged on March 20, 1986) we recovered more charcoal and some brown-black spongy matter.

Level 3 (B21-320; 0.40–0.44 m DBS) was excavated through the same fine, tan-colored mound fill (Layer B) from 0.40 DBS down to the living surface at 0.44 cm DBS. Some cultural material and charcoal flecks were recovered in this excavation level directly overlying the surface. The single sherd recovered from Level 3 was a white-slipped body sherd (table 9.1). No other cultural materials were recovered. One coin envelope of charcoal was saved, and soil samples for flotation and phytolith/pollen analysis were taken.

The living surface (Feature 6) in T.123 is the central exposure of a submound surface that predates Mound C (fig. 9.23). The compact clay surface features a burned portion, the remains of posts and a concentration of charcoal from a possible carbonized post. The radiocarbon sample taken from that concentration of charcoal on the surface exposed in T.108 Level 3 yielded a radiocarbon age of 1230 ± 40 B.P. (Beta-235040), or a conventional radiocarbon date of A.D. 700 ± 40, and a 2 σ calibrated result of A.D. 670–880, corresponding to the Late Gaván phase (appendix E).

Associated with the living surface was evidence of the production of chert flakes. Notable in the mound fill above the living surface was the occurrence of carbonized macrobotanical remains.

T.124 was at N1112–1113/E960, directly west and adjacent to T.123 at the southern end and slope of Mound C, about 2 m southeast of the flat surface measuring 4 × 4 m of a structure that stood on the mound's southern end (fig. 9.1). The surface elevation for measuring was the same datum point of 99.72 m at the southwest corner of

Figure 9.42. Eight ceramic beads of Object 4, Feature 8 at B21 (B21-322).

T.108 that was used during the excavation of T.123. T.124 was designed to expose more of the living surface (Feature 6) discovered originally in Level 3 of T.108. We excavated the test pit in three levels: Level 1 (0–0.20 m DBS), Level 2 (B21-321; 0.20–0.40 m DBS), and Level 3 (B21-324; 0.40–0.44 m DBS) (tables 9.1, 9.2). Levels 2 and 3 yielded cultural material associated with Mound C and the living surface (Feature 6) exposed at 0.42–0.44 m DBS. The stratigraphy exposed in T.124 was the same as that in T.108's western profile (fig. 9.22). Layer A was sterile brown silty topsoil that reached down to 0.10 m below the sloping surface at the test pit's southwestern corner. Layer B was a yellow-brown silty, fine-textured deposit with some pebbly inclusions that extended from 0.10 m DBS to the compact yellow-brown living surface (Feature 6) at 0.42–0.44 m DBS. Layer B is best interpreted as mound fill that overlies the original living surface (Feature 6), the burned portion of which is circumscribed by a dotted line on the profile of T.108 (fig. 9.22). Level 1 comprised both Layer A and the very top portion of Layer B. Level 2 continued in Layer B, which began to yield charcoal flecks, other carbonized macrobotanical remains and some cultural materials at 0.20–0.30 m DBS, above the living surface (Feature 6). Level 3 corresponded to the lower portion of Layer B directly overlying the living surface with cultural materials and flecks of charcoal. Layer C corresponded to a central area of the living surface where it was first detected in Level 3 at 0.44–0.50 m DBS and characterized as a harder, brown-gray burned clay surface with charcoal flecks and areas of very loose brown fill and designated Feature 6 (fig. 9.23). In the process of scraping the surface with trowels and brushes we determined that the compact yellow-brown clayey but grainy surface extended throughout T.124, and that it sloped upward to 0.42 m DBS in the southwest corner. A variety of small inclusions, among them tiny sherds and charcoal flecks, were pressed into the hard grainy surface. We detected some discolorations and minor cracks and depressions on the surface. On the surface we exposed four postmolds containing a loose dark-brown fill and one dark-brown area that was a possible postmold (figs. 9.23, 9.44). Like the postmolds associated with the F.6 surface in T.108 and T.123, the postmolds exposed in T.124 occurred outside the harder, brown-gray burned central area of the yellow-brown living surface (fig. 9.23). Since the excavation of T.124 was designed only to expose more of the living surface, we did not go any deeper than 0.44 m DBS in Level 3.

Level 2 (B21-321; 0.20–0.40 m DBS) recovered a little cultural material, charcoal flecks, and carbonized macrobotanical remains in the fine, tan-colored mound fill (0.20–0.40 m DBS) above the living surface (Feature 6). One bag of ceramics was recorded as being saved on the provenience card, but ultimately no ceramics were recorded for this provenience (table 9.1). There were seven fragments of chipped stone in Level 2 (table 9.2). The chipped stone consisted of six pieces of chert (three of them utilized chert) and one piece of utilized amphibolite. The utilized chert was made up of three utilized flakes, one of them a utilized primary flake. One coin envelope of charcoal and other carbonized macrobotanical remains, including more of the brown-black spongy, wrinkled carbonized matter recovered in the adjacent Level 2 of T.123 (B21-319), were

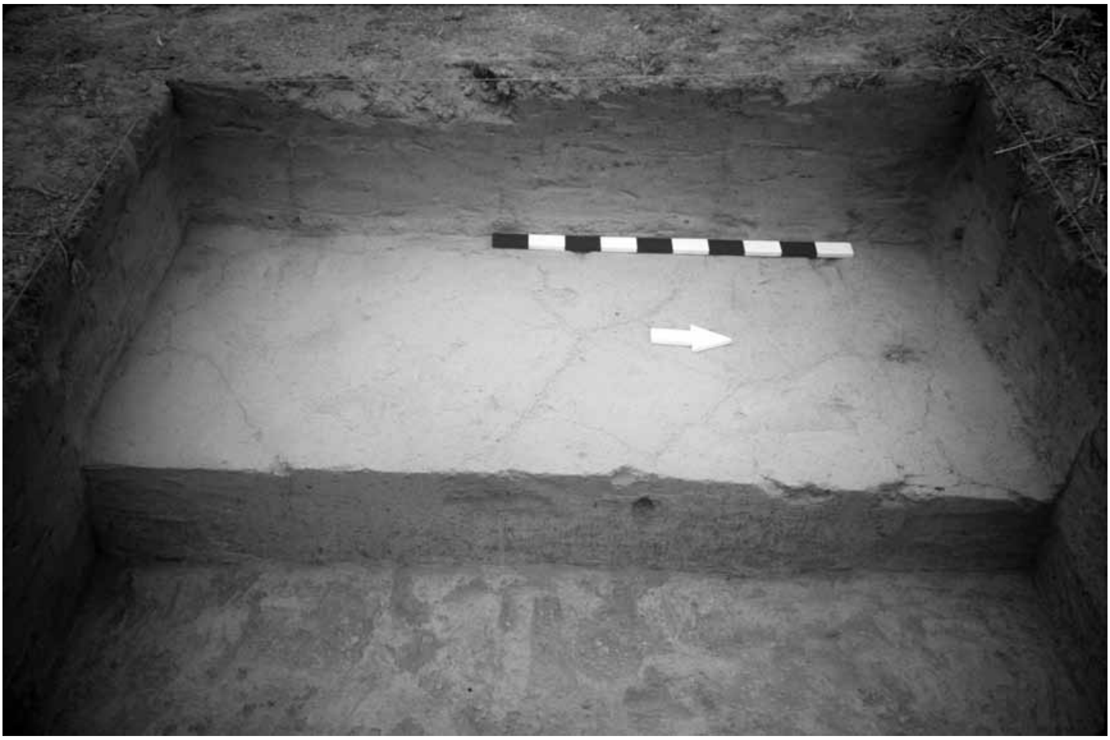

Figure 9.43. View of living surface (Feature 6) in T. 123, looking west.

saved from Level 2 (B21-321). Due to the occurrence of macrobotanical remains in Level 2, two soil samples for flotation were taken: one from 0.20–0.30 m DBS; and one from 0.30–0.40 m DBS. A soil sample for phytolith/pollen analysis was taken from 0.20–0.30 m DBS.

Level 3 (B21-324; 0.40–0.44 m DBS) excavated through the same fine, tan-colored mound fill (Layer B) from 0.40 DBS down to the living surface at 0.42–0.44 cm DBS. No artifacts or charcoal flecks were recovered in this shallow excavation level directly overlying the surface. However, soil samples for flotation and for phytolith/pollen analysis were taken.

The living surface (Feature 6) in T.124 is the western exposure of a submound surface that predates Mound C (fig. 9.23). We exposed 6 m^2 of this living surface in T.108, T.123, and T.124. The compact clay surface features a burned portion, the remains of postmolds containing dark brown soil, and a concentration of charcoal from a possible carbonized post. The radiocarbon sample taken from that concentration of charcoal on the surface exposed in T.108 Level 3 yielded a radiocarbon age of 1230 ± 40 B.P. (Beta-235040), or a conventional radiocarbon date of A.D. 700 ± 40, and a 2 σ calibrated result of A.D. 670–880, corresponding to the Late Gaván phase (appendix E).

We interpret Feature 6 as a living surface, and think that further exposure might be able to determine with more certainty whether or not the roughly rectilinear plan of postmolds surrounding the burned central portion of the surface constituted the remains of a wattle-and-daub structure. Associated with the living surface is evidence of domestic activities, a range of ceramic vessel forms and vessels with slipped surfaces. Also, there is evidence of the production of chert flakes. In Level 2 of both T.123 and T.124, associated with the mound fill above the living surface, we recovered carbonized macrobotanical remains.

OCCUPATIONAL CHRONOLOGY

In our discussions of B12 (chap. 6) and B97 (chap. 7), we concluded that the sites reached their peak occupation area during the Late Gaván phase (A.D. 550–1000); we estimated somewhat smaller occupation areas for both sites during the Early Gaván phase (A.D. 300–550). At B21, we followed the same procedure we used at B12 and B97. First, we had to determine which test pits reached the deepest occupation levels at B21.

Figure 9.44. View of living surface (Feature 6) in T.123–T.124, looking west.

It turns out that three test pits recovered cultural materials as deep as 40–60 cm DBS: T.102, T.108, and T.122. Second, we needed to identify the pits that yielded examples of V245 (Composite-silhouette Bowl Rim Form 6); as it happens, only T.104 yielded a sherd with that rim form. The Combined Early Gaván (CEG) sample would consist of T.102, T.104, T.108, and T.122, amounting to just four of the 22 test pits at B21 that yielded ceramics debris of the Gaván complex (see table 9.3). These four CEG pits are distributed over roughly half of B21's peak occupation area, the 4.56 ha attained by the Late Gaván phase. We think a reasonable estimate of the site's size in Early Gaván times would be about 2.25 ha.

COMMUNITY ORGANIZATION

Our analysis of data from house floors and test pits from B12 (chap. 6) concluded that the distribution of the relative frequency of ceramic feet fragments from elaborate footed serving vessels (V150), expressed in the variable "Feet/Diag," exhibited variation that we associated with patterns of social differentiation at the site. Similarly, we concluded that ceramic feet varied according to social status in our analysis of test pit data from B97 (chap. 7). Continuing in this vein, let us examine the distribution of ceramic feet at B21 (Buenos Aires). Table 9.3 contains the distributions of some ceramic variables for 22 test pits at B21. Each case is a test pit, and each frequency represents a "column frequency," which is the sum of the frequencies for that variable for all levels of the pit. The first such variable in table 9.3 is V104, total number of diagnostic sherds, which serves as a rough measure of the amount of cultural material recovered in a given pit. The second variable is V150, the total number of ceramic feet. The third variable is "SmpSz," a nominal variable that indicates whether the sample size in a given pit was deemed large enough to warrant its use in further analysis; we arbitrarily chose V104 = 10 (diagnostic sherds) as the minimum sample size for this purpose. Twelve test pits met this criterion. The fourth, fifth, and sixth variables were entered only for the 12 test pits that we considered to have sufficiently large sample sizes (i.e., "SmpSz" = Yes). The fourth variable is "Feet/Diag," the ratio of ceramic feet (V104) divided by the total number of diagnostics (V104) and multiplied by 100. The fifth variable is "H/L," indicating whether the value for "Feet/Diag" for a given test pit was above (high) or below (low) the median value for the 12 test pits with sufficient sample sizes: the upper six test pits received an "H," the lower six received an "L." The sixth variable is "Sector," which indicates whether a given test pit was located to the east (E) or to the west (W) of the proposed central avenue that ran from Mound A to Mound B, passing between Mound C and Mound D (see fig. 9.1). The seventh variable is V334, the number of sherds identified as misfired sherds or kiln wasters, which we regard as evidence of ceramic production.

The relative frequency of ceramic feet ("Feet/Diag") exhibits an uneven distribution across B21 (table 9.3). As shown by the variable "H/L," among the 12 test pits that yielded ceramic samples deemed large enough for further analysis, the six highest relative frequencies of "Feet/Diag" (recorded as "H") occurred in T.102, T.101, T.104, T.114, T.91, and T.111. The variable "Sector" indicates that four of these six high-frequency pits were located on the eastern side of the central "avenue" that ran between Mound A and Mound B (fig. 9.1). The six test pits that received an "L" for variable "H/L" (i.e., in the lower half of the "Feet/Diag" frequency distribution) were T.115, T.97, T.108, T.106, T.122, and T.123. Notably, all six of these lower-frequency pits were located on the western side of the central avenue of the site. The mean value of "Feet/Diag" for the eastern-sector pits was 0.180, while the mean value for the western-sector pits was 0.053. The median value of "Feet/Diag" for the eastern sector was 0.180, and the median value for the western sector was 0.049. We conducted a Kruskal-Wallis one-way analysis of variance to test the null hypothesis that there was no difference between the two samples (eastern vs. western test pits). The resulting Mann-Whitney *U* test statistic was 31.00, with an associated probability of 0.01 based on a chi-square approximation of 6.582 with df = 1. This outcome gives us good reason to reject the null hypothesis, lending support to the alternative hypothesis that there was a real difference between the eastern and western sectors of the site in terms of the distribution of footed vessels, expressed as "Feet/Diag." In sum, our analysis would support the proposition that the eastern sector of B21 was of higher social status than the western sector. We should note that this pattern is similar to what we observed at B12, where the pits with the highest relative frequency of ceramic feet also tended to occur more often on one side of the site's central avenue; in the case of B12, it was on the avenue's northeastern side. At B97, the test pits in the southern sector of the site tended to have a higher relative frequency of ceramic feet than the pits in the site's northern sector. We can conclude that B21, B12, and B97 all show evidence of intracommunity social differentiation, as reflected in the relative frequency distribution of ceramic vessels with feet at these sites.

Now let us turn our attention to the overall abundance of ceramic feet (V150) at B21. If we add up the total number of ceramic feet in the 22 test pits in Table 9.3, and then divide this sum by the total number of diagnostic sherds (V104) in all the same test pits (multiplied by 100), we get an overall value for "Feet/Diag" at B21 of 11.75%. This result is slightly more than double the value (5.47%) obtained for all the 46 test pits at B12 (based on the values in table 6.11), and 11 times the value (1.02%) obtained for all the 29 test pits at B97 (based on the values in table 7.3).

At first glance, these results might seem inconsistent with our suggestion that the regional center of B12 was inhabited by people of generally higher political and social status than those at the various subsidiary settlements of the Gaván regional polity. As we noted earlier, the relative frequency of ceramic feet shows a highly uneven distribution across B21. In fact, the highest relative frequency of 25% (at T.102) equaled the value we obtained for Floors 1 and 2 of the (relatively high-status) Area A house at El Gaván (B12). Moreover, the second-highest through the seventh-highest relative frequencies at B21 were all higher than the value (8.59%) that we obtained for Floors 1 and 2 of the (lower-status) Area D house at B12 (see table 6.9). We could, of course, argue that simple sampling error was at least partially responsible for the observed difference between the overall value for "Feet/Diag" at B21 versus B12 and B97, but such an explanation strikes us as unsatisfactory.

An alternative—and to us more intriguing—hypothesis would be that the inhabitants of an important secondary center like B21, which (in contrast to B97) was located at a substantial distance (roughly 7.5 km by *calzada*) from the first-tier center, were able to enjoy as much access to elaborate ceramics as were the inhabitants of B12 itself. Why might this be the case? The answer, we think, has to do with the nature of decision-making in a chiefdom, whose nonbureaucratic nature is inconsistent with the delegation of partial authority and thus precludes continual administrative meddling from the regional center. In such a context, an effective integrative strategy would be to build alliances between the first-tier center and second-tier sites, which might involve allowing local elites to enjoy some of the trappings of high-status life, even as they accept the overall leadership of the chiefly elite in the regional center.

Another way the regional leadership at B12 could have promoted such interelite alliances would have been to involve the secondary-center elite in networks of prestige-good exchange that brought valuable objects from distant places into the Gaván regional polity. The operation of such a strategy would account for the several fine examples of polished stone artifacts, all made of materials imported from the high Andes and beyond, that we have mentioned in our descriptions of the excavated proveniences at B21, such as those from T.102, T.104, and T.122. In chapter 11, we will discuss further the role of interelite alliance and prestige-good exchange in the political integration of the Gaván regional chiefdom.

Evidence of ceramic production was found at B21, in the form of sherds that we classified as misfired sherds or kiln wasters (V334 in table 9.3). We recovered a total of seven such sherds in our test pit program. To obtain an overall relative frequency (a cumulative "Waster/Diag") for all 22 test pits in table 9.3, we can divide the total frequency of misfired sherds or kiln wasters (V334) by the total diagnostics (V104), multiplied by 100. This computation of "Waster/Diag" for B21 yields a value of 2.22%, which is not much less than the 2.95% that we computed for B97, though it is much greater than the 0.24% that we calculated for B12. It seems clear that ceramic production was taking place at B21. In view of the fact that six of the seven misfired sherds or kiln wasters (V334) were found in the site's western sector (in pits T.111, T.114, and T.115), we propose that ceramics were more often produced in that sector (W) than in the eastern sector (E). And, since our distributional analysis of ceramic feet suggested that the western sector was of relatively lower social status than the eastern sector, we would argue that lower-status people seem to have been more engaged in ceramic production than those of higher status. In this regard, recall that our discussion of B97 (chapter 7) noted evidence of ceramic production throughout the site, while pointing out that B97 showed signs of being of lower social/political status than the regional center of B12, which yielded relatively less evidence of ceramic production (appendix F). Overall, it appears that ceramic production in the Gaván polity was associated more strongly with lower-status people than those of higher social standing.

In our discussion of B12 (chap. 6), we found that both the higher-status and lower-status sectors engaged in equivalent amounts of stone-tool production, although the higher-status sector had greater access to high-quality chert; we attributed this pattern to the important use of stone tools as weapons during times of leadership-directed warfare at B12. By contrast, at B97 we found that access to chert was not status restricted, but rather that the lower-status sector showed more evidence for stone-tool production. We explained this difference by arguing that stone tools at B97 were used more as agricultural implements than weapons of war, and that lower-status inhabitants were probably more involved in agricultural production than were higher-status residents. Table 9.4 contains data on the distribution of chert at B21. The first three variables in the table (V104, "SmpSz," and "Sector") are the same as in table 9.3. The fourth variable, V1003, is the total number of chert fragments. The fifth variable is "Chert/Diag," the number of chert fragments divided by the total number of diagnostic sherds (V104), a measure of the relative frequency of chert. The sixth variable, V1015, is the total number of nonutilized chert fragments, most of them debitage resulting from stone tool production. The seventh variable is "NonUt/Chrt," the ratio of the number of nonutilized chert fragments divided by the total number of chert fragments; this variable serves as a relative measure of the frequency of stone-tool production.

Let us take the 12 test pits with sufficient sample sizes in table 9.4 and separate them into two groups: those with values for "Chert/Diag" above the median vs. those with values below the median. The six test pits in the higher chert-density group are: T.106, T.104, T.123, T.108, T.97, and T.101; two pits are in the eastern sector and four in the western sector. The test pits in the lower chert-density group are: T.102, T.111, T.114, T.115, T.91, and T.122; two pits are in the eastern sector and four are in the western sector. The two chert-density groups are thus evenly represented in the eastern and the western sectors.

Now let us take the 12 test pits with sufficiently large sample sizes in table 9.4 and separate them into two groups according to sector: those from the eastern sector versus those from the western sector. The mean value of "Chert/Diag" for the eastern-sector pits is 1.042, and the mean value for the western-sector pits is 0.962. The median value of "Chert/Diag" for the eastern sector is 0.988, and the median value of "Chert/Diag" for the western sector is 0.952. We conducted a Kruskal-Wallis one-way analysis of variance to test the null hypothesis of no difference between the sectors in terms of "Chert/Diag." The resulting Mann-Whitney *U* statistic was 16.00, which had an associated probability of 1.0, based on a chi-square approximation of 0.0, with df = 1. This analysis gives us no reason to reject the null hypothesis of no difference between the eastern and western sectors in terms of the distribution of "Chert/Diag." It is reasonable to conclude that these data provide no evidence of differential access to chert according to social status at B21, which happens to be similar to the pattern we observed at B97.

Now let us examine the evidence of chert-tool production/maintenance, a relative measure of which is "NonUt/Chrt," the ratio of nonutilized chert (consisting mostly of debitage) to total chert. Again, we shall separate the 12 test pits with sufficiently large sample sizes in table 9.4 into two groups, in this case those with values for "NonUt/Chrt" above the median versus those with values below the median. The test pits in the higher nonutilized chert group are: T.102, T.123, T.106, T.111, T.101, and T.97; one is in the eastern sector and five are in the western sector. The test pits in the lower nonutilized chert group are: T.104, T.114, T.115, T.108, T.104, and T.91; three are in the eastern sector and three are in the western sector. This distribution shows a tendency for the pits in the lower-status western sector to have a higher ratio of nonutilized chert to total chert than is the case in the higher-status eastern sector.

Now let us separate the 12 test pits with sufficiently large sample sizes into two groups according to sector: those from the eastern sector versus those from the western sector. The mean value of "NonUt/Chrt" for the eastern-sector pits is 0.562, while the mean value for the western-sector pits is 0.717. The median value of "NonUt/Chrt" for the eastern sector is 0.570, while the median value of "NonUt/Chrt" for the western sector is 0.665; the median value for the western sector is approximately 120% that of the eastern sector. We carried out a Kruskal-Wallis one-way analysis of variance to test the null hypothesis that there was no difference in the distribution of "NonUt/Chrt" between the two sectors. The resulting Mann-Whitney U statistic was 6.500, with an associated probability of 0.106, based on a chi-square approximation with df = 1. This analysis gives us reason (though at a weak level of significance) to reject the null hypothesis in favor of the alternative hypothesis that there was a real difference between the eastern and western sectors in terms of the distribution of "NonUtChrt." It is reasonable to conclude that chert-tool production/maintenance was more common in the (lower-status) western sector than the (higher-status) eastern sector at B21. This pattern is similar to what we observed at B97, where evidence of chert-tool production/maintenance was also more strongly associated with people of lower social status.

One notable feature of the data in table 9.4 is the overall abundance of excavated chert at B21, especially compared to B12 (table 6.12) and B97 (table 7.4). The overall relative frequency of chert at B21—computed by dividing the total number of chert fragments (V1003) by the total number of diagnostic sherds (V104)—is 0.93, higher than the overall relative frequency of chert at B12 (0.30) and B97 (0.24). Thus, it appears that stone tools were even more important to the inhabitants of B21 than those of B12 and B97. Why might this have been the case? We argued in chapters 6 and 7 that stone tools might have been used primarily as weapons at B12 but primarily as agricultural implements (for brush-clearing and soil-tilling) at B97. In the case of B21, we propose that stone tools had major uses both as agricultural implements and as weapons—in a sense, combining the functions that were largely segregated between B12 and B97. Like B97, B21 was located adjacent to a large expanse of fine alluvial farmland and agriculture was surely an important activity, as it undoubtedly was at B97.

Yet warfare was probably also a key preoccupation. As at B97 (and B26), we found no evidence of fortifications at B21. Only the first-tier center of B12 had such evidence, in the form of the oval earthwork topped by a palisade, and we argued (in chap. 6) that the site could have served as a defensive refuge for the inhabitants of the subsidiary settlements of the Gaván chiefdom. But, unlike B97 and B26, B21 was not situated near B12. Although the residents of B97 and B26 could have quickly taken shelter behind the defensive wall at B12—just 0.25 km away in the case of B97, less than 3 km away in the case of B26—the people at B21 would have had to travel some 7.5 km before arriving at B12. We should bear in mind that B21 lay closer than B12 (and B97) to a branch of the Acequia–Anaro River watercourse, which was the home of the large and powerful Cedral chiefdom, and also closer to the Suripá River drainage, where Batatuy and other sites probably comprised another rival polity (fig. 1.1; Redmond et al., 1999). Especially during a surprise attack, the inhabitants of B21 might have had to fend for themselves for a while, eventually fleeing to the relative safety of B12. Accordingly, we suspect that the use of stone tools for weaponry was as important at B21 as it was at B12. And, if stone tools were also as important for agricultural purposes at B21 as they were at B97, then we would expect this combination of uses to have required B21 to utilize chert in higher relative quantities than either B12 or B97, which is what the overall chert-density totals would indicate.

This proposition leads to still another expectation: under the assumption that the effort devoted to the production and maintenance of stone tools is related to the eventual uses of those tools, we would expect B21 to exhibit a degree of participation in chert-tool production different from what we observed at B12 and B97 separately, but similar to that of the two sites taken together. Drawing on tables 6.12, 7.4, and 9.4, we can compute the overall ratio of nonutilized chert to total chert ("NonUt/Chrt"), a relative measure of the overall amount of chert-tool production, for the three sites in question: 0.65 (B21), 0.71 (B97), and 0.58 (B12). Based on these data and our previous interpretations, it appears that there was relatively more activity devoted to chert-tool production and maintenance for agricultural purposes at B97 than for weaponry at B12. This would make sense, since agricultural pursuits would have been ongoing responsibilities, not episodic and infrequent like warfare. Although a supply of abundant weaponry would have been essential for survival during episodes of warfare, the effort required for the production and maintenance of such weapons, though substantial, probably did not need to be as frequent or as continual as that required for agricultural implements. With these considerations in mind, we note that the ratio of "NonUt/Chrt" for B21 lay between those for B12 and B97. Moreover, if we combine the samples from B12 (table 6.12) and B97 (table 7.4), we get a combined "NonUt/Chrt" ratio of 0.63 for those two sites together, a value very close to the 0.65 that we computed for B21. This correspondence, we suggest, is consistent with our proposition that stone tools at B21 had important uses both as agricultural implements and as weapons of war, whereas at B97 a greater emphasis was placed on agricultural uses versus weaponry, with the reverse being the case at B12.

Although we have argued that the inhabitants of B21 were required to defend themselves (at least for a while) against attacks, we should also note that the excavations at B21 yielded a much lower relative frequency of burned daub than at B12, or at B97. The excavations at B21 produced a relative frequency of burned daub (expressed as kg of burned daub per 100 kg of all sherds) of 0.79, while the excavations at B12 and B97 yielded relative frequencies of burned daub of 6.52 and 1.1, respectively (Spencer and Redmond, 1998: table 5). We conclude that the relatively low frequency of burned daub reflects the absence of a conflagration at the time of the site's abandonment, which would be consistent with the idea that the inhabitants of B21 did not stay and defend their home village to the bitter end. We imagine, instead, that they held off attackers until a lull in the fighting allowed them to hasten along the *calzada* network to the safety of B12. We would also speculate that such attackers did not take time to burn B21 after the inhabitants fled, but instead directed their assault against the regional center (B12) itself.

SUMMARY

In this chapter, we described our program of mapping and excavation at B21 (Buenos Aires), and also discussed our analyses of the recovered data. B21 was located on a *banco* that overlooked a large fertile *vega*, or floodplain, lying to the south and southwest of the site (fig. 9.1). B21 covered 4.56 ha during its period of peak occupation during the Late Gaván phase (A.D. 550–1000). For the preceding Early Gaván phase (A.D. 300–550), we determined that the area occupied was approximately 2.25 ha. We recorded four earthen mounds while we were mapping B21. We did not detect smaller house mounds on the site's surface, but our test-pit program did recover considerable debris throughout the central part of the site, between Mound A and Mound B, suggesting that the site did have a series of residential structures in addition to the four visible mounds. We have proposed that the layout of B21 mimics (at 50% scale) the pattern more clearly seen at the first-tier center of B12, which had a central avenue lined by house mounds between the two large facing mounds, 500 m apart. At B21, the two largest mounds, Mound A and Mound B, are 250 m apart at either end of what we suspect was a central avenue. Midway between Mound A and Mound B lie two smaller mounds, Mound C and Mound D, roughly 10 m apart on opposite sides of the probable avenue. We also located two earthen *calzadas*. One of them approached B21 from the east; it was by way of this *calzada* (Calzada C) that B21 was linked to B12 (see fig. 1.3). The other *calzada* departs from the west side of B21 and heads off toward the edge of the *banco* and the floodplain or *vega*, connecting the site to that important agricultural resource. It is reasonable to classify B21 as a second-tier site within the Gaván regional polity.

We excavated 29 test pits according to a two-phase random-sampling program, plus six pits that were placed judgmentally; 22 of these pits recovered evidence of Gaván-complex occupation. One of the random-sampling pits, T.122, happened to fall on Mound C. Here we found a subfloor cache with two ceramic *ollas*, a serpentinite pendant, 16 serpentinite beads, and eight ceramic beads. The serpentinite used to make the pendant was identified as originating in the high Andes, possibly from the Colombian rather than the Venezuelan Andes. The serpentinite used for the beads probably derived from a similarly distant source. The presence of such valuable trade items at B21 would be consistent with the operation of a prestige-good exchange system that brought such items from great distances into the Gaván polity, probably by way of the first-tier center (B12). We suspect that the leadership at B12 then sent some of these prestige goods to local elites at sites such as B21, as a material expression of the political alliances that existed between the regional and local elites, amounting to a form of compensation for the loyalty and participation of the latter in the regional polity led by the former.

Another feature of B21 that resembles B12 is the data pertaining to social differentiation at the site. Dividing the site into eastern and western sectors along the line of the probable central avenue, we found evidence (in the distribution of ceramic feet from elaborate footed vessels) that the eastern sector was of higher social standing than the western sector. This is similar to what we observed at B12, where the sector on the northeastern side of the central avenue showed signs of higher status than the sector on the southwestern side of the avenue. It is also consistent with our results from B97, where the southern sector of the site yielded evidence of higher status than the northern sector. In general, the data from B21, B97, and B12 are consistent with the idea that pervasive social inequality was a key characteristic of the Gaván chiefdom. At the same time, the overall frequency of ceramic feet at B21 was higher than we observed at either B97 or B12. We explained this by arguing that alliances that were formed between the regional leadership and local elites—perhaps the most effective strategy for regional integration in a chiefdom context—did not involve frequent top-down meddling and would have allowed local elites a certain degree of access to some of the trappings of high-status life, including elaborate ceramic vessels.

We found abundant evidence of ceramic production at B21, in the form of sherds classified as misfired sherds or kiln wasters, which were nearly as frequent at B21 as they were at B97, and much more abundant than at B12. As at B97, we found that the lower-status sector was more involved in ceramic production than the higher-status sector. We conclude that ceramic production in the Gaván polity was more associated with lower-status people than those of higher social standing.

The pattern of stone-tool production/maintenance at B21 differed from what we observed at B12. We found no evidence of differential access to fine-quality chert between the higher- and lower-status sectors at B21, though we did discover that the lower-status sector showed relatively more evidence of involvement in the making and maintenance of chert tools. This pattern was similar to what we observed at B97, where we suggested that the greater participation of lower-ranking people in the working of chert was related to their greater involvement in agriculture, the successful pursuit of which would have called for continual production and maintenance of the stone tools that were used in clearing the brush and tilling the soil in the nearby floodplain. At the same time, we noted that B21 had relatively more chert overall than did B12 or B97. We suggested that this may be because the stone tools at B21 served two major functions, as agricultural implements and also as weapons, in contrast to B97 and B12, where stone tools were primarily used for either agriculture (at B97) or war (at B12). This proposition received support from our analysis of the overall rate of chert-tool production/maintenance, which showed that the B21 pattern was similar to that of the other two sites taken together. We noted that B21 lay near the edge of the Gaván regional polity and thus more exposed than most other villages to the rival chiefdoms in the Acequia–Anaro River and Suripá River drainages. On occasion, B21 might have had to defend itself against enemy attacks, until its inhabitants could slip away across the *calzada* network and take refuge with others behind the defensive earthworks at the regional center of B12.

TABLE 9.1
Ceramics from B21.

V3	V5	V1	Location	Depth	V4	V8	V9	V10	V13	V101	V102
T. 90	Level 1	280	N1256–1257/E936	0–0.20 m DBS	0	2	0.2	0.4	1	72	7
T. 91	Level 1	283	N1183–1184/E1002	0–0.20 m DBS	0	2	0.2	0.4	1	408	89
T. 91	Level 2	284	N1183–1184/E1002	0.20–0.40 m DBS	0	2	0.2	0.4	1	214	59
T. 97	Level 1	281	N1184–1185/E950	0–0.20 m DBS	0	2	0.2	0.4	1	451	89
T. 98	Level 2	286	N1166–1167/E682	0.20–0.40 m DBS	0	2	0.2	0.4	1	30	4
T. 99	Level 1	287	N1014–1015/E926	0–0.20 m DBS	0	2	0.2	0.4	1	133	50
T. 101	Level 1	282	N1040–1041/E1024	0–0.20 m DBS	0	2	0.2	0.4	1	765	375
T. 101	Level 2	294	N1040–1041/E1024	0.21–0.25 m DBS	F.5	0.75	0.04	0.03	1	22	15
T. 101	Level 2	295	N1040–1041/E1024	0.20–0.40 m DBS	F.5	2	0.2	0.4	1	140	52
T. 102	Level 2	288	N952–953/E1018	0.20–0.40 m DBS	0	2	0.2	0.4	1	169	46
T. 102	Level 3	289	N952–953/E1018	0.40–0.60 m DBS	0	2	0.2	0.4	1	2	1
T. 104	Level 1	292	N1080–1081/E1008	0–0.10 m DBS	0	2	0.1	0.2	1	244	72
T. 104	Level 2	293	N1080–1081/E1008	0.20–0.40 m DBS	0	2	0.2	0.4	1	69	13
T. 105	Level 2	290	N1036–1037/E990	0.20–0.40 m DBS	0	2	0.2	0.4	1	74	21
T. 106	Level 2	291	N1064–1065/E967	0.20–0.40 m DBS	0	2	0.2	0.4	1	252	101
T. 107	Level 1	298	N932–933/E1008	0–0.20 m DBS	0	2	0.2	0.4	1	12	5
T. 107	Level 2	299	N932–933/E1008	0.20–0.40 m DBS	0	2	0.2	0.4	1	22	10
T. 108	Level 2	296	N1112–1113/E962	0.20–0.40 m DBS	0	2	0.2	0.4	1	107	35
T. 108	Level 3	297	N1112–1113/E962	0.40–0.50 m DBS	0	2	0.1	0.2	1	392	132
T. 108	Level 4	305	N1112–1113/E962	0.50–0.60 m DBS	F.6	2	0.1	0.2	1	83	6
T. 109	Level 2	301	N1134–1135/E1002	0.20–0.40 m DBS	0	2	0.2	0.4	1	43	13
T. 110	Level 2	300	N990–991/E992	0.20–0.40 m DBS	0	2	0.2	0.4	1	60	43
T. 111	Level 2	302	N1050–1051/E942	0.20–0.40 m DBS	0	2	0.2	0.4	1	2088	587
T. 112	Level 2	303	N1034–1035/E1061	0.20–0.40 m DBS	0	2	0.2	0.4	1	87	16
T. 113	Level 2	304	N974–975/E1050	0.20–0.40 m DBS	0	2	0.2	0.4	1	11	5
T. 114	Level 1	306	N1142–1143/E931	0–0.20 m DBS	0	2	0.2	0.4	1	487	180
T. 114	Level 2	310	N1142–1143/E931	0.20–0.40 m DBS	0	2	0.2	0.4	1	110	37
T. 115	Level 1	307	N1180–1181/E933	0–0.20 m DBS	0	2	0.2	0.4	1	1013	357
T. 115	Level 2	309	N1180–1181/E933	0.20–0.40 m DBS	0	2	0.2	0.4	1	298	164
T. 116	Level 2	308	N1230–1231/E961	0.20–0.40 m DBS	0	2	0.2	0.4	1	168	11

TABLE 9.1
Ceramics from B21.
(Continued)

V3	V5	V1	Location	Depth	V4	V8	V9	V10	V13	V101	V102
T. 122	Level 4	318	N1142–1143/E953	0.40–0.60 m DBS	0	2	0.2	0.4	1	80	4
T. 122	Feature 8	322	N1142–1143/E953–954	0.46–0.60 m DBS	F.8	4	0.14	0.56	1	308	121
T. 123	Level 2	319	N1112–1113/E961	0.20–0.40 m DBS	0	2	0.2	0.4	1	455	181
T. 123	Level 3	320	N1112–1113/E961	0.40–0.44 m DBS	F.6	2	0.04	0.08	1	7	1

V3	V5	V1	V103	V104	V105	V106	V107	V108	V109	V110	V112	V113	V114	V115
T. 90	Level 1	280	54	3	18	4	0	0	3	0	0	1	2	0
T. 91	Level 1	283	125	12	283	77	0	9	2	1	0	10	2	0
T. 91	Level 2	284	88	6	126	53	0	3	3	0	0	3	3	0
T. 97	Level 1	281	173	17	278	72	0	17	0	0	0	15	2	0
T. 98	Level 2	286	27	3	3	1	0	0	3	0	0	3	0	0
T. 99	Level 1	287	35	4	98	46	0	0	4	0	0	0	4	0
T. 101	Level 1	282	95	27	670	348	2	19	5	0	1	26	1	0
T. 101	Level 2	294	2	1	20	14	0	0	0	1	0	1	0	0
T. 101	Level 2	295	25	6	115	46	0	6	0	0	0	6	0	0
T. 102	Level 2	288	117	12	52	34	3	8	1	0	0	10	2	0
T. 102	Level 3	289	0	0	2	1	0	0	0	0	0	0	0	0
T. 104	Level 1	292	72	10	172	62	0	9	1	0	0	9	1	0
T. 104	Level 2	293	32	3	37	10	0	3	0	0	0	3	0	0
T. 105	Level 2	290	0	0	74	21	0	0	0	0	0	0	0	0
T. 106	Level 2	291	100	10	152	91	0	2	8	0	0	7	3	0
T. 107	Level 1	298	1	1	11	4	0	1	0	0	0	1	0	0
T. 107	Level 2	299	0	0	22	10	0	0	0	0	0	0	0	0
T. 108	Level 2	296	32	7	75	28	0	7	0	0	0	7	0	0
T. 108	Level 3	297	52	14	340	118	1	13	0	0	0	13	1	0
T. 108	Level 4	305	65	5	18	1	0	2	3	0	0	5	0	0
T. 109	Level 2	301	20	3	23	10	0	3	0	0	0	3	0	0
T. 110	Level 2	300	30	6	30	37	0	5	1	0	0	6	0	0
T. 111	Level 2	302	545	55	1543	532	12	26	17	0	0	48	7	0
T. 112	Level 2	303	15	1	72	15	0	0	1	0	0	1	0	0
T. 113	Level 2	304	0	0	11	5	0	0	0	0	0	0	0	0
T. 114	Level 1	306	162	18	305	162	0	14	2	0	2	18	0	2
T. 114	Level 2	310	0	0	110	37	0	0	0	0	0	0	0	0
T. 115	Level 1	307	213	15	800	342	0	13	2	0	0	15	0	0
T. 115	Level 2	309	116	33	182	131	2	2	10	0	0	33	0	0
T. 116	Level 2	308	5	1	163	10	0	1	0	0	0	1	0	0
T. 122	Level 4	318	73	1	7	3	0	1	0	0	0	1	0	0
T. 122	Feature 8	322	49	14	59	107	14	0	0	0	0	0	14	0
T. 123	Level 2	319	118	27	337	154	1	16	8	2	0	27	0	0
T. 123	Level 3	320	0	0	7	1	0	0	0	0	0	0	0	0

V3	V5	V1	V116	V118	V119	V120	V121	V122	V123	V126	V127	V129	V130	V131
T. 90	Level 1	280	3	3	0	0	0	0	0	0	0	0	0	0
T. 91	Level 1	283	12	12	0	0	0	0	0	0	0	0	0	0
T. 91	Level 2	284	6	5	1	0	0	0	1	0	0	0	0	0
T. 97	Level 1	281	17	14	1	2	1	0	0	2	0	0	1	6

TABLE 9.1
Ceramics from B21.
(Continued)

V3	V5	V1	V116	V118	V119	V120	V121	V122	V123	V126	V127	V129	V130	V131
T. 98	Level 2	286	3	3	0	0	0	0	0	0	0	0	0	0
T. 99	Level 1	287	4	4	0	0	0	0	0	0	0	0	0	2
T. 101	Level 1	282	27	27	0	0	0	0	0	0	0	0	2	5
T. 101	Level 2	294	1	0	0	0	0	0	0	0	0	0	0	0
T. 101	Level 2	295	6	5	1	0	1	0	0	0	0	0	1	1
T. 102	Level 2	288	12	11	1	0	1	0	0	0	0	0	1	0
T. 102	Level 3	289	0	0	0	0	0	0	0	0	0	0	0	0
T. 104	Level 1	292	10	7	1	2	0	0	1	2	0	0	1	2
T. 104	Level 2	293	3	3	0	0	0	0	0	0	0	0	0	0
T. 105	Level 2	290	0	0	0	0	0	0	0	0	0	0	0	0
T. 106	Level 2	291	10	9	1	0	0	1	0	0	0	0	2	3
T. 107	Level 1	298	1	1	0	0	0	0	0	0	0	0	0	0
T. 107	Level 2	299	0	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 2	296	7	2	0	5	0	0	0	3	2	0	1	1
T. 108	Level 3	297	14	4	2	8	2	0	0	6	2	0	0	1
T. 108	Level 4	305	5	3	0	2	0	0	0	1	1	0	0	0
T. 109	Level 2	301	3	3	0	0	0	0	0	0	0	0	0	2
T. 110	Level 2	300	6	6	0	0	0	0	0	0	0	0	2	1
T. 111	Level 2	302	55	47	8	2	0	0	8	2	0	0	5	14
T. 112	Level 2	303	1	1	0	0	0	0	0	0	0	0	0	0
T. 113	Level 2	304	0	0	0	0	0	0	0	0	0	0	0	0
T. 114	Level 1	306	16	14	1	3	0	0	1	3	0	0	1	4
T. 114	Level 2	310	0	0	0	0	0	0	0	0	0	0	0	0
T. 115	Level 1	307	15	14	1	0	0	1	0	0	0	0	1	4
T. 115	Level 2	309	33	20	0	13	0	0	0	12	1	1	1	3
T. 116	Level 2	308	1	1	0	0	0	0	0	0	0	0	0	1
T. 122	Level 4	318	1	1	0	0	0	0	0	0	0	0	0	1
T. 122	Feature 8	322	14	11	0	3	0	0	0	3	0	0	0	0
T. 123	Level 2	319	27	10	6	11	0	6	0	10	0	1	1	7
T. 123	Level 3	320	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V132	V135	V138	V139	V141	V142	V144	V146	V147	V148	V149	V150
T. 90	Level 1	280	0	0	0	1	0	0	0	0	0	0	0	2
T. 91	Level 1	283	0	4	0	5	0	0	0	0	0	0	0	1
T. 91	Level 2	284	0	0	0	4	0	0	0	0	0	0	0	1
T. 97	Level 1	281	0	0	1	4	0	0	0	0	0	1	0	1
T. 98	Level 2	286	0	0	0	0	0	0	0	0	0	0	0	3
T. 99	Level 1	287	0	0	0	0	0	0	0	0	0	0	0	2
T. 101	Level 1	282	0	0	0	6	0	0	0	0	0	3	0	4
T. 101	Level 2	294	0	0	0	1	0	0	0	0	0	0	0	0
T. 101	Level 2	295	0	0	0	0	0	0	0	1	0	0	0	3
T. 102	Level 2	288	0	0	0	0	1	0	0	0	0	1	0	3
T. 102	Level 3	289	0	0	0	0	0	0	0	0	0	0	0	0
T. 104	Level 1	292	0	0	0	3	0	0	0	0	0	2	0	1
T. 104	Level 2	293	0	1	0	0	0	0	0	0	0	0	0	1
T. 105	Level 2	290	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 9.1
Ceramics from B21.
(Continued)

V3	V5	V1	V132	V135	V138	V139	V141	V142	V144	V146	V147	V148	V149	V150
T. 106	Level 2	291	1	0	1	0	0	0	0	0	0	0	0	0
T. 107	Level 1	298	0	0	0	0	0	0	0	0	0	0	0	0
T. 107	Level 2	299	0	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 2	296	0	0	0	0	0	0	0	0	0	0	0	1
T. 108	Level 3	297	0	0	0	3	1	0	0	0	0	0	0	0
T. 108	Level 4	305	0	0	3	0	0	0	0	0	0	0	0	0
T. 109	Level 2	301	0	0	0	0	0	0	0	0	0	0	0	0
T. 110	Level 2	300	0	0	0	1	0	0	0	0	0	0	0	1
T. 111	Level 2	302	3	0	0	8	1	0	2	0	0	0	2	6
T. 112	Level 2	303	0	0	1	0	0	0	0	0	0	0	0	0
T. 113	Level 2	304	0	0	0	0	0	0	0	0	0	0	0	0
T. 114	Level 1	306	1	0	1	1	1	0	0	0	0	1	0	2
T. 114	Level 2	310	0	0	0	0	0	0	0	0	0	0	0	0
T. 115	Level 1	307	2	2	0	2	0	0	0	0	0	0	1	1
T. 115	Level 2	309	0	0	0	3	0	1	0	0	1	2	0	4
T. 116	Level 2	308	0	0	0	0	0	0	0	0	0	0	0	0
T. 122	Level 4	318	0	0	0	0	0	0	0	0	0	0	0	0
T. 122	Feature 8	322	0	0	0	1	2	0	0	0	4	5	0	0
T. 123	Level 2	319	0	0	1	2	1	0	0	0	0	1	1	0
T. 123	Level 3	320	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V151	V152	V153	V154	V155	V156	V158	V159	V160	V161	V162	V164
T. 90	Level 1	280	0	0	0	0	0	0	0	0	0	0	0	0
T. 91	Level 1	283	0	0	0	0	0	1	1	0	0	0	0	0
T. 91	Level 2	284	0	0	0	0	0	1	0	0	0	0	0	0
T. 97	Level 1	281	0	0	0	0	0	1	2	0	1	0	0	4
T. 98	Level 2	286	0	0	0	0	0	0	0	0	0	0	0	0
T. 99	Level 1	287	0	0	0	0	0	0	0	0	0	0	0	0
T. 101	Level 1	282	0	0	0	0	0	1	6	0	2	0	0	5
T. 101	Level 2	294	0	0	0	0	0	0	0	0	0	0	0	0
T. 101	Level 2	295	0	0	0	0	0	0	0	0	0	1	0	1
T. 102	Level 2	288	0	0	0	2	0	0	4	0	1	0	0	0
T. 102	Level 3	289	0	0	0	0	0	0	0	0	0	0	0	0
T. 104	Level 1	292	0	0	0	0	1	0	0	0	1	0	0	2
T. 104	Level 2	293	0	0	0	0	0	0	1	0	0	0	0	0
T. 105	Level 2	290	0	0	0	0	0	0	0	0	0	0	0	0
T. 106	Level 2	291	0	0	0	0	0	0	3	0	0	2	0	0
T. 107	Level 1	298	0	0	0	0	0	0	0	0	0	0	0	0
T. 107	Level 2	299	0	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 2	296	0	0	0	0	4	0	0	0	1	0	0	1
T. 108	Level 3	297	1	0	0	0	0	0	0	0	0	0	0	1
T. 108	Level 4	305	0	0	0	0	2	0	0	0	0	0	0	0
T. 109	Level 2	301	0	0	0	1	0	0	0	0	0	0	0	2
T. 110	Level 2	300	0	0	0	1	0	0	0	0	2	0	0	1
T. 111	Level 2	302	0	0	2	1	0	2	9	0	1	3	1	11
T. 112	Level 2	303	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 9.1
Ceramics from B21.
(Continued)

V3	V5	V1	V151	V152	V153	V154	V155	V156	V158	V159	V160	V161	V162	V164
T. 113	Level 2	304	0	0	0	0	0	0	0	0	0	0	0	0
T. 114	Level 1	306	2	0	0	1	2	1	0	0	0	1	0	4
T. 114	Level 2	310	0	0	0	0	0	0	0	0	0	0	0	0
T. 115	Level 1	307	0	0	0	0	0	0	2	0	1	0	0	6
T. 115	Level 2	309	0	1	0	0	12	3	2	0	1	0	0	3
T. 116	Level 2	308	0	0	0	0	0	0	0	0	0	0	0	1
T. 122	Level 4	318	0	0	0	0	0	0	0	0	0	0	0	0
T. 122	Feature 8	322	0	0	2	0	0	0	0	0	0	0	0	0
T. 123	Level 2	319	1	1	0	2	7	0	2	0	0	1	0	2
T. 123	Level 3	320	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V165	V166	V167	V174	V176	V177	V178	V180	V181	V182	V185	V188
T. 90	Level 1	280	0	0	0	0	0	0	0	0	0	0	0	0
T. 91	Level 1	283	0	0	0	3	1	0	3	1	2	2	0	0
T. 91	Level 2	284	0	0	0	0	0	0	0	0	0	0	0	0
T. 97	Level 1	281	2	0	0	0	0	0	0	0	0	0	0	0
T. 98	Level 2	286	0	0	0	0	0	0	0	0	0	0	0	0
T. 99	Level 1	287	2	0	0	0	0	0	0	0	0	0	0	0
T. 101	Level 1	282	0	0	0	0	0	0	0	0	0	0	0	0
T. 101	Level 2	294	0	0	0	0	0	0	0	0	0	0	0	0
T. 101	Level 2	295	0	0	0	0	0	0	0	0	0	0	0	1
T. 102	Level 2	288	0	0	0	0	0	0	0	0	0	0	1	0
T. 102	Level 3	289	0	0	0	0	0	0	0	0	0	0	0	0
T. 104	Level 1	292	0	0	0	0	0	0	0	0	0	0	1	0
T. 104	Level 2	293	0	0	0	1	0	0	1	0	0	1	0	0
T. 105	Level 2	290	0	0	0	0	0	0	0	0	0	0	0	0
T. 106	Level 2	291	3	0	1	0	0	0	0	0	0	0	0	2
T. 107	Level 1	298	0	0	0	0	0	0	0	0	0	0	0	0
T. 107	Level 2	299	0	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 2	296	0	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 3	297	0	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 4	305	0	0	0	0	0	0	0	0	0	0	0	0
T. 109	Level 2	301	0	0	0	0	0	0	0	0	0	0	0	0
T. 110	Level 2	300	0	0	0	0	0	0	0	0	0	0	1	0
T. 111	Level 2	302	6	0	0	0	0	0	0	0	0	0	1	0
T. 112	Level 2	303	0	0	0	0	0	0	0	0	0	0	0	0
T. 113	Level 2	304	0	0	0	0	0	0	0	0	0	0	0	0
T. 114	Level 1	306	0	0	1	0	0	0	0	0	0	0	1	0
T. 114	Level 2	310	0	0	0	0	0	0	0	0	0	0	0	0
T. 115	Level 1	307	0	0	0	2	0	2	0	0	0	2	1	0
T. 115	Level 2	309	0	0	0	0	0	0	0	0	0	0	1	0
T. 116	Level 2	308	0	0	0	0	0	0	0	0	0	0	0	0
T. 122	Level 4	318	0	1	0	0	0	0	0	0	0	0	0	0
T. 122	Feature 8	322	0	0	0	0	0	0	0	0	0	0	0	0
T. 123	Level 2	319	3	0	7	0	0	0	0	0	0	0	1	0
T. 123	Level 3	320	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 9.1
Ceramics from B21.
(Continued)

V3	V5	V1	V189	V191	V192	V194	V197	V213	V216	V217	V218	V219	V221	V222
T. 90	Level 1	280	0	0	0	0	0	0	0	0	0	0	0	0
T. 91	Level 1	283	0	0	0	0	0	0	0	0	0	0	0	0
T. 91	Level 2	284	0	0	0	0	0	0	0	0	0	0	0	0
T. 97	Level 1	281	0	1	0	0	0	0	0	1	3	2	0	0
T. 98	Level 2	286	0	0	0	0	0	0	0	0	0	0	0	0
T. 99	Level 1	287	0	0	0	0	0	0	0	0	2	0	0	0
T. 101	Level 1	282	0	0	0	1	1	0	0	2	1	1	1	0
T. 101	Level 2	294	0	0	0	0	0	0	0	0	0	0	0	0
T. 101	Level 2	295	0	0	0	0	0	0	0	0	0	0	1	0
T. 102	Level 2	288	0	0	0	0	0	0	0	0	0	0	0	0
T. 102	Level 3	289	0	0	0	0	0	0	0	0	0	0	0	0
T. 104	Level 1	292	0	0	0	0	0	0	0	0	0	1	1	0
T. 104	Level 2	293	0	0	0	0	0	0	0	0	0	0	0	0
T. 105	Level 2	290	0	0	0	0	0	0	0	0	0	0	0	0
T. 106	Level 2	291	0	0	0	0	0	0	0	0	1	1	2	0
T. 107	Level 1	298	0	0	0	0	0	0	0	0	0	0	0	0
T. 107	Level 2	299	0	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 2	296	1	0	0	0	0	0	0	0	0	0	1	0
T. 108	Level 3	297	0	0	0	0	0	0	0	0	0	1	0	0
T. 108	Level 4	305	0	0	0	0	0	0	0	0	0	0	0	0
T. 109	Level 2	301	0	0	0	0	0	0	0	0	0	1	1	0
T. 110	Level 2	300	0	0	0	0	0	0	1	0	0	0	1	0
T. 111	Level 2	302	0	0	2	0	0	2	0	7	6	0	1	3
T. 112	Level 2	303	0	0	0	0	0	0	0	0	0	0	0	0
T. 113	Level 2	304	0	0	0	0	0	0	0	0	0	0	0	0
T. 114	Level 1	306	0	0	0	0	0	0	0	1	1	1	1	0
T. 114	Level 2	310	0	0	0	0	0	0	0	0	0	0	0	0
T. 115	Level 1	307	0	0	0	0	0	0	0	1	2	0	3	0
T. 115	Level 2	309	0	0	0	0	0	0	0	2	0	1	0	0
T. 116	Level 2	308	0	0	0	0	0	0	0	1	0	0	0	0
T. 122	Level 4	318	0	0	0	0	0	0	0	1	0	0	0	0
T. 122	Feature 8	322	0	0	0	0	0	0	0	0	0	0	0	0
T. 123	Level 2	319	0	0	0	0	0	0	0	3	0	3	0	0
T. 123	Level 3	320	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V224	V228	V229	V230	V241	V244	V245	V253	V254	V255	V258	V260
T. 90	Level 1	280	0	0	0	0	0	0	0	0	0	0	0	0
T. 91	Level 1	283	0	0	0	0	2	2	0	0	0	0	0	0
T. 91	Level 2	284	0	0	0	0	0	0	0	0	0	0	0	0
T. 97	Level 1	281	0	5	1	0	0	0	0	0	1	0	0	2
T. 98	Level 2	286	0	0	0	0	0	0	0	0	0	0	0	0
T. 99	Level 1	287	0	2	0	0	0	0	0	0	0	0	0	0
T. 101	Level 1	282	0	5	0	0	0	0	0	0	0	0	0	1
T. 101	Level 2	294	0	0	0	0	0	0	0	0	0	0	0	1
T. 101	Level 2	295	0	1	0	0	0	0	0	0	0	0	0	0
T. 102	Level 2	288	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 9.1
Ceramics from B21.
(Continued)

V3	V5	V1	V224	V228	V229	V230	V241	V244	V245	V253	V254	V255	V258	V260
T. 102	Level 3	289	0	0	0	0	0	0	0	0	0	0	0	0
T. 104	Level 1	292	0	2	0	0	0	0	0	0	0	0	0	2
T. 104	Level 2	293	0	0	0	0	0	0	1	0	0	0	0	0
T. 105	Level 2	290	0	0	0	0	0	0	0	0	0	0	0	0
T. 106	Level 2	291	0	4	0	0	0	0	0	1	0	0	0	0
T. 107	Level 1	298	0	0	0	0	0	0	0	0	0	0	0	0
T. 107	Level 2	299	0	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 2	296	0	1	0	0	0	0	0	0	0	0	0	0
T. 108	Level 3	297	0	1	0	0	0	0	0	0	0	0	0	0
T. 108	Level 4	305	0	0	0	0	0	0	0	2	0	1	0	0
T. 109	Level 2	301	0	2	0	0	0	0	0	0	0	0	0	0
T. 110	Level 2	300	0	1	0	0	0	0	0	0	0	0	0	0
T. 111	Level 2	302	0	11	6	0	0	0	0	0	0	0	0	1
T. 112	Level 2	303	0	0	0	0	0	0	0	0	0	0	0	0
T. 113	Level 2	304	0	0	0	0	0	0	0	0	0	0	0	0
T. 114	Level 1	306	1	4	1	0	0	0	0	0	0	1	0	1
T. 114	Level 2	310	0	0	0	0	0	0	0	0	0	0	0	0
T. 115	Level 1	307	0	4	2	0	0	2	0	0	0	0	0	0
T. 115	Level 2	309	0	3	0	0	0	0	0	0	0	0	0	2
T. 116	Level 2	308	0	1	0	0	0	0	0	0	0	0	0	0
T. 122	Level 4	318	0	0	0	1	0	0	0	0	0	0	0	0
T. 122	Feature 8	322	0	0	0	0	0	0	0	0	0	0	0	0
T. 123	Level 2	319	1	6	0	1	0	0	0	0	0	0	1	0
T. 123	Level 3	320	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V261	V264	V265	V266	V268	V269	V271	V273	V275	V279	V280	V282
T. 90	Level 1	280	0	1	0	0	0	0	0	0	0	0	0	0
T. 91	Level 1	283	0	5	0	0	0	0	0	0	0	0	0	0
T. 91	Level 2	284	0	1	0	0	0	3	0	0	0	0	0	0
T. 97	Level 1	281	0	2	0	0	0	0	0	0	0	0	0	0
T. 98	Level 2	286	0	0	0	0	0	0	0	0	0	0	0	0
T. 99	Level 1	287	0	0	0	0	0	0	0	0	0	0	0	0
T. 101	Level 1	282	0	4	0	0	0	1	0	0	0	0	0	0
T. 101	Level 2	294	0	0	0	0	0	0	0	0	0	0	0	0
T. 101	Level 2	295	0	0	0	0	0	0	0	0	0	0	0	0
T. 102	Level 2	288	0	0	0	0	0	0	1	0	0	1	1	0
T. 102	Level 3	289	0	0	0	0	0	0	0	0	0	0	0	0
T. 104	Level 1	292	0	1	0	0	0	0	0	0	0	0	0	0
T. 104	Level 2	293	0	0	0	0	0	0	0	0	0	0	0	0
T. 105	Level 2	290	0	0	0	0	0	0	0	0	0	0	0	0
T. 106	Level 2	291	0	0	0	0	0	0	0	0	0	0	0	0
T. 107	Level 1	298	0	0	0	0	0	0	0	0	0	0	0	0
T. 107	Level 2	299	0	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 2	296	0	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 3	297	1	2	0	0	0	0	1	0	0	0	0	0
T. 108	Level 4	305	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 9.1
Ceramics from B21.
(Continued)

V3	V5	V1	V261	V264	V265	V266	V268	V269	V271	V273	V275	V279	V280	V282
T. 109	Level 2	301	0	0	0	0	0	0	0	0	0	1	0	0
T. 110	Level 2	300	0	1	0	0	0	0	0	0	0	1	0	0
T. 111	Level 2	302	0	3	1	3	0	0	0	0	1	1	0	1
T. 112	Level 2	303	0	0	0	0	0	0	0	0	0	0	0	0
T. 113	Level 2	304	0	0	0	0	0	0	0	0	0	0	0	0
T. 114	Level 1	306	0	0	0	0	0	0	0	0	1	1	0	0
T. 114	Level 2	310	0	0	0	0	0	0	0	0	0	0	0	0
T. 115	Level 1	307	0	2	0	0	0	0	0	0	0	0	0	0
T. 115	Level 2	309	0	1	0	0	0	0	0	0	0	0	0	0
T. 116	Level 2	308	0	0	0	0	0	0	0	0	0	0	0	0
T. 122	Level 4	318	0	0	0	0	0	0	0	0	0	0	0	0
T. 122	Feature 8	322	0	0	0	0	1	0	0	2	0	0	0	0
T. 123	Level 2	319	0	1	0	1	0	0	0	0	1	2	0	0
T. 123	Level 3	320	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V288	V289	V291	V292	V294	V297	V300	V301	V306	V308	V310	V311
T. 90	Level 1	280	2	0	0	0	2	0	0	0	0	0	0	0
T. 91	Level 1	283	0	1	1	0	0	0	0	0	0	0	0	0
T. 91	Level 2	284	0	1	1	0	0	0	0	0	0	0	0	0
T. 97	Level 1	281	0	1	1	0	0	0	0	0	2	0	0	0
T. 98	Level 2	286	0	3	0	3	0	0	0	0	0	0	0	0
T. 99	Level 1	287	0	2	0	2	0	0	0	0	0	0	0	0
T. 101	Level 1	282	0	4	2	1	0	1	0	0	0	2	0	0
T. 101	Level 2	294	0	0	0	0	0	0	0	0	0	0	0	0
T. 101	Level 2	295	3	0	0	0	3	0	0	0	0	0	0	0
T. 102	Level 2	288	1	2	0	2	1	0	0	0	0	0	0	0
T. 102	Level 3	289	0	0	0	0	0	0	0	0	0	0	0	0
T. 104	Level 1	292	1	0	1	0	0	0	0	1	0	0	0	1
T. 104	Level 2	293	0	1	0	0	0	0	0	0	0	0	0	0
T. 105	Level 2	290	0	0	0	0	0	0	0	0	0	0	0	0
T. 106	Level 2	291	0	0	0	0	0	0	0	0	0	0	0	0
T. 107	Level 1	298	0	0	0	0	0	0	0	0	0	0	0	0
T. 107	Level 2	299	0	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 2	296	0	1	0	1	0	0	1	0	0	0	0	4
T. 108	Level 3	297	0	0	0	0	0	0	0	0	0	0	0	8
T. 108	Level 4	305	0	0	0	0	0	0	0	0	0	0	0	2
T. 109	Level 2	301	0	0	0	0	0	0	0	0	0	0	0	0
T. 110	Level 2	300	1	0	0	0	0	1	0	0	0	0	0	0
T. 111	Level 2	302	4	2	2	0	0	4	2	0	0	0	0	0
T. 112	Level 2	303	0	0	0	0	0	0	0	0	0	0	0	0
T. 113	Level 2	304	0	0	0	0	0	0	0	0	0	0	0	0
T. 114	Level 1	306	2	0	0	0	0	2	0	0	1	0	0	0
T. 114	Level 2	310	0	0	0	0	0	0	0	0	0	0	0	0
T. 115	Level 1	307	0	1	0	1	0	0	0	0	0	0	0	0
T. 115	Level 2	309	4	0	0	0	0	0	1	0	0	0	0	12
T. 116	Level 2	308	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 9.1
Ceramics from B21.
(Continued)

V3	V5	V1	V288	V289	V291	V292	V294	V297	V300	V301	V306	V308	V310	V311
T. 122	Level 4	318	0	0	0	0	0	0	0	0	0	0	0	0
T. 122	Feature 8	322	0	0	0	0	0	0	0	0	0	0	2	1
T. 123	Level 2	319	0	0	0	0	0	0	0	3	0	0	0	8
T. 123	Level 3	320	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V312	V316	V317	V319	V321	V322	V324	V328	V329	V330	V332	V334
T. 90	Level 1	280	0	0	0	0	0	0	0	0	0	0	0	0
T. 91	Level 1	283	0	0	0	0	0	0	0	1	1	0	0	0
T. 91	Level 2	284	0	0	0	0	0	0	0	1	0	0	0	1
T. 97	Level 1	281	0	2	0	0	0	2	0	1	0	1	0	0
T. 98	Level 2	286	1	1	1	0	1	0	0	0	0	0	0	0
T. 99	Level 1	287	0	0	0	0	0	0	0	0	0	0	0	0
T. 101	Level 1	282	0	2	0	0	2	0	0	1	1	0	0	0
T. 101	Level 2	294	0	0	0	0	0	0	0	0	0	0	0	0
T. 101	Level 2	295	0	0	0	0	0	0	0	0	0	0	0	0
T. 102	Level 2	288	0	0	0	0	0	0	0	0	0	0	0	0
T. 102	Level 3	289	0	0	0	0	0	0	0	0	0	0	0	0
T. 104	Level 1	292	0	2	0	0	0	1	0	0	0	0	0	0
T. 104	Level 2	293	1	1	0	1	0	0	0	0	0	0	0	0
T. 105	Level 2	290	0	0	0	0	0	0	0	0	0	0	0	0
T. 106	Level 2	291	0	0	0	0	0	0	0	0	0	0	0	0
T. 107	Level 1	298	0	0	0	0	0	0	0	0	0	0	0	0
T. 107	Level 2	299	0	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 2	296	0	5	0	0	0	5	0	0	0	0	0	0
T. 108	Level 3	297	0	8	0	0	0	8	0	0	0	0	0	0
T. 108	Level 4	305	0	2	0	0	0	2	0	0	0	0	0	0
T. 109	Level 2	301	0	0	0	0	0	0	0	0	0	0	0	0
T. 110	Level 2	300	0	0	0	0	0	0	0	0	0	0	0	0
T. 111	Level 2	302	0	2	0	0	0	2	0	3	0	0	1	2
T. 112	Level 2	303	0	0	0	0	0	0	0	0	0	0	0	0
T. 113	Level 2	304	0	0	0	0	0	0	0	0	0	0	0	0
T. 114	Level 1	306	0	3	0	0	0	3	0	1	0	0	0	2
T. 114	Level 2	310	0	0	0	0	0	0	0	0	0	0	0	0
T. 115	Level 1	307	0	0	0	0	0	0	0	0	0	0	0	0
T. 115	Level 2	309	0	13	0	0	0	12	1	3	0	0	0	3
T. 116	Level 2	308	0	0	0	0	0	0	0	0	0	0	0	0
T. 122	Level 4	318	0	0	0	0	0	0	0	0	0	0	0	0
T. 122	Feature 8	322	0	3	0	0	0	3	0	0	0	0	0	0
T. 123	Level 2	319	0	11	0	0	0	11	0	0	0	0	0	0
T. 123	Level 3	320	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 9.2
Other Artifacts from B21.

V3	V5	V1	Location	Depth	V4	V8	V9	V10	V13	V1001
T. 90	Level 1	280	N1256–1257/E936	0–0.20 m DBS	0	2	0.2	0.4	1	6
T. 91	Level 1	283	N1183–1184/E1002	0–0.20 m DBS	0	2	0.2	0.4	1	5
T. 91	Level 2	284	N1183–1184/E1002	0.20–0.40 m DBS	0	2	0.2	0.4	1	5
T. 92	Level 1	285	N1228–1229/E1045	0–0.20 m DBS	0	2	0.2	0.4	3	1
T. 97	Level 1	281	N1184–1185/E950	0–0.20 m DBS	0	2	0.2	0.4	1	28
T. 98	Level 2	286	N1166–1167/E682	0.20–0.40 m DBS	0	2	0.2	0.4	1	3
T. 99	Level 1	287	N1014–1015/E926	0–0.20 m DBS	0	2	0.2	0.4	1	6
T. 101	Level 1	282	N1040–1041/E1024	0–0.20 m DBS	0	2	0.2	0.4	1	130
T. 101	Level 2	294	N1040–1041/E1024	0.21–0.25 m DBS	F.5	0.75	0.04	0.03	1	1
T. 101	Level 2	295	N1040–1041/E1024	0.20–0.40 m DBS	F.5	2	0.2	0.4	1	9
T. 102	Level 2	288	N952–953/E1018	0.20–0.40 m DBS	0	2	0.2	0.4	1	14
T. 102	Level 3	289	N952–953/E1018	0.40–0.60 m DBS	0	2	0.2	0.4	1	7
T. 104	Level 1	292	N1080–1081/E1008	0–0.10 m DBS	0	2	0.1	0.2	1	30
T. 104	Level 2	293	N1080–1081/E1008	0.20–0.40 m DBS	0	2	0.2	0.4	1	4
T. 105	Level 2	290	N1036–1037/E990	0.20–0.40 m DBS	0	2	0.2	0.4	1	9
T. 106	Level 2	291	N1064–1065/E967	0.20–0.40 m DBS	0	2	0.2	0.4	1	22
T. 107	Level 1	298	N932–933/E1008	0–0.20 m DBS	0	2	0.2	0.4	1	1
T. 108	Level 2	296	N1112–1113/E962	0.20–0.40 m DBS	0	2	0.2	0.4	1	15
T. 108	Level 3	297	N1112–1113/E962	0.40–0.50 m DBS	0	2	0.1	0.2	1	29
T. 108	Level 4	305	N1112–1113/E962	0.50–0.60 m DBS	F.6	2	0.1	0.2	1	3
T. 109	Level 2	301	N1134–1135/E1002	0.20–0.40 m DBS	0	2	0.2	0.4	1	4
T. 110	Level 2	300	N990–991/E992	0.20–0.40 m DBS	0	2	0.2	0.4	1	7
T. 111	Level 2	302	N1050–1051/E942	0.20–0.40 m DBS	0	2	0.2	0.4	1	51
T. 112	Level 2	303	N1034–1035/E1061	0.20–0.40 m DBS	0	2	0.2	0.4	1	5
T. 113	Level 2	304	N974–975/E1050	0.20–0.40 m DBS	0	2	0.2	0.4	1	7
T. 114	Level 1	306	N1142–1143/E931	0–0.20 m DBS	0	2	0.2	0.4	1	11
T. 114	Level 2	310	N1142–1143/E931	0.20–0.40 m DBS	0	2	0.2	0.4	1	3
T. 115	Level 1	307	N1180–1181/E933	0–0.20 m DBS	0	2	0.2	0.4	1	22
T. 115	Level 2	309	N1180–1181/E933	0.20–0.40 m DBS	0	2	0.2	0.4	1	19
T. 116	Level 2	308	N1230–1231/E961	0.20–0.40 m DBS	0	2	0.2	0.4	1	2
T. 122	Level 4	318	N1142–1143/E953	0.40–0.60 m DBS	0	2	0.2	0.4	1	1
T. 122	Feature 8	322	N1142–1143/E953–954	0.46–0.60 m DBS	F.8	4	0.14	0.56	1	1
T. 123	Level 2	319	N1112–1113/E961	0.20–0.40 m DBS	0	2	0.2	0.4	1	49
T. 124	Level 2	321	N1112–1113/E960	0.20–0.40 m DBS	0	2	0.2	0.4	1	7

V3	V5	V1	V1002	V1003	V1004	V1005	V1006	V1007	V1008	V1009	V1010	V1011	V1012	V1013
T. 90	Level 1	280	562	2	237	1	190	3	135	0	0	0	0	1
T. 91	Level 1	283	35	4	33	0	0	0	0	1	2	0	0	3
T. 91	Level 2	284	9	5	9	0	0	0	0	0	0	0	0	2
T. 92	Level 1	285	83	1	5	0	0	1	83	0	0	0	0	0
T. 97	Level 1	281	351	20	237	0	0	7	109	1	5	0	0	7
T. 98	Level 2	286	106	1	5	0	0	2	101	0	0	0	0	0
T. 99	Level 1	287	134	4	72	1	55	1	7	0	0	0	0	4
T. 101	Level 1	282	5181	34	584	78	4078	10	193	2	112	3	107	11
T. 101	Level 2	294	0.5	1	0.5	0	0	0	0	0	0	0	0	1
T. 101	Level 2	295	240	1	50	7	156	1	36	0	0	0	0	0

TABLE 9.2
Other Artifacts from B21.
(Continued)

V3	V5	V1	V1002	V1003	V1004	V1005	V1006	V1007	V1008	V1009	V1010	V1011	V1012	V1013
T. 102	Level 2	288	253	7	190	1	15	3	25	1	11	1	12	3
T. 102	Level 3	289	159	4	42	0	0	3	117	0	0	0	0	1
T. 104	Level 1	292	586	20	362	1	102	4	34	3	20	2	68	10
T. 104	Level 2	293	44	2	17	0	0	1	25	0	0	1	2	1
T. 105	Level 2	290	188	2	25	5	42	2	121	0	0	0	0	1
T. 106	Level 2	291	171	17	93	0	0	4	58	1	20	0	0	5
T. 107	Level 1	298	3	1	3	0	0	0	0	0	0	0	0	0
T. 108	Level 2	296	125.5	7	21	1	0.5	5	80	2	24	0	0	1
T. 108	Level 3	297	947	24	218	0	0	4	9	1	720	0	0	11
T. 108	Level 4	305	162	2	159	0	0	1	23	0	0	0	0	2
T. 109	Level 2	301	124	3	58	1	66	0	0	0	0	0	0	0
T. 110	Level 2	300	20	6	18	0	0	1	2	0	0	0	0	0
T. 111	Level 2	302	411	40	351	1	2	8	49	1	2	1	7	8
T. 112	Level 2	303	92	1	31	4	61	0	0	0	0	0	0	1
T. 113	Level 2	304	64	2	4	0	0	4	29	1	31	0	0	0
T. 114	Level 1	306	227	9	159	2	5	1	63	0	0	0	0	4
T. 114	Level 2	310	12	2	5	0	0	1	7	0	0	0	0	0
T. 115	Level 1	307	722	14	527	0	0	6	80	2	115	0	0	6
T. 115	Level 2	309	334	13	50	4	16	1	265	0	0	1	3	4
T. 116	Level 2	308	7	1	5	0	0	0	0	0	0	1	2	1
T. 122	Level 4	318	1	1	1	0	0	0	0	0	0	0	0	0
T. 122	Feature 8	322	2	1	2	0	0	0	0	0	0	0	0	0
T. 123	Level 2	319	254	41	182	2	10	5	60	1	4	0	0	6
T. 124	Level 2	321	63	6	44	0	0	0	0	1	19	0	0	3

V3	V5	V1	V1014	V1015	V1016	V1017	V1018	V1019	V1020	V1021	V1022	V1023	V1024	V1025
T. 90	Level 1	280	137	1	100	0	0	1	190	3	135	0	0	0
T. 91	Level 1	283	30	1	3	0	0	0	0	0	0	0	0	0
T. 91	Level 2	284	8	3	1	0	0	0	0	0	0	0	0	0
T. 92	Level 1	285	0	0	0	0	0	0	0	0	0	1	83	0
T. 97	Level 1	281	132	13	105	0	0	0	0	3	65	4	44	0
T. 98	Level 2	286	0	1	5	0	0	0	0	0	0	2	101	0
T. 99	Level 1	287	72	0	0	1	55	0	0	1	7	0	0	0
T. 101	Level 1	282	129	23	455	14	748	64	3330	3	129	7	63	0
T. 101	Level 2	294	0.5	0	0	0	0	0	0	0	0	0	0	0
T. 101	Level 2	295	0	1	50	1	9	6	145	1	36	0	0	0
T. 102	Level 2	288	16	4	174	1	15	0	0	0	0	3	25	0
T. 102	Level 3	289	22	3	20	0	0	0	0	1	378	2	79	0
T. 104	Level 1	292	263	10	99	0	0	1	102	1	19	3	15	1
T. 104	Level 2	293	6	1	11	0	0	0	0	1	25	0	0	0
T. 105	Level 2	290	20	1	5	3	32	2	10	1	20	1	12	0
T. 106	Level 2	291	60	12	33	0	0	0	0	1	43	3	15	0
T. 107	Level 1	298	0	1	3	0	0	0	0	0	0	0	0	0
T. 108	Level 2	296	7	6	14	0	0	1	0.5	0	0	5	80	1
T. 108	Level 3	297	148	13	70	0	0	0	0	0	0	4	9	1
T. 108	Level 4	305	159	0	0	0	0	0	0	1	23	0	0	0

TABLE 9.2
Other Artifacts from B21.
(Continued)

V3	V5	V1	V1014	V1015	V1016	V1017	V1018	V1019	V1020	V1021	V1022	V1023	V1024	V1025
T. 109	Level 2	301	0	3	58	0	0	1	66	0	0	0	0	0
T. 110	Level 2	300	0	6	18	0	0	0	0	0	0	1	2	0
T. 111	Level 2	302	96	27	170	1	2	0	0	2	38	6	11	0
T. 112	Level 2	303	31	0	0	1	26	3	35	0	0	0	0	0
T. 113	Level 2	304	0	2	4	0	0	0	0	1	5	3	24	1
T. 114	Level 1	306	52	5	107	0	0	2	5	1	63	0	0	0
T. 114	Level 2	310	0	2	5	0	0	0	0	0	0	1	7	0
T. 115	Level 1	307	330	8	197	0	0	0	0	1	44	6	36	0
T. 115	Level 2	309	34	9	16	1	8	3	8	1	265	0	0	0
T. 116	Level 2	308	5	0	0	0	0	0	0	0	0	0	0	0
T. 122	Level 4	318	0	1	1	0	0	0	0	0	0	0	0	0
T. 122	Feature 8	322	0	1	2	0	0	0	0	0	0	0	0	0
T. 123	Level 2	319	65	35	117	2	10	0	0	0	0	5	60	0
T. 124	Level 2	321	28	3	16	0	0	0	0	0	0	0	0	1

V3	V5	V1	V1026	V1027	V1028	V1031	V1032	V1033	V1034	V1036	V1037	V1038	V1039	V2001
T. 90	Level 1	280	0	0	0	0	0	1	0	0	0	0	0	0
T. 91	Level 1	283	0	1	2	0	0	0	0	2	0	0	1	0
T. 91	Level 2	284	0	0	0	0	0	0	0	2	0	0	0	0
T. 92	Level 1	285	0	0	0	0	0	0	0	0	0	0	0	0
T. 97	Level 1	281	0	1	5	0	0	0	0	4	0	2	1	0
T. 98	Level 2	286	0	0	0	0	0	0	0	0	0	0	0	0
T. 99	Level 1	287	0	0	0	0	0	0	0	3	0	0	1	0
T. 101	Level 1	282	0	2	112	3	107	0	0	10	1	0	0	5
T. 101	Level 2	294	0	0	0	0	0	0	0	1	0	0	0	0
T. 101	Level 2	295	0	0	0	0	0	0	0	0	0	0	0	0
T. 102	Level 2	288	0	1	11	1	12	0	0	3	0	0	0	0
T. 102	Level 3	289	0	0	0	0	0	0	0	1	0	0	0	0
T. 104	Level 1	292	3	2	17	2	68	0	0	7	0	2	1	1
T. 104	Level 2	293	0	0	0	1	2	0	0	1	0	0	0	0
T. 105	Level 2	290	0	0	0	0	0	0	0	0	0	1	0	0
T. 106	Level 2	291	0	1	20	0	0	0	0	5	0	0	0	0
T. 107	Level 1	298	0	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 2	296	21	1	3	0	0	0	0	1	0	0	0	0
T. 108	Level 3	297	720	0	0	0	0	0	0	10	0	0	1	0
T. 108	Level 4	305	0	0	0	0	0	1	0	1	0	0	0	0
T. 109	Level 2	301	0	0	0	0	0	0	0	0	0	0	0	0
T. 110	Level 2	300	0	0	0	0	0	0	0	0	0	0	0	0
T. 111	Level 2	302	0	1	2	1	7	0	0	3	0	3	2	1
T. 112	Level 2	303	0	0	0	0	0	0	0	1	0	0	0	0
T. 113	Level 2	304	31	0	0	0	0	0	0	0	0	0	0	0
T. 114	Level 1	306	0	0	0	0	0	4	0	0	0	0	0	0
T. 114	Level 2	310	0	0	0	0	0	0	0	0	0	0	0	0
T. 115	Level 1	307	0	2	115	0	0	0	1	5	0	0	0	1
T. 115	Level 2	309	0	1	3	0	0	0	0	4	0	0	0	0
T. 116	Level 2	308	0	0	0	1	2	0	0	1	0	0	0	0

TABLE 9.2
Other Artifacts from B21.
(Continued)

V3	V5	V1	V1026	V1027	V1028	V1031	V1032	V1033	V1034	V1036	V1037	V1038	V1039	V2001
T. 122	Level 4	318	0	0	0	0	0	0	0	0	0	0	0	0
T. 122	Feature 8	322	0	0	0	0	0	0	0	0	0	0	0	0
T. 123	Level 2	319	0	1	4	0	0	0	0	6	0	0	0	1
T. 124	Level 2	321	19	0	0	0	0	0	0	2	0	0	1	0

V3	V5	V1	V2002	V2003	V2004	V2007	V2008	V2011	V2012	V2015	V2016	V2019	V2020	V2021
T. 90	Level 1	280	0	0	0	0	0	0	0	0	0	0	0	0
T. 91	Level 1	283	0	0	0	0	0	0	0	0	0	0	0	0
T. 91	Level 2	284	0	0	0	0	0	0	0	0	0	0	0	0
T. 92	Level 1	285	0	0	0	0	0	0	0	0	0	0	0	0
T. 97	Level 1	281	0	0	0	0	0	0	0	0	0	0	0	0
T. 98	Level 2	286	0	0	0	0	0	0	0	0	0	0	0	0
T. 99	Level 1	287	0	0	0	0	0	0	0	0	0	0	0	0
T. 101	Level 1	282	1202	1	617	1	157	3	428	0	0	3	577	2
T. 101	Level 2	294	0	0	0	0	0	0	0	0	0	0	0	0
T. 101	Level 2	295	0	0	0	0	0	0	0	0	0	0	0	0
T. 102	Level 2	288	0	0	0	0	0	0	0	0	0	0	0	0
T. 102	Level 3	289	0	0	0	0	0	0	0	0	0	0	0	0
T. 104	Level 1	292	520	0	0	0	0	1	520	1	520	0	0	0
T. 104	Level 2	293	0	0	0	0	0	0	0	0	0	0	0	0
T. 105	Level 2	290	0	0	0	0	0	0	0	0	0	0	0	0
T. 106	Level 2	291	0	0	0	0	0	0	0	0	0	0	0	0
T. 107	Level 1	298	0	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 2	296	0	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 3	297	0	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 4	305	0	0	0	0	0	0	0	0	0	0	0	0
T. 109	Level 2	301	0	0	0	0	0	0	0	0	0	0	0	0
T. 110	Level 2	300	0	0	0	0	0	0	0	0	0	0	0	0
T. 111	Level 2	302	195	0	0	0	0	1	195	0	0	1	195	0
T. 112	Level 2	303	0	0	0	0	0	0	0	0	0	0	0	0
T. 113	Level 2	304	0	0	0	0	0	0	0	0	0	0	0	0
T. 114	Level 1	306	0	0	0	0	0	0	0	0	0	0	0	0
T. 114	Level 2	310	0	0	0	0	0	0	0	0	0	0	0	0
T. 115	Level 1	307	227	0	0	0	0	1	227	0	0	0	0	1
T. 115	Level 2	309	0	0	0	0	0	0	0	0	0	0	0	0
T. 116	Level 2	308	0	0	0	0	0	0	0	0	0	0	0	0
T. 122	Level 4	318	0	0	0	0	0	0	0	0	0	0	0	0
T. 122	Feature 8	322	0	0	0	0	0	0	0	0	0	0	0	0
T. 123	Level 2	319	722	0	0	0	0	1	722	0	0	0	0	1
T. 124	Level 2	321	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V2022	V2031	V2032	V2033	V2034	V2035	V2036	V2037	V2038	V2039	V2040	V2041
T. 90	Level 1	280	0	0	0	0	0	0	0	0	0	0	0	0
T. 91	Level 1	283	0	3	65	0	0	0	0	2	64	0	0	0
T. 91	Level 2	284	0	3	85	1	71	0	0	1	3	0	0	0

TABLE 9.2
Other Artifacts from B21.
(Continued)

V3	V5	V1	V2022	V2031	V2032	V2033	V2034	V2035	V2036	V2037	V2038	V2039	V2040	V2041
T. 92	Level 1	285	0	0	0	0	0	0	0	0	0	0	0	0
T. 97	Level 1	281	0	0	0	0	0	0	0	0	0	0	0	0
T. 98	Level 2	286	0	0	0	0	0	0	0	0	0	0	0	0
T. 99	Level 1	287	0	0	0	0	0	0	0	0	0	0	0	0
T. 101	Level 1	282	625	1	80	0	0	1	80	0	0	0	0	0
T. 101	Level 2	294	0	0	0	0	0	0	0	0	0	0	0	0
T. 101	Level 2	295	0	0	0	0	0	0	0	0	0	0	0	0
T. 102	Level 2	288	0	1	1	0	0	0	0	0	0	1	1	0
T. 102	Level 3	289	0	2	4	0	0	0	0	0	0	1	2	0
T. 104	Level 1	292	0	1	1	0	0	0	0	0	0	1	1	0
T. 104	Level 2	293	0	0	0	0	0	0	0	0	0	0	0	0
T. 105	Level 2	290	0	0	0	0	0	0	0	0	0	0	0	0
T. 106	Level 2	291	0	0	0	0	0	0	0	0	0	0	0	0
T. 107	Level 1	298	0	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 2	296	0	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 3	297	0	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 4	305	0	0	0	0	0	0	0	0	0	0	0	0
T. 109	Level 2	301	0	0	0	0	0	0	0	0	0	0	0	0
T. 110	Level 2	300	0	0	0	0	0	0	0	0	0	0	0	0
T. 111	Level 2	302	0	2	25	0	0	0	0	0	0	0	0	0
T. 112	Level 2	303	0	0	0	0	0	0	0	0	0	0	0	0
T. 113	Level 2	304	0	0	0	0	0	0	0	0	0	0	0	0
T. 114	Level 1	306	0	0	0	0	0	0	0	0	0	0	0	0
T. 114	Level 2	310	0	0	0	0	0	0	0	0	0	0	0	0
T. 115	Level 1	307	227	0	0	0	0	0	0	0	0	0	0	0
T. 115	Level 2	309	0	0	0	0	0	0	0	0	0	0	0	0
T. 116	Level 2	308	0	0	0	0	0	0	0	0	0	0	0	0
T. 122	Level 4	318	0	0	0	0	0	0	0	0	0	0	0	0
T. 122	Feature 8	322	0	17	24	0	0	0	0	0	0	1	23	16
T. 123	Level 2	319	722	0	0	0	0	0	0	0	0	0	0	0
T. 124	Level 2	321	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V2042	V2043	V2044	V2045	V2046	V2047	V2048	V2049	V2050	V2051	V2052	V2055
T. 90	Level 1	280	0	0	0	0	0	0	0	0	0	0	0	0
T. 91	Level 1	283	0	1	1	0	0	0	0	2	64	1	1	0
T. 91	Level 2	284	0	0	0	1	11	1	0	2	74	1	11	0
T. 92	Level 1	285	0	0	0	0	0	0	0	0	0	0	0	0
T. 97	Level 1	281	0	0	0	0	0	0	0	0	0	0	0	0
T. 98	Level 2	286	0	0	0	0	0	0	0	0	0	0	0	0
T. 99	Level 1	287	0	0	0	0	0	0	0	0	0	0	0	0
T. 101	Level 1	282	0	0	0	0	0	0	0	0	0	0	0	0
T. 101	Level 2	294	0	0	0	0	0	0	0	0	0	0	0	0
T. 101	Level 2	295	0	0	0	0	0	0	0	0	0	0	0	0
T. 102	Level 2	288	0	0	0	0	0	0	0	0	0	1	1	0
T. 102	Level 3	289	0	1	2	0	0	0	0	0	0	2	4	0
T. 104	Level 1	292	0	0	0	0	0	0	0	0	0	1	1	0

TABLE 9.2
Other Artifacts from B21.
(Continued)

V3	V5	V1	V2042	V2043	V2044	V2045	V2046	V2047	V2048	V2049	V2050	V2051	V2052	V2055
T. 104	Level 2	293	0	0	0	0	0	0	0	0	0	0	0	0
T. 105	Level 2	290	0	0	0	0	0	0	0	0	0	0	0	0
T. 106	Level 2	291	0	0	0	0	0	0	0	0	0	0	0	0
T. 107	Level 1	298	0	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 2	296	0	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 3	297	0	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 4	305	0	0	0	0	0	0	0	0	0	0	0	0
T. 109	Level 2	301	0	0	0	0	0	0	0	0	0	0	0	0
T. 110	Level 2	300	0	0	0	0	0	0	0	0	0	0	0	0
T. 111	Level 2	302	0	1	2	1	23	1	0	0	0	2	25	0
T. 112	Level 2	303	0	0	0	0	0	0	0	0	0	0	0	0
T. 113	Level 2	304	0	0	0	0	0	0	0	0	0	0	0	0
T. 114	Level 1	306	0	0	0	0	0	0	0	0	0	0	0	0
T. 114	Level 2	310	0	0	0	0	0	0	0	0	0	0	0	0
T. 115	Level 1	307	0	0	0	0	0	0	0	0	0	0	0	0
T. 115	Level 2	309	0	0	0	0	0	0	0	0	0	0	0	0
T. 116	Level 2	308	0	0	0	0	0	0	0	0	0	0	0	0
T. 122	Level 4	318	0	0	0	0	0	0	0	0	0	0	0	0
T. 122	Feature 8	322	1	0	0	0	0	0	0	0	0	0	0	17
T. 123	Level 2	319	0	0	0	0	0	0	0	0	0	0	0	0
T. 124	Level 2	321	0	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V2056	V2057	V2058	V2071	V2072	V2081	V2082	V2083	V2084	V2087	V2088
T. 90	Level 1	280	0	0	0	0	0	0	0	0	0	0	0
T. 91	Level 1	283	0	0	0	4	6	1	23	1	23	0	0
T. 91	Level 2	284	0	0	0	0	0	0	0	0	0	0	0
T. 92	Level 1	285	0	0	0	0	0	0	0	0	0	0	0
T. 97	Level 1	281	0	0	0	0	0	0	0	0	0	0	0
T. 98	Level 2	286	0	0	0	0	0	0	0	0	0	0	0
T. 99	Level 1	287	0	0	0	0	0	0	0	0	0	0	0
T. 101	Level 1	282	0	1	80	0	0	0	0	0	0	0	0
T. 101	Level 2	294	0	0	0	0	0	0	0	0	0	0	0
T. 101	Level 2	295	0	0	0	0	0	0	0	0	0	0	0
T. 102	Level 2	288	0	0	0	0	0	0	0	0	0	0	0
T. 102	Level 3	289	0	0	0	0	0	0	0	0	0	0	0
T. 104	Level 1	292	0	0	0	3	2	0	0	0	0	0	0
T. 104	Level 2	293	0	0	0	0	0	0	0	0	0	0	0
T. 105	Level 2	290	0	0	0	0	0	0	0	0	0	0	0
T. 106	Level 2	291	0	0	0	0	0	0	0	0	0	0	0
T. 107	Level 1	298	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 2	296	0	0	0	0	0	0	0	0	0	0	0
T. 108	Level 3	297	0	0	0	10	5	1	11	0	0	1	11
T. 108	Level 4	305	0	0	0	0	0	0	0	0	0	0	0
T. 109	Level 2	301	0	0	0	0	0	0	0	0	0	0	0
T. 110	Level 2	300	0	0	0	0	0	0	0	0	0	0	0
T. 111	Level 2	302	0	0	0	0	0	0	0	0	0	0	0

TABLE 9.2
Other Artifacts from B21.
(Continued)

V3	V5	V1	V2056	V2057	V2058	V2071	V2072	V2081	V2082	V2083	V2084	V2087	V2088
T. 112	Level 2	303	0	0	0	0	0	0	0	0	0	0	0
T. 113	Level 2	304	0	0	0	0	0	0	0	0	0	0	0
T. 114	Level 1	306	0	0	0	0	0	0	0	0	0	0	0
T. 114	Level 2	310	0	0	0	0	0	0	0	0	0	0	0
T. 115	Level 1	307	0	0	0	35	6	0	0	0	0	0	0
T. 115	Level 2	309	0	0	0	0	0	0	0	0	0	0	0
T. 116	Level 2	308	0	0	0	20	1	0	0	0	0	0	0
T. 122	Level 4	318	0	0	0	0	0	0	0	0	0	0	0
T. 122	Feature 8	322	24	0	0	0	0	0	0	0	0	0	0
T. 123	Level 2	319	0	0	0	0	0	0	0	0	0	0	0
T. 124	Level 2	321	0	0	0	0	0	0	0	0	0	0	0

TABLE 9.3
Distribution of Certain Ceramic Variables Among 22 Test Pits at B21.

Test Pit	V104	V150	SmpSz	Feet/Diag	H/L	Sector	V334
T. 90	3	2					0
T. 91	18	2	Yes	11.10%	H	E	1
T. 97	17	1	Yes	5.88%	L	W	0
T. 98	3	3					0
T. 99	4	2					0
T. 101	34	7	Yes	20.59%	H	E	0
T. 102	12	3	Yes	25.00%	H	E	0
T. 104	13	2	Yes	15.39%	H	E	0
T. 105	0	0					0
T. 106	10	0	Yes	0%	L	W	0
T. 107	1	0					0
T. 108	26	1	Yes	3.85%	L	W	0
T. 109	3	0					0
T. 110	6	1					0
T. 111	55	6	Yes	10.91%	H	W	2
T. 112	1	0					0
T. 113	0	0					0
T. 114	18	2	Yes	11.11%	H	W	1
T. 115	48	5	Yes	10.42%	L	W	3
T. 116	1	0					0
T. 122	15	0	Yes	0%	L	W	0
T. 123	27	0	Yes	0%	L	W	0

V104 = total count of diagnostic sherds; V150 = total count of ceramic foot fragments; SmpSz = sample size of V104 ≥ 10 diagnostic sherds, warranting use in further analysis; Feet/Diag = total count of ceramic foot fragments (V150) divided by total count of diagnostic sherds (V104), multiplied by 100 for percentage; H/L = whether value of Feet/Diag is great than (H) or less than or equal to (L) median for all test pits. Sector = test pit east (E) or west (W) of proposed central avenue running from Mound A to Mound B; V334 = total number of sherds classified as kiln wasters or misfired sherds.

TABLE 9.4
Distribution of Chipped Stone Variables and Burned Daub among 22 Test Pits at B21.

Test Pit	V104	SmpSz	Sector	V1003	Chert/Diag	V1015	NonUt/Chrt	T.L. Daub Wt	T.L. Daub Ct
T. 90	3			2		1		0	0
T. 91	18	Yes	E	9	0.50	4	0.44	4	6
T. 97	17	Yes	W	20	1.18	13	0.65	0	0
T. 98	3			1		1		0	0
T. 99	4			4		0		0	0
T. 101	34	Yes	E	36	1.06	24	0.67	0	0
T. 102	12	Yes	E	11	0.92	7	0.64	0	0
T. 104	13	Yes	E	22	1.69	11	0.5	3	2
T. 105	0			2		1		0	0
T. 106	10	Yes	W	17	1.70	12	0.71	0	0
T. 107	1			1		1		0	0
T. 108	26	Yes	W	33	1.27	19	0.58	10	5
T. 109	3			3		3		0	0
T. 110	6			6		6		0	0
T. 111	55	Yes	W	40	0.73	27	0.68	0	0
T. 112	1			1		0		0	0
T. 113	0			2		2		0	0
T. 114	18	Yes	W	11	0.61	7	0.64	0	0
T. 115	48	Yes	W	27	0.56	17	0.63	35	6
T. 116	1			1		0		20	1
T. 122	15	Yes	W	2	0.13	2	1	0	0
T. 123	27	Yes	W	41	1.52	35	0.85	0	0

V104 = total count of diagnostic sherds; SmpSz = sample size of V104 ≥ 10 diagnostic sherds, warranting use in further analysis; Sector = test pit east (E) or west (W) of proposed central avenue running from Mound A to Mound B; V1003 = total count of chert fragments; Chert/Diag = total count of chert fragments (V1003) divided by total count of diagnostic sherds (V104); V1015 = total count of nonutilized chert fragments; NonUt/Chrt = total count of nonutilized chert fragments (V1015) divided by total count of chert fragments (V1003). T.L. Daub Wt = total weight (in grams) of burned daub fragments in top level of test pit; T.L. Daub Ct = total count of burned daub fragments in top level of test pit.

CHAPTER 10

EXCAVATIONS AT B17 (FLOR AMARILLA)

The site of Flor Amarilla (fig. 10.1) was one of the five second-tier Gaván-complex settlements found during the regional survey (Redmond and Spencer, 2007). The site is located in the high llanos west of the Curbatí River, about 2 km south of the leading edge of the Andean piedmont (fig. 1.3). The road from the town of Curbatí to El Algarrobo traverses the site at a distance of 1.5 km from its intersection with the Panamerican highway. The occupation extends over 7.5 ha. Two earthen mounds are visible on the surface. The larger of the two is Mound A, which measures 38 m long by 28 m wide at its base and is 6 m tall (fig. 10.2). The top surface of Mound A measures 5 × 5 m. Mound A is oriented 30° west of magnetic north. About 250 m to the north and across the road is Mound B (fig. 10.3). Mound B measures 30 × 30 m at its base and is 2.5 m tall. The top surface of Mound B measures 8 m (east-west) by 6 m (north-south). At a bearing of 30° west of magnetic north from the northeast corner of Mound A and along the road lay a bulldozed pit (*préstamo*), where the majority of the ceramics recovered during our survey of the site were collected; it is possible that a third mound stood here originally (Redmond and Spencer, 2007: 151). While mapping the site in 1985, when the pastures west of the road had been cleared, we discovered a segment of a *calzada* (earthen causeway) in a field about 80 m southwest of Mound A. We designated this causeway Calzada B and we followed it for about 500 m along a heading of 35° west of magnetic south, until we lost track of it in the outskirts of Curbatí. About 4 km southwest of Curbatí, beyond the area of modern settlement, we located the northernmost end of Calzada A, which we traced all the way to the first-tier center of B12 (fig. 1.3). We have argued that Calzada B originally connected with Calzada A, thus providing a direct causeway connection between B17 and B12 (Spencer and Redmond, 1998).

Flor Amarilla (B17) was the final site where we conducted excavations in May 1988. We carried out a program of systematic test-pit excavations that consisted of test pits measuring 1 × 2 m. The test pit locations were selected by a probabilistic sampling program, which will be described below. When we mapped the site in August 1985 with an alidade and plane table, we established a grid system for B17. The grid system was designed so that every excavation would have a unique grid designation and be incorporated into the overall system. The central datum point established at the first plane table position along the road northeast of Mound

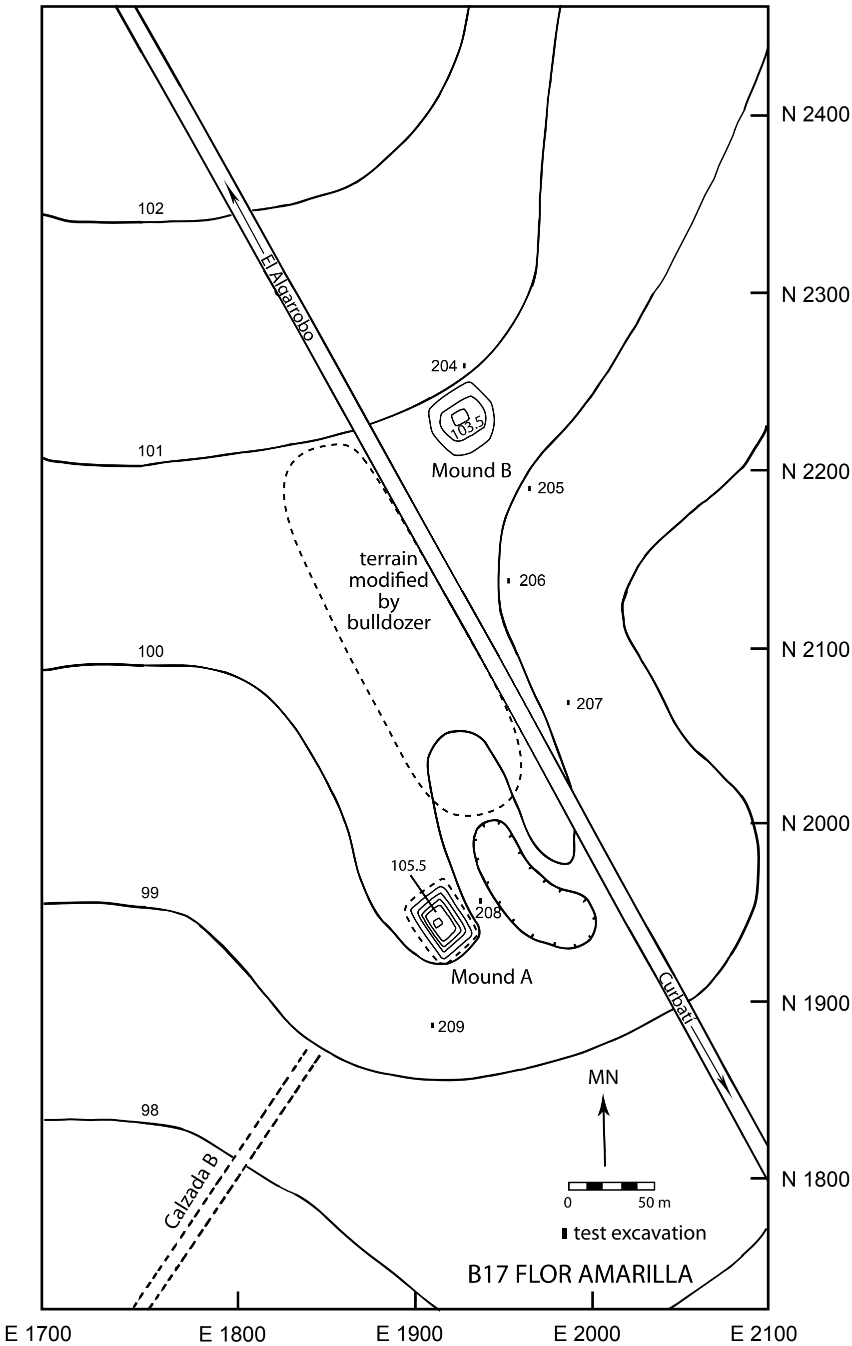

Figure 10.1. Topographic map of Flor Amarilla (B17), showing the locations of the mounds labeled with letters, causeway (*calzada*) segment, and the numbered test excavations; a guide to north and east grid coordinates is also presented.

A had a coordinate of N2000/E2000 and an elevation of 100.00 m. The grid system was constructed so that the origin of the grid lay to the southwest of the site, causing the entire site to fall in the northeast quadrant of a Cartesian coordinate system. In this way, all of our grid designations could be expressed in terms of the distance (in m) north and east of the arbitrary origin, while all elevations were taken relative to the datum point of 100.00 m at the first plane table position on the road (fig. 10.1).

TEST-PIT PROGRAM

The test-pit program carried out at Flor Amarilla (B17) was intended to collect information about the site's areal extent and occupation. Certain factors influenced the sampling program, beginning with the sources of disturbance to the site. The road from Curbatí to El Algarrobo transects the site's central axis and has affected a wide swath of the area between the two visible mounds. The terrain on the west side of the road was severely modified by a bulldozer during the building of the road, including the *préstamo* where the two surface collections were made during the 1983 and 1985 seasons (Redmond and Spencer, 2007: 151–152). Finally, there was a general need to complete the fieldwork before the onset of the rainy season.

Figure 10.2. View of Mound A from road, looking southwest.

The locations of six test pits were selected randomly from judgmentally stratified quadrants (50 × 50 m units) that extended along the site's axis, but away from road and the bulldozed area west of the road, achieving a Probability-4 sample from the nondisturbed portions of the mound site. The test-pit coordinates were drawn from a table of random numbers. All test pits were oriented north-south and referenced by the grid designation of the southwest corner on the site map. The sampling fraction at B17 was 0.08%.

The test pits were located in the field following the procedure established previously at the sites where test-pit programs were carried out, with the person on the alidade and the person on the stadia rod establishing the point with the aid of walkie-talkies. A stake was driven in the ground at the point, which became the southwestern corner of the test pit. The surface elevation of that point was also a datum point, from which relative elevations within the test excavation could be measured, in addition to the depth below surface (DBS) measurements.

The drawings of the test pit profiles accompany the descriptions of the test pits, followed by the tables of the ceramic and nonceramic artifacts recovered (tables 10.1, 10.2).

Figure 10.3. View of Mound B from road, looking north, with T.205 in progress to the right and T.206 in foreground to the left.

Figure 10.4. View of Mound B, looking south, with a crew member standing on its surface and T.204 in progress to the left.

T.204 was at N2260–2261/E1934, only 8 m north of the northeast corner of Mound B (figs. 10.1, 10.4). The surface elevation at the top southwest corner of the pit was 101.07 m. We excavated three levels: Level 1 (0–0.20 m DBS), Level 2 (B17-874; 0.20–0.40 m DBS), and Level 3 (0.40–0.56 m DBS). Cultural materials were recovered in Level 2 (tables 10.1, 10.2). The drawing of the pit's west profile (fig. 10.5) shows three stratigraphic layers. Layer A was brown loose sandy topsoil that lacked cultural material, and that extended from the ground surface to 0.20 m DBS. Layer B consisted of the same brown-colored sandy deposit, but it did contain cultural materials; Layer B corresponded to Level 2 and extended down to 0.40 m DBS. Layer C was a sandier brown-colored sterile deposit that extended from the bottom of Layer B to 0.56 m DBS, where excavation ceased.

We recovered a total of 22 Gaván-complex sherds in Level 2 (B17-874; 0.20–0.40 m DBS), of which seven were diagnostics (table 10.1). The four pieces of chipped stone consisted of one fragment of utilized quartz, two pieces of nonutilized sandstone, and one fragment of nonutilized amphibolite (table 10.2).

T.205 was at N2191–2192/E1972, about 35 m southeast of Mound B (figs. 10.1, 10.3).

The surface elevation at the top southwest corner of the pit was 99.88 m. We excavated three levels here: Level 1 (0–0.20 m DBS), Level 2 (B17-877; 0.20–0.40 m DBS), and Level 3 (0.40–0.60 m DBS). Cultural materials were recovered in Level 2 (tables 10.1, 10.2). The drawing of T.205's west profile (fig. 10.6) shows two stratigraphic layers. Layer A was loose topsoil, dark brown-gray to almost black in color that extended to 0.30 m DBS. Layer B consisted of the same dark brown-gray to almost black-colored soil as above, but even darker in color. Layer B featured friable rocks that appeared in the northwest quadrant of the test pit at 0.10 m DBS and extended to the southeast quadrant above 0.40 m DBS. This rocky layer continued to the depth of 0.60 m DBS where the excavation stopped. Our Level 2 comprised a portion of Layer A and the top portion of Layer B; cultural materials appeared at 0.25 m DBS and persisted until 0.35 m DBS.

The cultural materials recovered in Level 2 (B17-877; 0.20–0.40 m DBS) consisted of nine Gaván-complex sherds, of which one was a diagnostic (table 10.1). Three fragments of chipped stone were recovered: one fragment of utilized sandstone and two fragments of nonutilized sandstone (table 10.2).

T.206 was at N2140–2141/E1959, 80 m south of Mound B and east of the road (fig. 10.1, 10.3). The surface elevation at the top southwest corner of the test pit was 99.38 m. Three levels were excavated in T.206: Level 1 (B17-921; 0–0.20 m DBS), Level 2 (0.20–0.40 m DBS), and Level 3 (0.40–0.60 m DBS). Cultural materials were recovered only in Level 1 (B17-921) (tables 10.1, 10.2). The drawing of T.206's west profile (fig. 10.7) shows three stratigraphic layers. Layer A was a reddish-brown soil deposit with cultural materials that extended from the ground surface to 0.10–0.15 m DBS. Layer B was a sterile dark-brown sandy deposit that became sandier toward the bottom at 0.28 m DBS. Layer C was a sterile sandy deposit containing rocks that continued beyond 0.40 m DBS to 0.60 m DBS, where excavation ceased. Level 1 included Layer A and penetrated Layer B. Level 2 comprised the remainder of Layer B and penetrated Layer C.

Level 1 (B17-921; 0–0.20 m DBS) yielded 89 sherds, of which 12 were diagnostic Gaván-complex sherds (table 10.1). Various vessel forms were present: three outleaned-wall bowl rims, two composite-silhouette bowls rims, and seven *olla* rims. Nine fragments of chipped stone were recovered: one piece of chert (nonutilized), six fragments of sandstone (two utilized sandstone), and two pieces of amphibolite (one utilized). One indeterminate fragment of a grinding stone, one fragment of the limb of a ceramic figurine, and two pieces of burned daub were also recovered (table 10.2).

We tentatively interpret the assemblage of ceramic and nonceramic artifacts recovered in T.206 as domestic midden debris. Given the location of the test pit, east of the central axis of the site between Mound A and Mound B, we would argue that the occupation at B17 consisted of houses that flanked the central axis, a pattern observed at the regional center of B12 and also at the second-tier center of B21. Future investigations at Flor Amarilla will be needed to verify this possibility.

T.207 was at N2071–2072/E1995, some 130 m northeast of Mound A and east of the road (fig. 10.1). The surface elevation at the top southwest corner of the pit was 99.14 m. We excavated two levels here: Level 1 (0–0.20 m DBS) and Level 2 (B17-888; 0.20–0.40 m

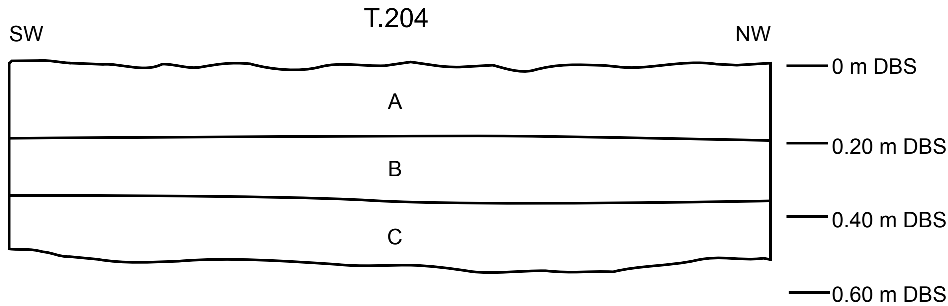

Figure 10.5. Profile drawing of the west face of T.204.

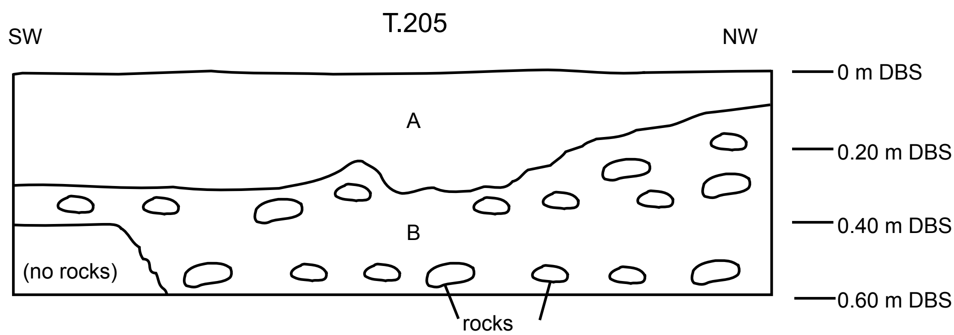

Figure 10.6. Profile drawing of the west face of T.205.

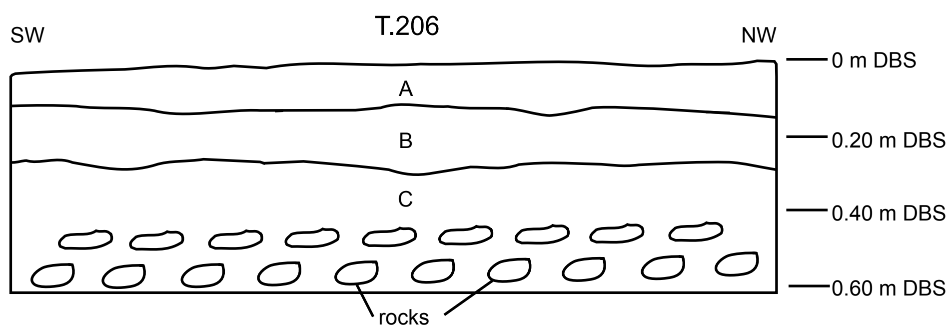

Figure 10.7. Profile drawing of the west face of T.206.

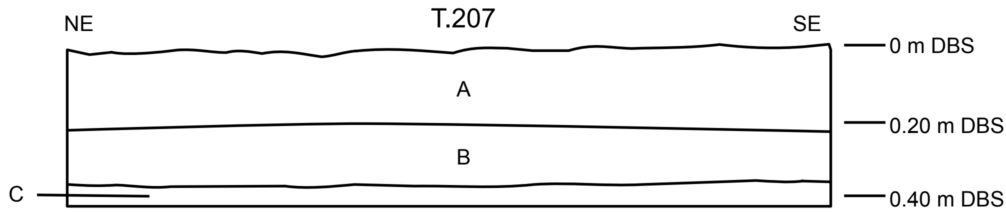

Figure 10.8. Profile drawing of the east face of T.207.

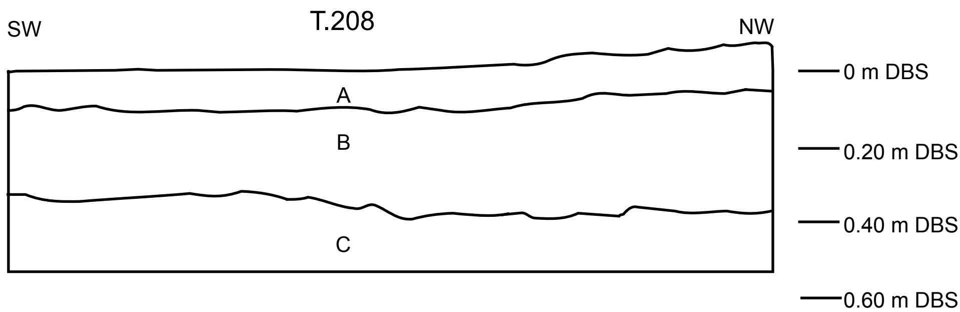

Figure 10.9. Profile drawing of the west face of T.208.

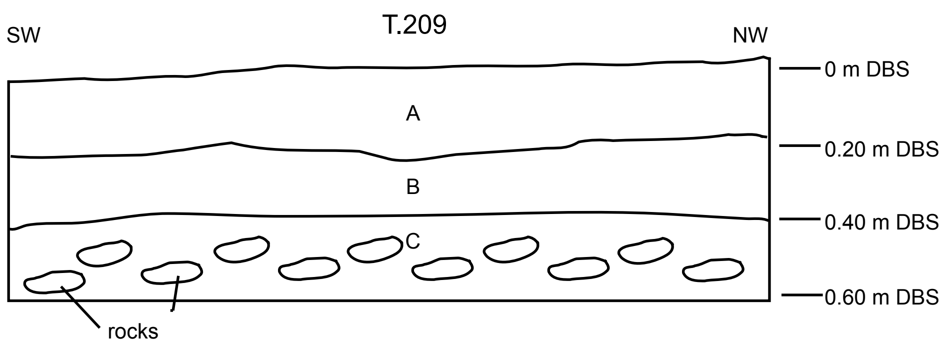

Figure 10.10. Profile drawing of the west face of T.209.

DBS) (tables 10.1, 10.2). The drawing of the test pit's east profile (fig. 10.8) shows three stratigraphic layers. Layer A was a loose sandy sterile topsoil, dark brown-gray to almost black in color that extended to 0.22 m DBS. Layer B consisted of the same sandy deposit as above, but black in color. Layer B did contain cultural materials and extended from 0.22 m DBS to 0.35 m DBS. Layer C was a sterile sandy clayey deposit that contained friable rocks and clearly continued downward beyond 0.40 m DBS, where we ceased excavation. Level 2 corresponded to artifact-bearing Layer B and penetrated the top of Layer C.

We recovered a total of 14 Gaván-complex sherds in Level 2 (B17-888; 0.20–0.40 m DBS), of which two were diagnostics; one of them was derived from a vessel with a pedestal base (table 10.1). Four pieces of chipped stone were recovered: two fragments of utilized sandstone, and two fragments of nonutilized amphibolite (table 10.2).

T.208 was at N1960–1961/E1945, in the pasture west of the road and 12 m east of Mound A (fig. 10.1, 10.2). The surface elevation at the top southwest corner of the pit was 98.89 m. We excavated three levels: Level 1 (0–0.20 m DBS), Level 2 (B17-879; 0.20–0.40 m DBS), and Level 3 (0.40–0.60 m DBS). Cultural materials were found in Level 2 (tables 10.1, 10.2). As shown in the drawing of the west profile (fig. 10.9), T.208 exposed three stratigraphic layers. Layer A was loose sterile topsoil, dark brown-gray to almost black in color that extended to 0.07–0.10 m DBS. Layer B consisted of the same deposit as above, but black in color. Layer B extended from the bottom of Layer A down to 0.39 m DBS and contained cultural materials. Level 1 included Layer A and the top of Layer B. Level 2 comprised the remainder of Layer B, including the artifact-bearing zone between 0.25 m and 0.38 m DBS (fig. 10.9) and penetrated Layer C in the southern half of the test pit. Layer C was a clayey deposit that was noticeably lighter brown-gray in color, and devoid of artifacts. The excavation was stopped at 0.51 m DBS.

Level 2 (B17-879; 0.20–0.40 m DBS) contained eight nondiagnostic sherds (table 10.1). One fragment of nonutilized amphibolite was recovered as well (table 10.2).

T.209 was at N1889–1890/E1917, 38 m south of the southwest corner of Mound A (fig. 10.1). The surface elevation at the top southwest corner of the test pit was 99.19 m. We excavated three levels here: Level 1 (0–0.20 m DBS), Level 2 (0.20–0.40 m DBS), and Level 3 (0.40–0.60 m DBS). We did not recover any cultural materials in this test pit. The west profile of the test pit (fig. 10.10) shows three stratigraphic layers. Layer A consisted of loose topsoil, dark brown in color that extended to 0.20–0.22 m DBS. Layer B was a yellow-brown clay deposit that reached to approximately 0.40 m DBS. Underlying Layer B the yellow-brown clay matrix was studded with rocks, which we designated Layer C. Our excavation levels corresponded to the stratigraphic layers. The excavation of Level 3 exposed the rocky Layer C throughout the test pit, and the deposit was not screened.

The absence of any cultural materials in T.209 implies that the occupation of B17 did not extend this far southwest of Mound A and of the causeway (Calzada B) that leads southwest of Mound A.

OCCUPATIONAL CHRONOLOGY

B17 covered about 7.5 ha during its peak period of occupation, the Late Gaván phase

(A.D. 550–1000). Unlike B12, B97, and B21, we found no evidence of an Early Gaván phase (A.D. 300–550) occupation at B17. In contrast to those other three sites, there were no deep test pits at B17; none recovered cultural materials deeper than 40 cm DBS. Moreover, none of our excavated proveniences contained any examples of V245 (Composite-silhouette Bowl Rim Form 6), the ceramic rim form whose use was restricted to the Early Gaván phase (chap. 3). Consequently, we would argue that B17 was occupied only during Late Gaván times, making it part of the great increase in human population experienced by our study region, beginning around A.D. 550.

COMMUNITY ORGANIZATION

At B17, time constraints allowed us to excavate only six test pits, five of which yielded evidence of Gaván-complex occupation (table 10.1). These five pits produced relatively few artifacts, however, making it impossible to assess patterns of intrasite variability as we did for B12, B97, and B21. For example, at B17 we recovered no examples of ceramic feet from footed vessels (V150), which we have used as indicators of high status at other sites. Moreover, the overall paucity of chert recovered at B17 is curious given the site's proximity to the Andean cordillera. Nevertheless, there are some hints that the community organization of B17 was not unlike that observed at the other excavated mound sites.

First, we should call attention to the site's essentially linear layout. B17's two large earthen mounds (Mound A and Mound B) face each other across a distance of some 250 m. A centerline drawn between Mound A and Mound B would be oriented about 30° west of magnetic north. There was no evidence of occupation extending beyond roughly 10 m north of Mound B or south of Mound A. Our excavation of T.204, 10 m north of Mound B, produced a total of seven diagnostic sherds, while our excavation of T.209, some 40 m south of Mound A, recovered no cultural materials (table 10.1). Nor did we find evidence of occupation beyond 60 m to the east or west from the centerline between Mound A and Mound B. Our excavation of T.206, 30 m east of the centerline, produced a total of 12 diagnostic sherds, whereas T.207, some 60 m east of the centerline, yielded only two diagnostic sherds; moreover, the terrain slopes downward, with no sign of occupation, beyond T.207 to the east (table 10.1). Unfortunately, much of the central part of the site has been seriously damaged by bulldozer activity (fig. 10.1). Second, it is noteworthy that the distance between the two mounds at B17 is approximately the same as the distance between the two largest mounds at B21 (Mound A and Mound B); it is half the distance between the two largest mounds at B12 (Mound A and Mound E). We would argue, as we did previously for B21, that B17 had a layout that emulated, at 50% scale, the linear structure of the region's first-tier center (B12). Third, B17 resembled B97 and B21 in that it was connected to an earthen causeway, in this case Calzada B, the beginning of which we detected about 80 m southwest of Mound A (fig. 10.1). We would suggest, as we did for B97 and B21, that the inhabitants of B17 could have used this *calzada* to move expeditiously to the regional center of B12 during times of war. We reported previously (Spencer and Redmond, 1998: table 5) that B17 showed far less evidence of burning than B12: the relative frequency of burned daub in our B17 excavations (expressed in terms of kg of burned daub per 100 kg of all sherds) was 1.84, while the relative frequency of burned daub at B12 was 6.52. In this respect, B17 was similar to B21 and B97, where the relative frequencies of burned daub were 0.79 and 1.1, respectively (Spencer and Redmond, 1998: table 5). It seems clear that the brunt of the attacks upon the Gaván polity was borne by the regional center of B12.

SUMMARY

In this chapter, we have discussed our program of mapping and excavation at B17 (Flor Amarilla). B17 was located at the northern end of the high llanos, just 2 km south of the leading edge of the Andean piedmont (fig. 1.3). The site covered about 7.5 ha and featured two earthen mounds, Mound A and Mound B, 250 m apart (fig. 10.1). We discovered an earthen causeway (Calzada B) that led off to the southwest from B17. We lost track of Calzada B after 500 m, in the outskirts of the modern town of Curbatí. Yet some 4 km southwest of Curbatí we located the northern end of Calzada A, which continued unbroken to the regional center of B12. We suspect that there was no break between these two *calzada* segments in the Late Gaván phase, so that B17 would have had a direct causeway connection to B12. Among the various benefits of this raised roadway, such a connection would have helped the inhabitants of B17 to get themselves quickly to B12, and the relative safety of its defensive earthworks, in the event of an attack.

We excavated a total of six test pits at B17, five of which yielded cultural materials. Although the frequency of artifacts precluded a distributional analysis of the sort that we conducted with the data from the other excavated sites, we did suggest that the layout of B17 showed certain similarities to that of B21 and B12. We noted that the distance between the two mounds, 250 m, was the same as that between the two largest mounds at B21, and half the distance between the two largest mounds at B12. The results of our test pits suggest that the area of occupation extended between the mounds but not much beyond them to the north or south; similarly, it appears that occupation did not range far to the east or west of the centerline between the mounds. We proposed that, like B21, B17 had a linear-settlement structure that mimicked, at half-scale, the configuration that we observed at the regional center of B12.

TABLE 10.1
Ceramics from B17.

V3	V5	V1	Location	Depth	V4	V8	V9	V10	V13	V101
T.204	Level 2	874	N2260–2261/E1934	0.20–0.40 m DBS	0	2	0.2	0.4	1	118
T.205	Level 2	877	N2191–2192/E1972	0.20–0.40 m DBS	0	2	0.2	0.4	1	19
T.206	Level 1	921	N2140–2141/E1959	0–0.20 m DBS	0	2	0.2	0.4	1	761
T.207	Level 2	888	N2071–2072/E1995	0.20–0.40 m DBS	0	2	0.2	0.4	1	133
T.208	Level 2	879	N1960–1961/E1945	0.20–0.40 m DBS	0	2	0.2	0.4	1	58

V3	V5	V1	V102	V103	V104	V105	V106	V108	V109	V110	V113	V114	V116
T.204	Level 2	874	22	63	7	55	15	0	0	7	7	0	7
T.205	Level 2	877	9	2	1	17	8	0	1	0	1	0	1
T.206	Level 1	921	89	219	12	542	77	1	9	2	10	2	12
T.207	Level 2	888	14	35	2	98	12	0	2	0	2	0	2
T.208	Level 2	879	8	0	0	58	8	0	0	0	0	0	0

V3	V5	V1	V118	V130	V131	V135	V139	V141	V149	V161	V164	V165	V166
T.204	Level 2	874	7	1	5	0	0	1	0	1	3	2	0
T.205	Level 2	877	1	0	1	0	0	0	0	0	1	0	0
T.206	Level 1	921	12	0	3	2	7	0	0	0	2	1	0
T.207	Level 2	888	2	0	1	0	0	0	1	0	0	0	1
T.208	Level 2	879	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V174	V177	V178	V182	V187	V217	V219	V221	V222	V224	V228
T.204	Level 2	874	0	0	0	0	1	2	1	1	0	1	5
T.205	Level 2	877	0	0	0	0	0	1	0	0	0	0	1
T.206	Level 1	921	2	1	1	2	0	2	0	0	1	0	3
T.207	Level 2	888	0	0	0	0	0	0	0	0	1	0	1
T.208	Level 2	879	0	0	0	0	0	0	0	0	0	0	0

V3	V5	V1	V242	V244	V260	V263	V264	V265	V267
T.204	Level 2	874	0	0	0	0	0	0	1
T.205	Level 2	877	0	0	0	0	0	0	0
T.206	Level 1	921	1	1	2	1	2	2	0
T.207	Level 2	888	0	0	0	0	0	0	0
T.208	Level 2	879	0	0	0	0	0	0	0

TABLE 10.2
Other Artifacts from B17.

V3	V5	V1	Location	Depth	V4	V8	V9	V10	V13	V1001
T.204	Level 2	874	N2260–2261/E1934	0.20–0.40 m DBS	0	2	0.2	0.4	1	4
T.205	Level 2	877	N2191–2192/E1972	0.20–0.40 m DBS	0	2	0.2	0.4	1	3
T.206	Level 1	921	N2140–2141/E1959	0–0.20 m DBS	0	2	0.2	0.4	1	9
T.207	Level 2	888	N2071–2072/E1995	0.20–0.40 m DBS	0	2	0.2	0.4	1	4
T.208	Level 2	879	N1960–1961/E1945	0.20–0.40 m DBS	0	2	0.2	0.4	1	0

V3	V5	V1	V1002	V1003	V1004	V1005	V1006	V1007	V1008	V1009	V1010	V1015	V1016
T.204	Level 2	874	9	0	0	1	4	2	2	1	3	0	0
T.205	Level 2	877	17	0	0	0	0	3	17	0	0	0	0
T.206	Level 1	921	171	1	8	0	0	6	138	2	23	1	8
T.207	Level 2	888	180	0	0	0	0	2	168	2	12	0	0
T.208	Level 2	879	0	0	0	0	0	0	0	1	25	0	0

V3	V5	V1	V1017	V1018	V1021	V1022	V1023	V1024	V1025	V1026	V1027	V1028	V2001
T.204	Level 2	874	1	4	0	0	2	2	0	0	1	3	0
T.205	Level 2	877	0	0	1	10	2	7	0	0	0	0	0
T.206	Level 1	921	0	0	2	70	4	68	1	10	1	13	1
T.207	Level 2	888	0	0	2	168	0	0	0	0	2	12	0
T.208	Level 2	879	0	0	0	0	0	0	0	0	1	25	0

V3	V5	V1	V2002	V2011	V2012	V2021	V2022	V2071	V2072	V2081	V2082	V2087	V2088
T.204	Level 2	874	0	0	0	0	0	0	0	0	0	0	0
T.205	Level 2	877	0	0	0	0	0	0	0	0	0	0	0
T.206	Level 1	921	142	1	142	1	142	17	2	1	41	1	41
T.207	Level 2	888	0	0	0	0	0	0	0	0	0	0	0
T.208	Level 2	879	0	0	0	0	0	0	0	0	0	0	0

CHAPTER 11

CONCLUSIONS

We conclude this monograph by reviewing our proposition that the archaeological data for the Late Gaván phase (A.D. 550–1000) can be understood as the manifestations of a chiefdom. In line with Carneiro (1981) and Wright (1977), we defined the chiefdom as a regionally organized (multivillage) polity that has centralized but not internally specialized political authority, with no more than two or three levels of regional administration (Redmond and Spencer, 2007; Spencer, 1987, 1990, 1991; Spencer and Redmond, 1992, 1998; Spencer et al., 1994). When we began to plan this project in the early 1980s, we knew there was compelling documentary evidence of indigenous chiefdoms in this part of Venezuela during the 16th century, including references to powerful chiefs who ruled over numerous villages (Federmann, 1962; Morey, 1975). At the time we did not know whether the earlier pre-Hispanic periods would yield archaeological evidence of chiefdom organization, but the ethnohistoric record at least provided some indications of the kinds of data that we might recover. As we constructed our research design, we incorporated not only this ethnohistoric information but also our theoretical considerations about chiefdoms in order to generate six sets of expectations that guided our research. In this concluding chapter, we examine how well our archaeological data met those expectations. We also use these data to assess several explanatory models of chiefdom formation that we presented in chapter 1. Finally, we offer a trial model of the evolution of pre-Hispanic chiefdoms in Venezuela. We ask the reader to forgive the inevitable reiterations from previous chapters as we summarize our expectations and the empirical results.

REGIONAL HIERARCHY AND INTEGRATION

If the Gaván polity had been organized as a chiefdom, then we would expect to find archaeological evidence of a regional settlement hierarchy of two or three tiers, with a single large site serving as the political center for a number of second-tier and perhaps third-tier subordinate villages (Wright, 1977, 1984). We would also expect to find evidence of infrastructural investments that served to reinforce the political integration and cohesion of the regional chiefdom (Denevan, 1991; Earle, 1991a).

Settlement Hierarchy

Our regional survey documented 34 habitation sites and two drained-field agricultural sites that we could date fairly securely to the Late Gaván phase, A.D. 550–1000 (fig. 1.3; table 1.1). We also found some possible Gaván-complex ceramics at seven small sites upstream in the piedmont section of the Canaguá River. Materials from other ceramic complexes were also found at these sites, so we are unwilling to call them Gaván-complex occupations without additional investigation. What we have done is hypothesize that the Late Gaván polity, just prior to its dissolution, may have started a process of demographic expansion up the Canaguá River, which may have led to the deposition of some Gaván-complex sherds at those seven piedmont sites (Redmond and Spencer, 2007: 327). We regard this as an untested hypothesis, which should be assessed through future fieldwork.

The 34 habitation sites (and two drained-field sites) that we could assign with reasonable confidence to the Late Gaván phase were distributed across a 290 km^2 zone of the high llanos (fig. 1.3), amounting to a total occupation area of 126.7 ha (habitation sites only). A histogram of site sizes revealed a bimodal distribution, with a single site (El Gaván or B12) in the top tier (fig. 1.8).

B12 covered an estimated 33 ha and was much larger than the other Gaván-complex sites, which ranged in size from 0.5 to 9.4 ha (table 1.1). B12 had the largest earthen mounds in the Gaván region, including two mounds, 12 m and 10 m in height, four other mounds 1–4 m in height, and 130 other mounds 1 m or less high. If we consider mounded architecture along with site size, we can identify second and third tiers in the regional settlement hierarchy. Our survey located five other sites that we interpret as possible second-tier settlements in the Gaván region (B97, B21, B25, B17, and B30); these sites ranged in size from 4.6 to 9.4 ha, each site with two to four mounds that reached 2–6 m in height. A third settlement tier appears to be represented by the remaining 28 sites, which ranged in size from 0.5 to 5 ha and had no mounds detectable by surface survey (table 1.1). Yet, whether we interpret the regional settlement hierarchy as having two or three tiers, it would still lie within the expected range for a chiefdom (Spencer and Redmond, 2004; Wright, 1977, 1984).

At three sites we recorded evidence of an earlier phase of occupation, which we have called the Early Gaván phase (A.D. 300–550). The estimated occupation areas were as follows: B12 (5 ha), B97 (3 ha), and B21 (2.25 ha), totaling 10.25 ha of Early Gaván phase occupation in the region. This indicates that the region experienced more than a 10-fold growth in human occupation, from 10.25 ha to 126.7 ha, between the Early Gaván phase and the Late Gaván phase, accompanied by the appearance of a clear regional settlement hierarchy focused on B12. For the Early Gaván phase, the site-size data are not consistent with a regional settlement hierarchy; nor did we find evidence in our B12, B97, and B21 excavations of any mound construction dating to Early Gaván times. At the same time, it is noteworthy that the Early Gaván phase occupation at B12 was larger than that at B97 and B21. We suspect this somewhat larger size could reflect the faction-building activities of aspiring leaders here (Spencer, 1993: 60). An analogous situation may have existed in Mexico's Oaxaca Valley during the Tierras Largas phase (1400–1150 B.C.), when the site of San José Mogote covered about 7 ha while 18 other sites were 1–3 ha in size. Not unlike B12, San José Mogote grew substantially (to 60–70 ha) during the succeeding San José phase

(1150–850 B.C.) and became the capital of a regional chiefdom consisting of some 40 subsidiary villages (Marcus and Flannery, 1996: 78, 106).

We propose that the politics of the Early Gaván phase emphasized factional competition (Spencer, 1994) as well as short-term, context-dependent leadership—perhaps along the lines of the "big-man" (Sahlins, 1963) or "chieftaincy" (Redmond, 1998a)—which often waxes and wanes in societies that otherwise lack permanently institutionalized central authority. More fieldwork, especially excavation in Early Gaván contexts, would be required to test these suggestions. In the meantime, what does seem certain is that the transition from the Early Gaván phase to the Late Gaván phase involved both enormous population growth and a great increase in the complexity of regional organization.

Calzada Network

Tangible evidence of regional centralization and integration during the Late Gaván phase can be seen in the network of *calzadas* (earthen causeways) that linked the first-tier site (B12) to four of the five second-tier sites, as well as to many of the third-tier sites (fig. 1.3). Archaeologists have been aware of the *calzadas* of Barinas for several decades, focusing most of their attention on those of Hato La Calzada, a large ranch about 50 km southeast of our study region (Cruxent, 1966; Denevan, 1991; Garson, 1980; Zucchi, 1972a, 1973). Garson (1980: 293–301) dated the *calzadas* of Hato La Calzada to the latter part of the Osoid series (A.D. 500–1200).

The Barinas *calzadas* have usually been interpreted as adaptive solutions to the problem of getting around in a frequently flooded environment. Garson (1980: 323) called this the "road hypothesis," and claimed that it was spawned by the legend of Manaure, a chief who was said to have used a *calzada* to flee from Spanish *conquistadores* (Carvajal, 1956). In 1904, Alvarado published descriptions of several pre-Hispanic earthen constructions in the llanos, including the *calzadas* of Hato La Calzada, which he felt were built so that the llanos could be traversed during seasonal inundations (Alvarado, 1956: 385). Based on a 1911 trip across the llanos, Jahn concluded that the *calzadas* were constructed to allow the seasonally inundated llanos to be inhabited on a year-round basis (Jahn, 1927: 219). Cruxent (1966) suggested other possible functions for the *calzadas*, such as house platforms, agricultural fields, and hunting blinds. Garson (1980: 323–324) noted that the "interconnective feature of causeway distribution" implied that the primary function of the *calzadas* must have been as roadways. He pointed out that pedestrian travel on the llanos is "slow, indirect, and treacherous. . . . An elevated path or road is one way of mitigating these difficulties" (Garson, 1980: 323). Yet, he also suggested that other interpretations were possible, noting that "causeways can indicate functional and social interaction and reflect aspects of social and economic organization" (Garson, 1980: 303).

During our survey, we traversed the entire length of each intersite *calzada*, recording its course on an aerial photograph of the region. We noted that the *calzadas* tended to vary in height and width as they crossed the llanos. In some cases, a *calzada* would maintain a height of 1 m and a width of 5–8 m for 1–2 km or longer, then dwindle to little more than a path for about 100–200 m, only to reappear as a substantial earthwork. We observed that *calzada* construction tended to become more substantial as one approached the larger sites. The eight intersite *calzada* segments that we mapped had a total length of 22.4 km. Since all the *calzada* segments were associated with at least one Late Gaván phase site, we concluded that the *calzada* network as a whole probably dated to the Late Gaván phase (fig. 1.3). The eight intersite *calzada* sections that were mapped, plus a ninth (the intersite nature of which was uncertain), can be described as follows:

(1) Calzada A was traced from just north of B92 to B12; it measured 8.75 km in length. Although this calzada probably originally continued to the north to B17, the evidence has been destroyed by the modern town of Curbatí.
(2) Calzada B was a short *calzada* fragment that ran from B17 to about 500 m south of the site, where it encountered the outskirts of the town of Curbatí. We suspect that Calzada A and Calzada B were connected during the Late Gaván phase.
(3) Calzada C was traced for 5 km, from B21 to where it intersected with Calzada A at B52.
(4) Calzada D ran for 750 m from B100 to where it intersected with Calzada C.
(5) Calzada E was 1 km long and linked B41 to Calzada D.
(6) Calzada F connected B97 to B12; it was 400 m long.
(7) Calzada G was traced for 5.75 km, running southeast from B12 toward B25; this *calzada* became hard to follow about 1 km short of B25.
(8) Calzada H was a *calzada* fragment that departed from B25, heading northwest; we traced it for 250 m. We think it very likely that Calzada H was originally connected to Calzada G, providing a direct route between B25 and B12.
(9) Calzada I was a *calzada* fragment that passed by the east side of B30, then turned and headed off to the northwest. Since we managed to trace it for only 185 m, we cannot confidently say whether this fragment represents an intersite or intrasite *calzada*.

If we include the "missing" gap between Calzada A and Calzada B, and also between Calzada G and Calzada H (and leave out the very short Calzada I fragment), then the total inferred length of the Late Gaván intersite *calzada* network would be about 27.15 km. Overall, we would propose that 14 of our 34 habitation sites (41.2%), plus both drained-field agricultural sites, were connected to the *calzada* network, meaning that these sites were directly linked by or associated with a *calzada* or lay within a few minutes' walk (less than 300 m) from a *calzada*. Adding the two drained-field sites, we get 16 sites out of 36 (44.4%) that were linked to the *calzada* network. By way of comparison, Garson (1980: 293–307) reported that seven of the 20 sites of the Osoid series (A.D. 500–1200) in his study region had *calzada* connections, although that would increase to 10 if we include three sites that lay within 300 m of a *calzada*. Combining Garson's results with ours, it would appear that roughly 40%–50% of the sites in a region were connected to the *calzada* network.

In Spencer and Redmond (1998), we considered why some sites might have had such a *calzada* linkage while others did not. First, we evaluated what we called the "flood-adaptation hypothesis," which would contend that the *calzadas* were built primarily as an adaptive response to seasonal flooding in Barinas (Denevan, 1991: 238; Earle, 1991a: 13). A key expectation of this hypothesis is that sites in locations prone to seasonal flooding would tend to be connected by *calzada* more often than would sites in places that do not experience seasonal flooding. We assessed this expectation by examining our Late Gaván phase site data in terms of two variables: whether a site was located in flood-prone locations, and whether a site was adjacent to or near (less than 300 m) an ancient *calzada* (Spencer and Redmond, 1998: table 1). Under the flood-adaptation hypothesis, we would expect to find a strong positive correlation between these two nominal variables. We set up a two-way contingency table (Spencer and Redmond, 1998: table 2) and computed a phi coefficient of 0.025, indicating a lack of correlation between seasonal flooding and *calzada* linkage. Also showing no association between these two variables was the Pearson's chi-square statistic of 0.021 (probability = 0.89, df = 1). The flood-adaptation hypothesis was not supported by this analysis.

Our survey data are consistent with Garson's observation that both the *calzadas* and the habitation sites in his study region tend to occur in noninundating locations such as the remnant river terraces and natural levees known as *bancos* (Garson, 1980: 122–126, 311–312). In our study region, about 73% of the Late Gaván habitation sites were located on *bancos* or in other locations not susceptible to seasonal flooding (Spencer and Redmond, 1998: table 1). Similarly, almost all of our Late Gaván *calzadas* were built on *bancos*; the exceptions would be Calzada E and the section of Calzada C that lies between its intersection with Calzada E and where it joins up with Calzada A, passing alongside B52, a probable drained-field agricultural site (fig. 1.3).

Although our data do not support the idea that the *calzadas* were built primarily to allow pedestrian travel in flood-prone settings, we nevertheless think it reasonable to regard them as roadways. Nor can we deny that the *calzadas* would have been of great help to anyone seeking to cross the llanos on foot in the rainy season. From roughly May through December even those areas that do not flood are still liable to become mucky. We know from experience that it is much easier to walk atop a *calzada* than to trudge across the soggy savanna. But the real issue here is whether or not we should view the *calzada* network as *primarily* an adaptation to seasonal inundation. If that were the case, then we would expect to see a strong positive association between *calzada* connections and sites in locations with seasonal flooding, and that is not what we observed. We concluded that there must have been other factors helping to determine the layout of the *calzada* network in our study region, and we went on to discuss (Spencer and Redmond, 1998: 103–109) what some of those other factors might have been.

First, we sought to gain a broader perspective on the *calzadas* by situating them in the context of the region's sociopolitical organization. The ethnohistoric record for the llanos contains reports about chiefly societies with permanent political centralization on the regional level (see chapter 1). We noted, moreover, that our archaeological data for the Late Gaván phase are consistent with a regionally centralized chiefdom, a point we discuss at length in the present chapter. We argued in our 1998 paper (as we did in chapter 1 of this volume) that the long-term survival of a chiefly polity hinges on the regional leadership's ability to cultivate the political allegiance of villages without frequent intervention from the center, because such regular intervention would require the delegation of partial authority to subordinates, a strategy inconsistent with the centralized but not internally specialized nature of chiefly administration. We suggested several control strategies that the Late Gaván regional leadership implemented to achieve this regional integration. Among them were: the promotion of alliances between themselves and local elites; encouraging the exchange of prestige goods for surplus agricultural products as a way of reinforcing those alliances; expressing their regional military leadership through their command of offensive and defensive warfare; and sanctifying their regional authority by directing ceremonial activities at the first-tier center. We argued that the *calzada* network played an important supporting role in the implementation of these control strategies. We pointed out that nearly all the second-tier mound sites (probably the home bases of local elites) were connected by *calzada* to the first-tier center; this would have facilitated the reciprocal flow of goods and information between the regional and local elites. We noted that the B27 drained-field site was connected by Calzada G to the regional center of B12, just as the B52 drained-field site would have been via Calzada C and Calzada A, thus allowing for the expeditious movement of agricultural products into the regional center. We estimated that two-thirds of the region's inhabitants were linked together and ultimately to B12 by the *calzada* network, which would have facilitated the amassing of large groups of people at the regional center for military and ceremonial purposes (Spencer and Redmond, 1998).

To sum up, we view the *calzada* network as a material expression of political integration and coherence—an interpretation similar to that offered by Folan, et al. (1995) for pre-Hispanic roadways in the northern Maya lowlands. In our Gaván case, the causeway network served as a constant reminder of the role of the regional chiefdom in the lives of all who built, maintained, and walked upon the *calzadas*. The *calzadas* had a totality of functions—political, economic, military, ceremonial—that went beyond their obvious utility as roadways in a seasonally flooded landscape. They were a crucial part of the regional infrastructure that supported the central institutions of the Late Gaván chiefdom.

REGIONAL POLITY TERRITORY SIZE

Following Wright (1977), we defined a chiefly administration in chapter 1 as one that is centralized but not internally specialized. We have noted that such an arrangement makes it difficult to delegate partial authority to subordinates. This is because any such delegation is tantamount to the delegation of total authority, raising the probability that a subordinate that has such delegated authority might engage in insurrection or a fissioning-off (Spencer, 1987). Since the establishment of secondary centers of regional administration is not consistent with the defining characteristics of a chiefdom, a regional paramount must necessarily rule from the center. We have argued that there are spatial limits to the domain that such a regulatory regime can effectively integrate. In a preindustrial context, this may be a territory size small enough so that the paramount or a subordinate could travel from the capital to the edge of the territory and back in one day. It has been suggested that, in a cultural context where pedestrian travel is the norm, this should be a territory size with a maximum radius of about 28 km assuming a walking speed of 5.6 km/hour for a 10-hour day of travel (Spencer, 1990: 7). With these considerations in mind, we can examine the evidence and attempt to infer the territory size of the Gaván polity. But first, let us situate the Gaván chiefdom in the context of the other chiefly polities that occupied neighboring regions.

The Interregional Context

The Gaván polity was not the only complex society in this part of Venezuela during the latter half of the first millennium A.D. Some 35 km south of the B12 site in the Acequia–Anaro River drainage, Rafael Gassón (1998) has documented another regional chiefdom, the political center of which was the site of El Cedral (fig. 1.1). Radiocarbon dates from excavated samples at El Gaván and El Cedral reveal a substantial overlap in the occupational histories of the two sites, although it is possible that the initial occupation of El Gaván predated that of El Cedral (Redmond et al., 1999: fig. 7.9). There are numerous parallels between the community layouts of El Gaván and El Cedral, but it is clear that the latter site greatly surpasses the former in terms of scale. Gassón's map of El Cedral (Redmond and Spencer, 2007: fig. 4.188) shows that the site was ringed by an oval earthwork encompassing 150 ha, about 4.5 times the area circumscribed by the oval earthwork at El Gaván. El Cedral featured three large earthen mounds reaching 9–12 m in height, another 11–14 mounds that reach 2 m in height, and 122–125 mounds less than 1 m high. Because the site is currently occupied by a *fundo* and has been subjected to considerable earthmoving, the original number of small mounds was probably much higher. Gassón (1998: 74–79) estimated El Cedral's population to have ranged from 695 to 4090 persons. He also recorded nine intersite *calzadas* that approached El Cedral from all sides (Redmond and Spencer, 2007: fig. 4.188), in contrast to the three that we found at El Gaván (fig. 6.2). In collaboration with Gassón, Juan Carlos Rey (2003) carried out a study of the regional *calzada* network that radiated out from El Cedral and discovered that many of them linked the first-tier center to smaller sites within the region. Notably, Gassón and Rey found no *calzada* connection between the Cedral regional polity and the Gaván regional polity, an observation that accords with the aforementioned results of our survey (Redmond and Spencer, 2007). A reasonable conclusion is that the *calzada* networks were important infrastructural features within—but not between—the independent chiefly polities of Barinas during the first millennium A.D.

Gassón's survey of the Cedral region located eight other sites 38–42 ha in size, which he suggested might represent a second tier in the regional settlement hierarchy (Gassón, 1998). These eight sites were larger than the five sites that we identified as possible second-tier settlements in the Gaván system. Gassón also conducted a systematic search for sites in a 60 km^2 survey zone immediately northeast of the El Cedral site, in which he located eight small sites, 0.5–1 ha in area. The territory occupied by the Cedral regional polity, as defined by the distribution of the known sites and the network of *calzadas*, reached an estimated 448 km^2 (Redmond et al., 1999: 122), which is about 1.54 times the territory that we have estimated for the Gaván polity (290 km^2) (Redmond et al., 1999: 117).

Also contemporaneous with the Gaván and Cedral occupations were regional polities centered on the Hato de La Calzada site (Garson, 1980), about 50 km southeast of the El Gaván site, and the La Betania site (Zucchi, 1967), some 45 km to the east-southeast of El Gaván (fig. 1.1). In the Hato La Calzada region, Garson (1980) carried out a survey of 120 km^2 and located 22 sites, of which 13 had one or more earthen mounds. He concluded that the largest site was Hato de La Calzada itself, whose size he did not determine, though he estimated that it was "larger than 15 hectares" (Garson, 1980: 105, 294). The largest mound at Hato de La Calzada reached 13 m in height (Redmond and Spencer, 2007: fig. 4.19; Zucchi, 1972a: fig. 3), similar to the heights of the principal mounds at El Gaván and El Cedral. Two radiocarbon samples from the largest mound at La Calzada dated to the 6th century A.D. (Zucchi, 1973). Following Zucchi's fieldwork, Garson (1980) carried out a survey of the Hato La Calzada region, recording an extensive *calzada* network that linked the first-tier center with many of the other sites.

In the piedmont zone of our study region, immediately to the northwest of the Gaván polity, we recorded sites of the Curbatí complex, the ceramic assemblage of which differed from that of Gaván even though we have evidence that they were broadly contemporaneous. Our excavations at the Curbatí-complex site of B8 yielded one radiocarbon sample, with a midpoint in the 10th century A.D., and three thermoluminescence samples, whose dates ranged from the 4th to the 8th century A.D. (Spencer and Redmond, 1992: tables 2, 3). A histogram of site sizes revealed two modes; the B8 site covered 8 ha and was more than twice as large as any of the three other Curbatí-complex sites that we located in our study region (Redmond and Spencer, 2007: fig. 5.1). Some degree of centralization seems to be indicated, but more definitive conclusions should be deferred until further research on the Curbatí complex can be carried out.

About 40 km southwest of El Gaván, in the drainage of the Suripá River, lies the mound site of Batatuy (fig. 1.1), which was reported by Armand (1975) to have two earthen mounds and an estimated site size of 10 ha (Redmond and Spencer, 2007: fig. 4.79). Two radiocarbon samples yielded dates with midpoints in the 3rd century A.D. and the 6th century A.D. (Armand, 1975: 115). Although no survey has been conducted in the region surrounding Batatuy, it is likely that this area was occupied by another centralized regional polity contemporaneous with the Gaván polity. Finally, we have reports from local informants of other sites with impressive earthen mounds some 25–30 km to the east of El Gaván, along the banks of the Pagüey River. Although this information has yet to be subjected to on-the-ground verification, we were not surprised to hear that this river drainage also showed signs of a complex pre-Hispanic society.

Gaván Polity Territory Size

During our survey we recorded all sites where Gaván-complex ceramics were found and we recorded the extent of the *calzada* network (fig. 1.3). As we have noted, we found no evidence that the Gaván *calzada* network extended to other river valleys to the east or west of the Canaguá River, even though there is convincing evidence that these valleys were inhabited by polities whose occupation spans overlapped that of the Gaván polity. The intrapolity (but not interpolity) extent of the *calzada* network would imply that relations between the Gaván polity and separate polities in other river valleys were not close enough to require *calzada* connections; these relations may even have been hostile at times, a point we shall take up shortly.

If we take the 34 habitation sites that we can assign with reasonable confidence to the Late Gaván phase, the distance between the regional center of B12 and the farthest village site on the high llanos would be about 17–18 km. Even if we include the possible Gaván-complex occupations in the piedmont section of the Canaguá River, the distance between B12 and the farthest site would be less than 25 km. Taking into account the extent of the regional *calzada* network as well as the distribution of sites with Gaván-complex ceramics, we estimate that the Gaván polity extended over a territory of roughly 290 km^2 (Redmond et al., 1999: 117). Such a domain would mean that the edges of the Gaván political territory did not lie beyond a half day of travel on foot from the regional center of B12. Such a distance would be compatible with the centralized but not internally specialized (nonbureaucratic) nature of chiefdom political organization (Spencer, 1987, 1990).

REGIONAL POLITICAL CENTER

We noted in chapter 1 that we would expect the first-tier center of a regional chiefdom to be larger in size and have a more formalized and imposing community plan than the smaller sites in the polity (Oyuela Caycedo, 1987; Peebles, 1987). At the same time, we also pointed out that the nonbureaucratic nature of a chiefly administration would lead us to expect less morphological or functional diversity among public buildings in a first-tier chiefly center than is typically seen in a state capital (Spencer, 1987, 1990).

B12 (fig. 6.2), covering 33 ha, was the largest site and had the most impressive earthen architecture in the region. Two large mounds, Mound A and Mound E, reached 12 and 10 m in height respectively and stood, facing each other, at opposite ends of a 500 m long avenue measuring 40–50 m across. Mound A, the tallest, featured an 80 m long ramp that was surely used to ascend from the avenue to the top of this mound. Two somewhat smaller but still imposing mounds, Mound B and Mound C, flanked the avenue at roughly the midway point between Mound A and Mound E. Two other substantial mounds, Mound D and Mound F, stood on opposite sides of the avenue near its northwestern end, not far from Mound E. There were also 134 smaller earthen mounds, all of which probably supported residences, lining both sides of the central avenue.

We observed that a plan similar to B12's also obtained at B21, a second-tier site covering 4.56 ha (fig. 9.1), although B21's layout was smaller and not as elaborate. Yet the distance between the two terminal mounds was 250 m, just half the distance of those at B12. As at B12, the two largest mounds at B21 (Mound A and Mound B) faced each other at opposite ends of an elongated open space that probably functioned as a central avenue. As at B12, there were two mounds at B21 (Mound C and Mound D) that straddled this central avenue at roughly the midpoint between the two terminal mounds. These four main mounds were far less imposing (both in terms of height and areal extent) at B21 than were their counterparts at B12. At B21, the central avenue was not lined with house mounds that were visible on the surface, although we do think the avenue was flanked by residences during Late Gaván times because our test pits found considerable debris on both sides. We suspect that the reason we did not observe house mounds on the surface at B21 is because most of the houses at this secondary center were built on mounds that were not tall enough to be still observable some 1000 years after the site was abandoned; we should also note that B21 has been subjected in recent times to regular clearing with earthmoving equipment (Redmond and Spencer, 2007: 169). B21 did not show evidence of a circumscribing earthwork like the one at B12. We have explained this lack of a defensive feature by suggesting that when B21's inhabitants were attacked they would have taken flight as quickly as possible, fleeing across the *calzada* network that linked them to B12, where they could have taken refuge behind the large oval earthwork (and palisade) at the regional center (chap. 9). Unlike B12, which was approached by three *calzadas*, B21 was connected only to Calzada C. Calzada C headed off from B21 toward the east and then southeast for about 5 km, to where it intersected with Calzada A near the drained-field site of B52, about 1 km northwest of B12, thus providing a good connection between B21 and the regional center.

At B17, another secondary center, we also observed a layout that mimicked, at 50% scale, the linear pattern seen most clearly at B12. B17 had an elongated occupation area of 7.5 ha, with two mounds (Mound A and Mound B) facing each other from opposite ends of the main occupied area (fig. 10.1). As at B21, we did not observe house mounds on the surface at B17, even though the results of our test pits suggest that there was residential occupation between Mound A and Mound B, perhaps lining either side of a central avenue. Also like B21, just one *calzada* connection was observed at B17; this was Calzada B, which headed off to the southwest and, we have argued, originally connected with Calzada A, providing a link to the regional center of B12. Like B21, no circumscribing earthwork was observed at B17; we have argued that the inhabitants of this secondary center utilized the *calzada* network to make a dash to the relative safety of the fortified regional center in the event of an attack.

At the regional center of B12, evidence of habitation (including mounds and artifacts) was found only within the oval earthwork that circumscribes the site. No other site in the Gaván regional system featured such an earthwork. Our excavation atop the oval earthwork (Area B) exposed the remains of a palisade, implying that defense was a major function of this construction (fig. 6.117). Three intersite *calzadas* (Calzada A, Calzada F, and Calzada G) connected to this oval earthwork from the northwest, southwest, and southeast, respectively (fig. 6.2). We have argued that these *calzadas* had a multiplicity of politico-economic, ceremonial, and military functions, all related to expediting the flow of people and goods into the first-tier center. In times of war, however, the military significance of the *calzadas* was surely of paramount importance, in that they would have allowed people to move rapidly from their villages into the fortified regional center.

Inside the oval earthwork at B12, there was a substantial area (roughly 9 ha) that showed little evidence of permanent habitation, amounting to some 27%–31% of the entire site area within the oval earthwork. In chapter 6, we suggested that this uninhabited area at B12 was used as for temporary occupation by wartime refugees who streamed in from the smaller villages of the region. The amount of available space would have been sufficient to accommodate, on a short-term basis, all the inhabitants of the Gaván polity's subsidiary villages.

B12 was unique in its region not only for the size of its largest mounds and the presence of the circumscribing oval earthwork, but also for the 134 smaller mounds that appear to have been residential in function; house mounds were generally not visible on the surface at the other Gaván-complex sites. A nondomestic or public use can be tentatively assigned to only the two largest mounds at B12: Mound A and Mound E. Each had a top area that appeared too small to support a residence of a size that would seem appropriate for such a large pyramidal construction. By way of comparison, we placed our Area A and Area D excavations atop lower mounds (1 m high and 0.5 m high, respectively) that yielded clear evidence of residential structures. In both of these excavation areas we recovered artifacts reflecting domestic activities (chap. 6). For example, we found three *mano* fragments in our excavation of the Area A house floors, while in Area D, we recovered one *mano* fragment, one *metate* fragment, and three other grinding-stone fragments (tables 6.4, 6.8, 6.9). Fragments of *manos* and *metates* were also found in nine other test pits associated with the house mounds at B12 (Spencer and Redmond, 1998: table 3). By contrast, no *manos* or *metates* were found in the five test pits most clearly associated with Mound A (T.9, T.33, T.174, T.183, T.184). Although we were unable to carry out excavations in or near Mound E, we think its size and shape are similar enough to Mound A's to suggest a nonresidential function for it as well.

In all, this would make a total of two nonresidential mounds, similar in appearance, at B12. The only other nonresidential architecture at the site would be the oval earthwork and the half-dozen elongated mounds. We conclude that the evidence of public architecture at the regional capital of B12 is consistent with a society that had a centralized but not internally specialized political organization, in short, a chiefdom. (Flannery and Marcus, 1976; Spencer, 1990; Spencer and Redmond, 1998, 2004).

SOCIAL DIFFERENTIATION

We noted in chapter 1 that chiefly political organization tends to be associated with a pervasive principle of social differentiation, which is crucial for the legitimization and reinforcement of the centralized but not internally specialized administration that is the chiefdom's key defining attribute (Johnson, 1982; Spencer, 1987). An ideology of institutionalized social inequality facilitates the long-term persistence and intergenerational reproduction of a chiefdom's centralized political system. To be optimally effective, such institutionalized social inequality needs to be manifested throughout the social system: on the community, family, and individual levels. Accordingly, we expected to find evidence of pervasive social differentiation throughout the Gaván-complex cultural system, and such evidence did turn up.

At B12, for example, evidence of social differences between families appeared in our

Area A and Area B excavations. As we noted in the previous section, Area A was located atop a 1 m high house mound. Here we excavated two superimposed packed-earth house floors, Floor 1 and Floor 2, the more recent of which (Floor 1) was associated with 41 postmolds that defined a roofed-over area of 27.9 m^2 (fig. 6.111). In Area D, on a 0.5 m high house mound, we also excavated two superimposed packed-earth house floors, Floor 1 and Floor 2, the more recent of which (Floor 1) was associated with 26 postmolds that demarcated a roofed-over area of 16.6 m^2, or about 59% of that of the Area A house (fig. 6.123). Based on the differences in mound height and house size, we hypothesized that the occupants of the Area A house were of higher status than those of the Area D house. As we noted in chapter 6, this hypothesis was supported by our analysis of the excavated artifact samples. For example, we examined the distribution of "Feet/Diag," a variable representing the percentage of all ceramic diagnostics (V104) that were foot fragments (V150) from footed bowls (i.e., bowls with attached feet). Such footed bowls were elaborate serving dishes that would have been costlier (in terms of time and energy) to produce than most other Late Gaván vessel forms. For our Area A excavation, the value of "Feet/Diag" was 25.0%, while for our Area D excavation (Floors 1 and 2) the value of "Feet/Diag" was 8.6% (table 6.9).

Another artifact variable that showed a differential distribution between Area A and Area D was "Chrt/Diag," the ratio of chipped stone fragments made of chert to the total number of diagnostic sherds. As we noted in chapter 6, the raw materials used in making stone tools were not available in B12's vicinity; the nearest sources of suitable stone were in the high Venezuelan Andes and Andean Piedmont, the closest edge of which lay some 15 km to the north of B12. If we assume that higher-status people had relatively greater access to chert than lower-status people, then we might expect "Chrt/Diag," a measure of the relative frequency of chert, to covary positively with social status. Consistent with that expectation, the value for "Chrt/Diag" was 1.02 for the Area A house floors and 0.28 for the Area D house floors (table 6.9). As we concluded in chap. 6, the contrasts between the houses in Area A and Area D constitute solid evidence of social differentiation between family units, which is one of our expectations for a chiefdom.

Although we did not recover a large sample of human burials in our excavations at Gaván-complex sites, evidence of social differentiation between individuals can be gleaned from the relatively few skeletal remains that we did find. We excavated a total of eight such deposits that we recorded as human burials, seven of them at B12 and one at B97 (see also appendix A). Of these, burials 4–6 and 7 appeared to be "normal" interments: articulated skeletons laid to rest in extended position. In addition, burials 4–6 and 7 were all associated with residential constructions, a pattern reported for ethnohistorically documented llanos societies (Curet and Oliver, 1998: 231–234). Burial 4 was found in T.27, adjacent to a house mound. Burial 5 was interred in a residential area of B97, in a grave beneath a possible house floor. And burials 6 and 7 were both buried beneath the house floors in Area A. Burials 1–3 and 8, by contrast, appear not to be burials in the usual sense of the term, but rather pieces of disarticulated human skeletons. Moreover, burials 1–3 and 8 were buried in nonresidential, ceremonial contexts; we suggested in chapter 6 that these four burials represent the remains of sacrificed individuals, an interpretation which we shall discuss further in a later section of this chapter. In the meantime, it suffices to say that some deceased individuals were buried in residential contexts, while other individuals were apparently sacrificed and their remains interred in nonresidential, ceremonial contexts. Moreover, there was evidence of differential treatment among the four articulated burials that were buried in residential contexts. Burial 6 and Burial 7, both in Area A of B12, were buried beneath the floor of a house that sat atop a 1 m high mound, and the interments were accompanied by ceramic offerings. Burial 4 (in T.27 at B12) was buried alongside a house mound that was not as tall or as extensive as the house mound in which burials 6 and 7 were interred. Burial 4 contained both adult and child bones, so it might have been a double interment. In contrast to burials 6 and 7, we found no ceramics or other offerings associated with Burial 4. Finally, Burial 5 (at B97) was buried beneath the probable floor of a house that did not sit on a discernible mound; Burial 5 was not accompanied by any ceramic or other offerings. In sum, although our sample of buried human remains is quite limited, it has yielded evidence of social differentiation on the level of the individual, in line with our expectations for a chiefdom (chap. 1).

Our test-pit program also produced evidence of residential sectors of differing social status at four of the Gaván-complex habitation sites. At the regional center of B12, our analysis of the test-pit data indicated that the inhabitants of houses on the northeastern side of B12's central avenue (running between Mound A and Mound E) were of relatively higher social status than those on the southwestern side. As we discussed at length in chapter 6, we analyzed the distribution of several variables from 31 test pits with artifact samples large enough to warrant such analysis. For example, the median value of "Feet/Diag" for the northeast sector was 9.5%, while for the southwest sector the median value for "Feet/Diag" was 5.8%. A Kruskal-Wallis one-way analysis of variance (KWANOVA) indicated that there was a statistically significant difference ($p = 0.039$) between the two sectors.

In our test-pit program at the second-tier site B97 (chap. 7), we found similar evidence of a social-status difference between the northern residential sector of the site (north of Calzada F) and the southern sector; ceramic feet were relatively more frequent in the southern sector than in the northern. The median value of "Feet/Diag" in 14 northern-sector pits was 0.001, while the median for nine southern-sector pits was 0.015. A KWANOVA procedure found these two distributions to be different at a moderate level of statistical significance ($p = 0.107$). At the second-tier center of B21 (chap. 9), our test-pit program found that ceramic feet were relatively more frequent on the eastern side of the proposed central avenue (running between Mound A and Mound B) than on the western side. Four eastern-sector test pits had a median value for "Feet/Diag" of 0.180, while the median value for the eight western-sector pits was 0.049; a KWANOVA procedure determined that the difference between the two distributions was statistically significant at $p = 0.01$. At the small village site of B26 (chap. 8), we found that the three test pits (out of 16) that yielded ceramic feet were all in the easternmost part of the site. All in all, it is reasonable to conclude that our excavations at these four habitation sites recovered convincing evidence of variation between residential sectors, reflecting the operation of a pervasive principle of social inequality, a fundamental feature of chiefdom organization.

POLITICAL ECONOMY AND VILLAGE ECONOMY

In chapter 1, we posited that the regional leadership of a chiefdom can be expected to stimulate and mobilize surplus production throughout the villages of its domain, in order to generate resources for the leadership to deploy at its discretion—for example, to underwrite public works projects or to sustain temporary aggregations at the regional center (Earle, 1997; Peebles and Kus, 1977). Accordingly, we would expect to find evidence of agricultural intensification associated with villages in the region, involving technological improvements that would allow for the production of a surplus beyond what would be needed for local subsistence needs (Earle, 1978; Kirch, 2006; Spencer, 1993). We would also expect such agricultural intensification to be associated with evidence of infrastructural improvements in communication and transportation, in order to enhance the regional leadership's control over surplus production (Denevan, 1991; Earle, 1991a). At the same time, we would expect the regional political economy of the chiefdom to be constructed upon an underlying layer of basic economic independence, or self-sufficiency, on the village level. This is because the development of economic interdependence among villages would require a degree of coordination incompatible with the centralized but not internally specialized nature of regional chiefly administration (Spencer, 1987; Wright, 1977).

As reported in Redmond and Spencer (2007: 183–192, 239–241), we found archaeological evidence of drained fields at two sites, B27 and B52, each of which lay along a *calzada* that provided a direct connection to the regional center of B12 (fig. 1.3). Of the two, B27 had the more convincing evidence, so during the 1988 field season we carried out a program of mapping and test excavation at the B27 drained fields and also, at B26, a nearby village site (chap. 8). B26 was located on the edge of the savanna, overlooking the floodplain (*vega*) of the Canaguá River, while B27 was situated on the *vega* itself. Although this *vega* soil is easier to till and more fertile than the savanna clays that lie beyond the floodplain, it is also true that the *vega* soils are more affected by seasonal flooding, a problem that confronts anyone attempting to farm in the llanos.

Using a combination of aerial photography, alidade and plane table, and compass and tape measure, we were able to map a total of 3792 m of canals and 534 m of a modified streambed at B27 (fig. 7.2). We also excavated four test pits, which produced soil samples but no ceramics that we could use for dating. Ethnographic inquiry revealed that the first contemporary farmers entered the area in the middle of the last century. At the time of our fieldwork, there were still only a handful of families living in the vicinity of B27. We interviewed several of the present-day farmers who told us that when the first of them arrived they discovered the remnants of the drained-field system and recognized it as a relic from ancient times, like the mounds and causeways that are so prominent in this region. One of our informants claimed that he and his sons cleaned out the canals of the B27 system, piled the dirt atop the fields, and cultivated a portion of the original drained-field system for some time, up until recently. He told us that the canal system functioned to irrigate the fields in the early dry season and drain the fields of excess water in the late rainy season, the practical effect of which was to extend the growing season sufficiently to allow for two crops of maize per year. We suspect it was this reuse of the ancient fields that yielded the two charcoal samples that produced recent radiocarbon dates. Nevertheless, we think it reasonable to date the construction and the earlier use of the drained fields to the Late Gaván phase, the time of greatest human occupation in this area. The habitation site closest to the drained fields is B26, where our test-pit program recovered solid evidence of a Late Gaván phase occupation covering some 3.4 ha. We suspect that the farmers who worked at the B27 drained fields lived at B26, only 1 km away.

A pollen analysis by Milagro Rinaldi (chap. 8; appendix C) determined that maize (*Zea mays*) was the most abundant crop cultivated in the B27 drained fields, although lesser quantities of chili peppers (*Capsicum frutescens*), a palm (*Acrocomia sclerocarpa*), arrowroot starch (*Maranta ardundinacea*), tree fruit (*Myrica pubscecens*), and quinoa (*Chenopodium quinoa*) were also noted. Rinaldi's pollen analysis also indicated that a variety of crops were being cultivated at B26. Chief among them was maize, but lower relative frequencies were also noted for *añil* (*Indigofera tinctoria* or *Indigofera anil*, a possible dye), an ornamental plant called *astroloja* (*Aristolochia ringens*), a tree fruit known as *guayabo* (*Psidium guajava*), another tree fruit called *icaco* (*Chrysobalanus icaco*), a tuber known as *ocumo* (*Xanthosoma sagittifolium*), and a hallucinogen called *yopo* (*Piptadenia peregrina*). The results of the pollen analysis are consistent with Renée Bonzani's analysis of macrobotanical remains obtained from the drained fields, which identified maize and quinoa as well as other plants (appendix G).

Through our interviews with local farmers, we learned that cultivation is feasible on both the savanna and *vega* soils without the use of drained fields, although the pattern of seasonal drought, followed by rainfall and consequent flooding, usually limits farmers to a single crop per year. The key advantage offered by drained-field agriculture is the potential for double-cropping. We do not think, however, that this technology was developed to deal with a condition of population pressure, as some scholars have proposed. We have calculated that there would have been more than enough land and labor, even following a single-cropping strategy on just the *vega* soils, to sustain the 46 ha of human occupation in the six sites located in what we have called the Gaván locality (Spencer et al., 1994). Each site had access to *vega* soils and each site was able to sustain itself with a single-cropping regime (Spencer et al., 1994: tables 5, 6). The real importance of the drained fields in Late Gaván times, we have argued, lies not in their potential contribution to basic subsistence, but rather in their potential for surplus production. Although much of the *vega* zone was probably being cultivated by village farmers on a single-cropping basis, we suspect that the drained-field sites were farmed to produce a surplus, since a given labor force could double its yearly output on the drained fields without doubling the amount of land under tillage. Drained-field agriculture would have provided a way to increase output in a context where available labor was not over-abundant—and thus a key factor limiting surplus production—which may well have been the case during the Late Gaván phase (Spencer et al., 1994: 137). Noting that the B27 drained fields and the B26 village site were connected by *calzada* to B12, we have proposed that much, if not all, of the surplus was sent to the first-tier center, where it would have been placed at the disposal of the regional leadership.

In considering what the regional leadership might have done with such agricultural surplus, we have noted that B12 is adjacent to a large expanse of *vega*, which had potential yields that would have far exceeded the nutritional needs of the regional center's inhabitants. So, it strikes us as improbable that the surplus generated by the drained fields at B27 was needed for the routine subsistence of B12's population. Instead, we have suggested (chap. 8; Spencer et al., 1994: 138) that the mobilized surplus served an important logistical purpose in the regional leadership's management of external affairs, particularly long-distance exchange and warfare, both of which have been documented for 16th-century llanos chiefdoms (Gassón, 2000; Morey, 1975). We found evidence of long-distance exchange and warfare in our excavations at B12 and other Late Gaván sites, topics we discuss further in the next section. Briefly, we have suggested that in peaceful times the regional leadership could have exchanged some of the mobilized surplus for workable stone and other desirable items from the Andean highlands. During times of war, the regional leadership could have used the mobilized surplus to create a stockpile of food at the first-tier center of B12, to sustain not only B12's inhabitants but also the many villagers that, we have suggested, flocked into the regional center to take refuge behind the oval earthwork. We conclude that the drained fields played a significant role in the regional political economy of the Late Gaván chiefdom.

Nevertheless, it is important to recognize that while the regional political economy was subject to centralized control, this was not the case for the village economy, which appears to have been organized along the lines of local self-sufficiency. As noted earlier, we have no evidence that any Late Gaván village had a population that pressed on its local carrying capacity. Even the Gaván locality, with the greatest concentration of human occupation in the region, did not have a population large enough to create a condition of population pressure (chap. 8; Spencer et al., 1994). Fragments of grinding stones—used to process maize, the staple plant food—were excavated at all the habitation sites. Nor is there evidence of economic specialization on the village level. In the samples from all the excavated Late Gaván sites, we noted a wide variety of artifact types, reflecting a corresponding variety in basic subsistence and craft activities. Although it is true that our excavations at B97 produced many more kiln wasters than we found at B12, we have suggested that B97 may well have been a satellite or a sector of B12, not a separate village (chap. 7). We pointed out that our excavations at B21 yielded a relative frequency of kiln wasters similar to that of B97 (chap. 9). In any case, both B97 and B21 yielded a wide variety of other artifact types, implying that their inhabitants pursued diverse economic activities. It is noteworthy that we found convincing evidence for the production of stone tools at all our excavated sites. All in all, our data are consistent with the idea that the regional political economy of the Late Gaván phase was centralized, focused on the first-tier center and controlled by the regional leadership, and yet this political economy was layered onto a basic village economy that was locally self-sufficient, in accordance with the expectations for a chiefdom (chap. 1).

CEREMONIALISM, EXCHANGE, AND WARFARE

In chapter 1, we listed several strategies that the regional leadership of a chiefdom might pursue in order to cope with the "chiefly contradiction" (Spencer, 1987), i.e., the challenge of sustaining regional political integration in an administrative context that is centralized but not internally specialized (nonbureaucratic), thus lacking the ability to delegate partial authority effectively. We suggested that sanctification of authority, prestige-good exchange, and warfare were among the strategies that might help a regional chief establish and maintain political cohesion even while he encourages local communities to be self-sufficient, to reduce the need for regular interventions by him or his associates.

Archaeologically, we would expect the sanctification of regional authority to be manifested through a close association between the regional leadership and ceremonial facilities and artifacts. Among our Late Gaván sites, the largest constructions that might have served in a ceremonial capacity were found at B12, which we identified as the political capital of the region. The two largest mounds at B12, Mound A and Mound E, faced each other from opposite ends of a central avenue and may have been nonresidential or ceremonial in function, in contrast to the 134 smaller mounds, which we interpreted as house mounds. Each of the secondary centers of B97 (fig. 7.1), B21 (fig. 9.1), and B17 (fig. 10.1) also featured two prominent mounds, possibly ceremonial, that faced each other across intervening spaces that may well have been avenues, but in each case these mounds were much smaller than Mound A and Mound E at B12, and the intervening avenues were shorter (chaps. 7, 9, 10). It is also noteworthy that the only evidence of human sacrifice was excavated at the regional center of B12. These deposits (burials 1–3, 8) appeared to be not articulated, complete burials but rather disarticulated skeletal fragments, and they were all found in nonresidential contexts at the site, unlike four other articulated burials that were associated with residences.

Our excavations recovered some evidence that ritual artifacts were differentially associated with the regional center. Drawing on the artifact tables in chapters 6–10, we can report the following distribution of excavated ceramic figurine heads (V2083), one of the surest candidates for a ritual-related artifact category: B12 (12 heads); B97 (2 heads); B21 (1 head); B17 (0 heads); and B26 (0 heads). Even though we carried out more excavations at B12 than at the other sites, the much larger frequency of figurine heads at B12 would seem to overwhelm the difference in sample sizes. Nevertheless, we computed a relative frequency by dividing the total number of figurine heads (V2083) by the total number of diagnostic sherds (V104), which produced the following distribution: B12 (0.001), B97 (0.0003), B21 (0.003), B26 (0.0), and B17 (0.0). The single head at B21 yielded a higher relative frequency than did B12 because of the relatively low number of diagnostic sherds at B21 (315) versus B12 (10,774). A similar pattern appears for figurine fragments (V2081), representing any body part: B12 has the highest absolute frequency of figurine fragments, though not the highest relative frequency. The absolute frequencies are: B12 (48 fragments); B97 (11 fragments); B21 (2 fragments); B17 (1 fragment); and B26 (0 fragments). By contrast, the relative frequencies (the total number of figurine fragments (V2081) divided by the total number of diagnostic sherds (V104) are: B12 (0.004), B97 (0.002), B21 (0.006), B17 (0.045). As we saw with figurine heads, the relative frequencies of figurine fragments at B21 and B17 were higher than that of B12, in both cases because of relatively few diagnostic sherds at B21 (315) and B17 (22) compared to B12 (10,774).

We suggested that the figurine data can be interpreted in at least two ways, which we called the "community ritual" interpretation versus the "household ritual" interpretation. The community-ritual interpretation of the figurines would place more emphasis on the absolute frequencies. The argument here would, first of all, assume that the greater amount of diagnostic pottery at B12 probably reflects a greater number of ceramic-using activities at B12, which is not surprising in view of its role as a regional center; it appears that there was just more happening overall at B12 than at the other sites. The community-ritual interpretation would then argue that the absolute frequency of figurine fragments can be seen as a reflection of the absolute frequency of ritual activities that utilized figurines, regardless of other activities that were also taking place. This community-ritual interpretation would find it significant that ceremonial constructions and ritual artifacts were both differentially associated with the first-tier center of B12.

By contrast, the household-ritual interpretation would emphasize the relative frequencies of figurine heads and fragments, and conclude that B12 was not associated with relatively more activities that involved figurines, probably because figurines were mostly used in ordinary household rituals that were not differentially associated with the regional elite. This household-ritual interpretation would be supported by our excavations at the Area A and Area D households at B12, which produced the following distribution of figurine fragments: Area A (two fragments, one head) and Area D (nine fragments, one head). The household-ritual interpretation would acknowledge the differential association between B12 and large ceremonial constructions, but these would be viewed as community-ritual features, and thus more likely to be linked to the regional leadership than were figurines.

Another ritual activity that may have occurred in our Gaván system was ceremonial feasting. Gassón (1998: 125–136; 2003) has reported that the ethnographic and ethnohistoric literature contains multiple instances of ritualized food-sharing among the ranked and stratified societies of northwestern South America. After conducting an analysis of ceramic data from his Cedral regional system, he found that the samples from his first-tier center (El Cedral) had relatively more convex-wall bowls than second-tier sites, which in turn had more convex-wall bowls than sites on the third tier of the settlement hierarchy (Gassón, 1998: 117, fig. 3.2, table 3.4). By contrast, he found that the relative frequency of outleaned-wall bowls was not strongly associated with a site's position in the regional settlement hierarchy (Gassón, 1998: 117, fig. 3.3; table 3.4). In his examination of vessel size, he found that small convex-wall bowls (rim diameters ≤20 cm) were relatively more common at his first-tier site, somewhat less common at his second-tier sites, and least common at his third-tier sites (Gassón, 1998: 120–121; fig. 3.10; table 3.5). He attributed these distributional patterns to a practice of regular feasting, in which large numbers of such small convex-wall bowls were used to serve food to numerous individuals; such feasts, he suggested, were more commonly held at the first-tier center than at the second-tier and third-tier sites in the regional polity (Gassón 1998: 134–135).

A pattern similar to that reported by Gassón can be seen in the excavated samples at our Gaván-complex sites, whose occupational histories largely overlap those of his Cedral region (appendix E; Redmond, Gassón, and Spencer, 1999). Summing up the excavated proveniences for each site, we have computed the percentage of ceramic diagnostics that consisted of convex-wall bowl rims (V130/V104 × 100) for: B12 (first-tier site), B97 (second-tier site), B21 (second-tier site), B17 (second-tier site), and B26 (third-tier site). The resulting percentages were distributed as follows: B12 (9.39%), B97 (6.70%), B21 (6.35%), B17 (4.55%), and B26 (1.52%). By contrast, the percentages of diagnostics consisting of outleaned-wall bowl rims (V131/V104 × 100) had the following distribution: B12 (16.46%), B97 (38.25%), B21 (18.41%), B17 (45.45%), and B26 (25.76%). Clearly, the percentages of convex-wall bowl rims were much more closely associated with the sites' positions in the Gaván regional settlement hierarchy than were the percentages of outleaned-wall bowls, an outcome like that computed by Gassón with his Cedral data.

The results of our analysis of convex-wall bowl vessel size also agreed with Gassón's conclusions. Again summing up the excavated proveniences from each site, we computed the percentage of ceramic diagnostics that consisted of convex-wall bowl rims with small (≤ 20 cm) rim diameters (V160/V104 × 100). The resulting percentages were distributed as follows: B12 (7.27%), B97 (4.99%), B21 (3.49%), B17 (0%), and B26 (0%). The highest percentage of small convex-wall bowls was found at B12, a lower percentage was found at second-tier B97, an even lower percentage was observed at second-tier B21, and no small convex-wall bowl rims at all were excavated at second-tier B17 or at third-tier B26. This pattern is consistent with Gassón's results from Cedral, adding empirical support to his proposition that convex-wall bowls—and especially small convex-wall bowls—were used in ceremonial feasting activities that occurred more often in the upper-tier settlements than in the lower-tier settlements of these llanos polities during the latter half of the 1st millennium A.D. (Gassón, 1998: 125–136; 2003).

A prestige-good exchange system can also help the regional leadership overcome the chiefly contradiction by reinforcing the alliances that the regional elite forges with the elites at secondary centers (Boomert, 1987; Gassón, 2014; Spencer, 1982, 1987; Welch, 1991). Theoretically, such a system works as follows: the regional elite obtains scarce (and hence valuable) objects through exchange ties with other regional elites in distant lands; these objects are then used as elite status symbols and, importantly, are sent by the regional elite to the secondary elites in the region, as a form of compensation for their loyalty to the regional polity. In many prestige-good systems, surplus agricultural produce and labor move from the secondary centers to the first-tier center, while prestige goods flow the other way; this reciprocal flow of goods and information reinforces the political cohesion/integration of the region (Spencer, 1982). At our Gaván-complex sites, we recovered many examples of polished stone artifacts, made of materials whose source areas were quite distant from our study region (appendix D). Most of these objects seem to have been ornamental in function; pendants and beads were the most common forms. The materials included serpentinite, amphibolite, phyllite, and schist-quartzite, all of them originating in the high Venezuelan Andes and beyond. Drawing on the tabular artifact data presented in chapters 6–10, we note the following distribution of excavated polished stone artifacts (V2031): B12 (71 pieces); B97 (20 pieces); B21 (30 pieces); B17 (0 pieces); and B26 (0 pieces). This distribution is consistent with the expectations of a prestige-good system: there is strong representation not only at the regional center, but also at two sites on the second tier: B97 and B21. B21 is especially notable in this regard; in chapter 9, we described and illustrated some of the fine polished stone ornaments that were excavated at B21 (see figs. 9.13–9.15, 9.17, 9.37, 9.41). We can compute a relative frequency of polished stone for each site by dividing the total number of polished stone fragments (V2031) by the total number of diagnostic sherds (V104). The results are as follows: B12 (0.006); B97 (0.003); B21 (0.095); B17 (0.0); and B26 (0.0). Intriguingly, the relative frequency of polished stone objects at B21 is much greater than the relative frequency at B12 itself. If these objects were procured by the regional leadership at B12 through long-distance exchange with other regional leaders in the Andes, we would have to ask why relatively fewer of them turned up in our excavations at B12 than at B21. One reasonable answer is that the B12 elite were less interested in using the imported items as status symbols for themselves than they were in passing them on to their allies in the second-tier centers. But why would relatively more prestige goods end up at B21 than at the other second-tier centers of B97 and B17? First of all, we should recognize that B17, occupied only during the Late Gaván phase, had a shorter record of habitation than B97 and B21, both of which were occupied in both the Early Gaván and Late Gaván phases. B17 lay at the edge of the Andean piedmont, at the northern end of a *calzada* that connected it to B12. It is possible that trade items from the Andes passed through B17, with minimal or no fallout, on their way to the regional center. Why did relatively more prestige goods ended up at B21 than at B97? One reason, we would suggest, is that B21 lay much farther from B12 than B97. The alliance between the regional leadership at B12 and the local leadership at B21, a key strategy for promoting intraregional cohesion, may have required relatively more "compensation" to counteract any tendencies toward independent action by the B21 elite.

Interpolity warfare is another mechanism that can help resolve the contradiction between local self-sufficiency and regional integration that lies at the heart of chiefly leadership (Redmond, 1994; Spencer, 1987). We would not expect to see a full-time specialized military in chiefdoms, because of the extensive delegation of partial authority that the management of such an organization would require. But we view the mustering of warriors on a temporary basis as certainly within the regulatory capacity of a regional chief, who might direct such fighting forces to engage in offensive raids against other polities or to mobilize for the defense of the regional center against attackers. The military discipline associated with such offensive and defensive actions would reinforce the authority of the regional leadership and promote political cohesion.

Our survey and excavation work recovered several lines of evidence that point to a condition of persistent conflict during Late Gaván times. Most notable is the *calzada*-like earthwork that circumscribes B12 (fig. 6.2). It is worth emphasizing that we found no such earthwork at any of the other sites in the Gaván polity. Although a portion of B12's oval earthwork has been eroded away by a stream that skirts the site's western edge, we are reasonably confident that the entire oval (measuring 950 × 470 m) was complete during the Late Gaván phase, circumscribing an area of 33 ha. In our Area B, we excavated an alignment of postmolds along the centerline of this earthwork that we interpreted as evidence of a palisade (fig. 6.117). We have argued (chap. 6; Spencer and Redmond, 1992, 1998) that the oval earthwork at B12 served primarily as a defensive construction. Citing Rivero (1956), Morey (1975: 280) noted that the "main village" of an Achagua polity on the Venezuelan llanos was fortified by a "palisade of tree trunks and earth." A supply of weapons was stockpiled in the event of a surprise attack. The ethnohistoric sources indicate that a regional chief did not maintain a permanent standing army, but he was able to call up warriors from the villages of his domain to create a temporary fighting force that he deployed in offensive as well as defensive actions (Morey, 1975: 96, 108, 277, 282–283, 309). In our Late Gaván polity, such defensive actions probably occurred in response to threats from the large Cedral polity 35 km to the south of B12. The postmolds we found along the centerline of B12's oval earthwork were all carbonized and accompanied by ashy stains and areas of burned earth (fig. 6.117), indicating that the palisade was burned when B12 was abandoned toward the end of the Late Gaván phase. Redmond et al. (1999) have argued that relations between the Gaván and Cedral polities included competition and intermittent conflict for much of the Late Gaván phase. Yet, Cedral eventually prevailed over Gaván. Although occupation appears to have continued at the El Cedral site after A.D. 1000, the Late Gaván polity ceased to exist, as B12 and the all other Late Gaván sites were abandoned by A.D. 900–1000.

At B12, we recorded evidence of hostilities in the profile of Mound A, the site's largest earthen mound (fig. 6.98). When we exposed the mound's southwestern profile, we noted that three (out of nine) stratigraphic layers (layers B, D, and G) showed evidence of burning, in the form of reddened and carbonaceous deposits (chap. 6). We argued that these burning episodes resulted from recurring hostile actions against B12. We also noted that two layers of noncarbonaceous, nonreddened brown fill lay between the reddened layer (Layer G) and the lower of the two carbonaceous layers (Layer D). Moreover, Layer D was separated from the upper carbonaceous layer (Layer B) by one layer of noncarbonaceous, nonreddened brown fill. We suggested that this stratigraphic sequence shows that, after each burning episode, a new construction effort took place and the burned layer was covered with fresh fill, so that time spans of unknown length separated the three burning episodes. We concluded that a pattern of recurring—but not continual—attacks upon B12 would be consistent with this stratigraphic sequence.

In Test 183, in the lowest construction level of Mound A, we recovered disarticulated human skeletal material (Burial 8). We have suggested that this individual may have been a captive, sacrificed in the early part of the Late Gaván phase as part of a commemorative ritual associated with the construction of Mound A. Other sacrificed individuals may be represented by burials 1, 2, and 3, all of which were disarticulated skeletons situated in or near public constructions. As noted earlier, the complete burials we recovered were all associated with residences.

Although the inhabitants of B12 would have suffered burning and other destruction from repeated attacks, they evidently managed to defend their community successfully each time, repelling the attackers and rebuilding the structures that had been burned. Then, after surviving at least three such episodes during the Late Gaván phase, the defenders experienced one final attack, which brought an end to the occupation at B12 and also an end to the Gaván regional polity. This last attack resulted in the many carbonized postmolds we found in Floor 1 of Area A as well as those along the earthwork centerline in Area B. Moreover, this attack was undoubtedly responsible for the many fragments of burned daub that appeared in the latest occupation layer across much of B12 (chap. 6).

In chapter 6, we conducted a distributional analysis of ceramics recovered in the random sample of test pits at B12, and we concluded that there was convincing evidence of an uninhabited 8.9 ha space within the oval earthwork at B12 (see fig. 6.144). This space, we suggested, could have served as a place of temporary refuge for the inhabitants of subsidiary settlements within the Gaván polity. Our calculations indicated that it would have been large enough to provide a temporary encampment for villagers seeking refuge behind the fortifications of the regional center during wartime. We noted that such temporary aggregations would have had benefits for both the refugees and their "hosts." The former, by collaborating with the B12 leadership, would have enjoyed the security of being in a larger group, while the latter (the coordinating leadership and their close followers who lived at B12) would have benefited from the presence of additional fighting power, especially important in the absence of a permanent, standing military. If we assume that each household could have contributed two warriors (a father and an older son, for example), the fighting force that B12 alone could have mustered would have numbered about 268. But if a similar contribution were made by all the households from subsidiary settlements who were aggregated at B12, an additional 756 warriors would have been available, increasing the temporary force to some 1024 warriors, a unit far more capable of mounting an effective defense than B12's inhabitants acting alone. Of course, there also would have been costs associated with these aggregations, such as the food and other supplies required by the additional occupants of B12. But we noted that the surpluses generated by drained-field facilities such as B27 could have been stored at B12 and used to sustain these wartime aggregations. Although all the Late Gaván habitation sites ceased to be occupied by A.D. 900–1000, B12 has yielded the most evidence that its abandonment was accompanied by a major conflagration. Drawing on the artifact tables in chapters 6–10, we offer the following data on the relative frequency of burned daub (expressed in terms of g of burned daub, V2071) per g of diagnostic sherds (V103) recovered in our excavations at the following sites: B12 (0.15); B97 (0.04); B21 (0.03); B17 (0.05); and B26 (0.0). It seems clear that B12 experienced far more burning than the other sites in the region. No doubt it was targeted precisely because it was the political and military center of the Late Gaván chiefdom.

FROM EARLY TO LATE GAVÁN PHASE: EVALUATING MODELS OF CHIEFDOM FORMATION

The bulk of our data on the Gaván complex pertained to the Late Gaván phase (A.D. 550–1000), but we were also able to identify three sites with evidence of occupation during the preceding Early Gaván phase (A.D. 300–550): B12 (5 ha), B97 (3 ha), and B21 (2.25 ha), amounting to a total occupied area of 10.25 ha (fig. 11.1). We suggested earlier that the size differential among these three Early Gaván villages might reflect the faction-building activities of aspiring leaders at B12—perhaps a manifestation of what Redmond (1998a) has called a "chieftaincy," which she sees as an evolutionary precursor of the chiefdom. If so, it is possible that B12 had started its climb to regional ascendancy during the Early Gaván phase. We should caution, however, that this inference is based solely on differential site size; we recovered no evidence of mound construction for Early Gaván times. By the Late Gaván phase, there were 34 habitation sites in the region, with a total occupied area of 126.7 ha, reflecting more than a 10-fold increase in occupation area between the Early Gaván phase and the Late Gaván phase (fig. 11.2). Our analysis of the distribution of population and mound construction allowed us to conclude that the Late Gaván phase was associated with a three-tiered regional settlement hierarchy focused on B12, which had become the first-tier center of a chiefdom.

In line with Haller's (2008) diachronic approach to model testing, we can draw upon the data from both the Early Gaván and Late Gaván occupations to conduct an evaluation of the several models of chiefdom formation that we presented in chapter 1. For each of the variables regarded as causal by chiefdom-formation theorists, we: (1) assess the degree to which the variable is differentially associated with the Early Gaván occupation at B12, when B12 was the largest of three small villages in the region; and (2) assess the degree to which the same variable continues to be differentially associated with the Late Gaván occupations at B12, when B12 had become the first-tier center of a regional chiefdom. A pattern of differential association that persists over the two phases would be consistent with a model of chiefdom formation that attributes causal significance to the variable in question.

The data we use in these assessments include the observed changes in total occupation area and mounded architecture from Early Gaván phase to Late Gaván phase, as well as changes in certain key artifacts that were recovered in a series of test pits at the three sites (B12, B21, and B97) that had excavation levels dating to both the Early Gaván phase and the Late Gaván phase (tables 11.1–11.3). For table 11.1, we used the total occupation area of the habitation sites to derive population estimates for Early and Late Gaván phases (table 11.1). To construct the artifact tables (tables 11.2 and 11.3), the B12 test pits were T.17, T.18, T.27, T.170, and T.171, and the excavation levels from these pits were grouped into two chronological strata: Late Gaván phase (levels 1–4) and Early Gaván phase (Level 5 and deeper). For B21, the test pits used were T.102 and T.108. The excavation levels from these pits at B21 were grouped as follows: Late Gaván phase (levels 1–2) and Early Gaván

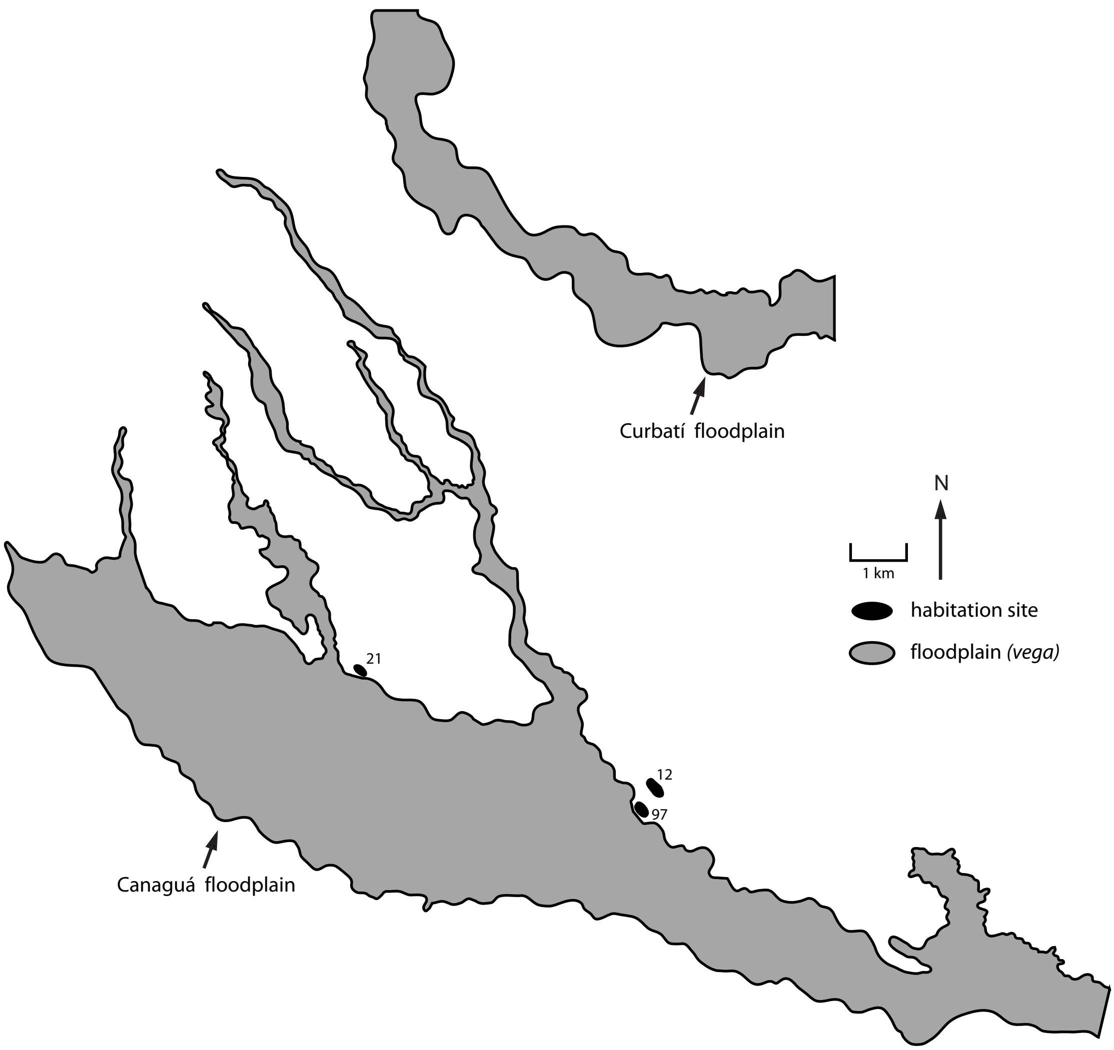

Figure 11.1. Early Gaván phase (A.D. 300–550) settlement patterns and extent of prime floodplain soils (*vega*). Total area of Curbatí River floodplain as shown is 1270 ha. Total area of Canaguá River floodplain as shown is 6180 ha. Total area of human habitation in the Early Gaván phase was 10.25 ha.

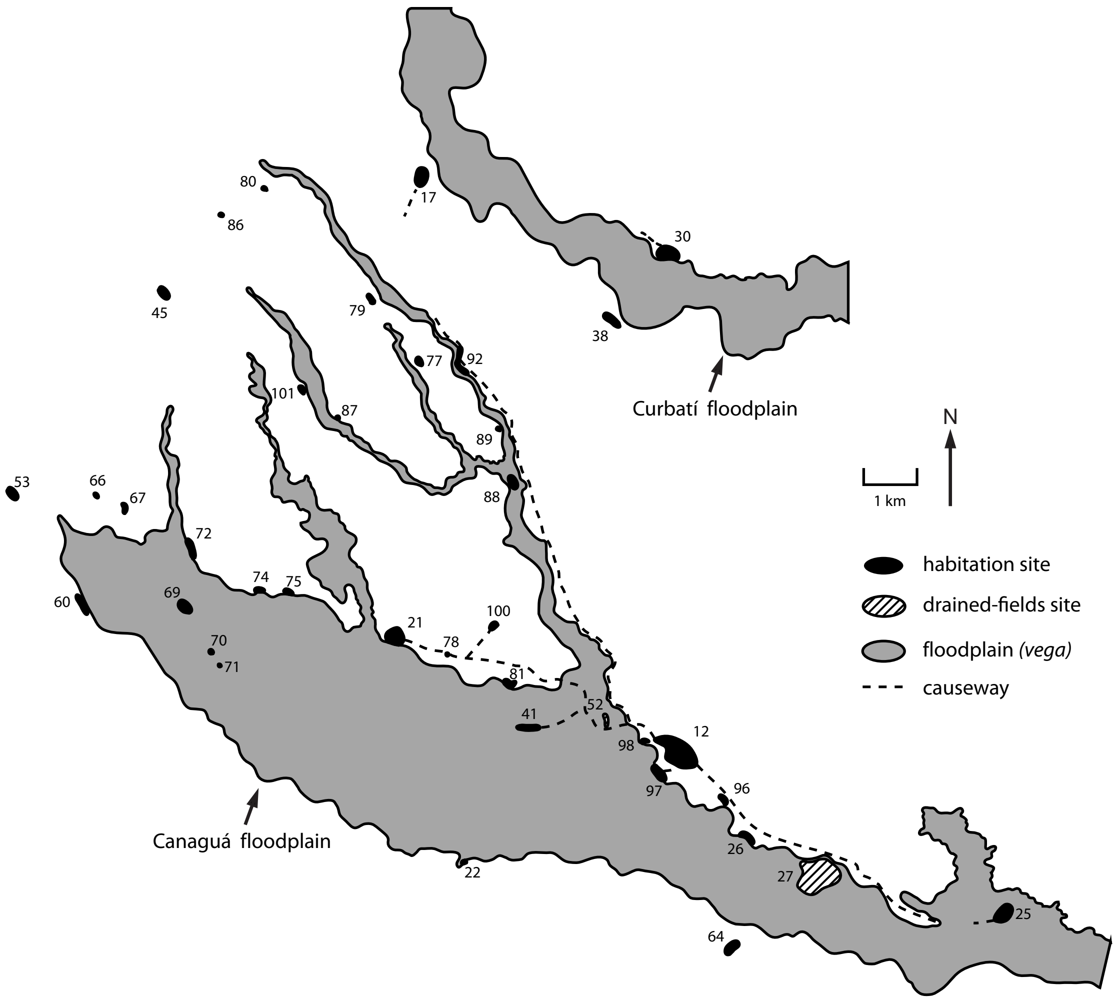

Figure 11.2. Late Gaván phase (A.D. 550–1000) settlement patterns and extent of prime floodplain soils (*vega*). Total area of Curbatí River floodplain as shown is 1270 ha. Total area of Canaguá River floodplain as shown is 6180 ha. Total area of human habitation in the Late Gaván phase was 126.7 ha.

phase (Level 3 and deeper). For B97, the test pits used were T.47, T.51, T.53, T.54, T.55, T.56, T.57, T.59, and T.73. The excavation levels from these B97 pits were grouped as follows: Late Gaván phase (levels 1–3) and Early Gaván phase (Level 4 and deeper). The distributions of several key variables were then computed for the Early Gaván and Late Gaván levels from B12, B21, and B97 (tables 11.2–11.3).

Local Resource Control

A number of researchers have proposed that unequal access to subsistence resources can foster the development of social inequality, leading eventually to the emergence of chiefdom society (Earle, 1997: 67–104; Cooke, 1984; Cooke and Ranere, 1992; Haller, 2008: 165–181). Is there evidence that B12 enjoyed relatively greater access than the other villages to basic resources during the Early Gaván phase, an advantage that persisted during the Late Gaván phase?

During the Early Gaván phase, all three habitation sites (B12, B97, B21) were situated on *bancos* (remnant river terraces) adjacent to large expanses of prime alluvial soils (*vega*), which would suggest that access to first-rate agricultural resources was an important factor in choosing where to locate the region's founding settlements (fig. 11.1). B12 and B97, less than 0.5 km apart, overlooked an even larger expanse of *vega* than did B21. In the Late Gaván phase, B12 had become the region's first-tier center and the focus of an extensive *calzada* network, which connected B12 to at least two drained-field agricultural facilities, both of which lay 3 km or less from the regional center (fig. 11.2). In chapter 8, we argued that the drained fields were capable of generating a significant maize surplus, which we suggested was sent by *calzada* to B12, where the regional leadership managed its storage and eventual use.

It seems clear that control over agricultural resources must have played a key role in the emergence and persistence of B12 as the center of a regional chiefdom. Yet spatial proximity to local resources cannot be the only causal variable, since B97 was located even closer to the prime *vega* soils than B12, and B97 was smaller than B12 in both the Early Gaván and the Late Gaván phases—although we should note, as we have previously, that B97 may have been a satellite sector of B12 during the Late Gaván phase, not a separate village. At the same time, we should bear in mind that the larger Early Gaván phase population of B12 (5 ha versus 3 ha at B97 and 2.25 at B21) would have allowed B12, as a village, to put relatively more land under cultivation, thus providing B12's aspiring leaders with potential access to more subsistence resources. In Spencer et al. (1994), we estimated that each hectare of habitation would have had from 4 to 6 households. Under the assumption that each household could field between one and two farming members (a mean of 1.5 farmers/household), then each household could have kept about 3 ha of land under cultivation, which could have produced about 3.4 metric tons of shelled maize per year, assuming one crop per year (Spencer et al., 1994: table 5). Such a yield is considerably more than the amount needed to sustain a typical household, which is about 1.1 metric tons per year (Spencer et al., 1994: 135). If we extrapolate from these figures, we estimate that the inhabitants of B12 during the Early Gaván phase could have generated up to 68–102 metric tons of shelled maize per year, of which 22–33 tons would have been needed for basic subsistence with the rest available as surplus. By contrast, the inhabitants of Early Gaván B97 could have produced up to 40.8–61.2 metric tons of maize, of which 13.2–19.8 tons would have been required for basic subsistence. The inhabitants of Early Gaván B21 could have produced up to 30.6–45.9 metric tons of maize, of which 9.9–14.85 tons would have been needed for subsistence. Therefore, we can view the relatively greater population of B12 during the Early Gaván phase as representing a concentration of not only labor but also productive potential, both of which could have been mobilized by an aspiring leadership bent on enhancing its power. The development of drained-field agriculture in the Late Gaván phase would have served to lengthen the growing season enough to obtain two harvests per year on each ha of cultivated drained-field land. It is reasonable to assume that the regional elite had preferential access to the yields via the *calzada* network that linked the drained fields to B12, which would have put even more potential surplus at the disposal of the chiefly leadership at B12 in Late Gaván times. In sum, our data are consistent with the proposition that local resource control—where the relevant resources included both labor and agricultural potential—played a key role in the formation of the Gaván chiefdom.

Population Growth and Warfare

As we noted in chapter 1, Carneiro (1981, 1998) has long maintained that population growth in an area that exhibits environmental and social circumscription can lead to warfare, providing a context in which an effective war leader can recruit warriors from his own and neighboring villages to fight a common foe, and eventually emerge as the paramount chief of a political region comprising multiple villages. Redmond (1994, 1998a) viewed such a temporary war leader as an example of a "chieftaincy," an expression of what Johnson (1982) called a "sequential hierarchy," which is a form of short-term centralized authority that operates when conditions are propitious. Redmond argued that the transformation of a chieftaincy into a permanently centralized chiefdom, based on Johnson's (1982) principle of "simultaneous hierarchy," would be favored by conditions of continuous and intensifying warfare, in which the aspiring war leader plays a central and persistent role in directing both offensive and defensive actions. Earle (1997: 105–142) also saw warfare as an important source of power, noting that "it creates opportunities for local leaders to gain strong authority through offers of protection" (1997: 109). In Peru's Mantaro Valley, Earle (1997: 117) found that chiefdoms evolved in a context of population growth and warfare, although sites began to appear in defensive locations even at relatively low population levels. In our Gaván case, let us examine the evidence for population growth and warfare in both the Early Gaván and Late Gaván phases.

First, there is a clear pattern of population growth in our study region, from no human occupation before A.D. 300, followed by the appearance of 10.25 ha of occupation (three habitation sites) in the Early Gaván phase, growing to 126.7 ha of occupation (34 habitation sites) in the Late Gaván phase (table 11.1). Second, it is undeniable that the prime agricultural resource in the region, the alluvium of the floodplain (*vega*), is circumscribed by the grassy savanna, whose soils are arable but more clayey, harder to till, and not as fertile as the floodplain soils. Yet, as we noted in chapter 8 (see also Spencer et al., 1994), it is not likely that the observed population growth ever pressed seriously upon the carrying capacity of the floodplain soils, leading to a condition of "population pressure." The amount of prime floodplain land was ample: 1270 ha in the Curbatí River drainage and 6180 ha in the Canaguá River drainage (figs. 11.1, 11.2). In Spencer et al. (1994: 135) we discussed the human carrying capacity of the floodplain soils and drew upon the literature to derive an estimate of 1134–1800 kg of shelled maize per ha per year, assuming a single-cropping regime and an estimated annual requirement of 1100 kg of shelled maize per household. Using these figures, each ha of floodplain could have sustained 1.03–1.64 households. Now, if the entire 7450 ha of floodplain in both the Curbatí and Canaguá drainages could have been kept under cultivation, the total human carrying capacity would have been in the range of 7673–12,218 households, or 38,365–61,090 people at five persons per house. In Spencer et al. (1994: table 4) we assumed a population density of 20.3–30.3 persons per ha of occupation for our Late Gaván sites. Using this density, the estimated human population for all 10.25 ha of human habitation in Early Gaván phase would be 208–311 persons or 42–62 households (table 11.1). For the 126.7 ha of habitation in Late Gaván times, the estimated human population would be 2558–3818 persons or 512–764 households (table 11.1).

Elsewhere, we have noted that the Late Gaván population levels in the Gaván locality, the sector with the greatest concentration of population at this time, were well below the potential carrying capacity of that locality's floodplain soils (Spencer et al., 1994: table 5). Of course, it is unlikely that all of the region's floodplain could have been kept under cultivation by the estimated 42–62 Early Gaván households or by the estimated 512–764 Late Gaván households. In light of our earlier suggestion that each household could have fielded enough farmers to keep about 3 ha under cultivation, we estimate that the Early Gaván households could have kept 126–186 ha under cultivation, which could have sustained 130–305 households or 650–1525 persons. Such a carrying capacity would have far exceeded the estimated Early Gaván population of 42–62 households or 208–311 persons. By the same token, the Late Gaván phase households could have kept 1536–2292 ha under cultivation, capable of sustaining 1582–3759 households or 7910–18,795 persons, a level much greater than the estimated Late Gaván population of 512–764 households or 2558–3818 persons. Overall, there is scant evidence of population pressure during either the Early Gaván phase or the Late Gaván phase.

The issue of simple population pressure aside, however, it is undeniable that the three Early Gaván sites and the 34 Late Gaván habitation sites were all strategically situated along the edge of these vast expanses of prime floodplain (figs. 11.1, 11.2). Outsiders who coveted that precious resource might well have launched attacks against those villages. As we have argued previously, burning would have been a likely consequence of such attacks. Our excavations in Area A and Area D at B12 indicated that the residences of the Gaván complex were wattle-and-daub constructions, the burning of which would have produced fire-hardened lumps of daub. The warfare model would be supported if relatively more burned daub was found at B12 than at the other sites, during the Early Gaván phase, when B12 was the largest of three villages, and continuing into the Late Gaván phase, when B12 was the first-tier center of the regional chiefdom.

This expectation can be assessed by examining the three sites (B12, B21, B97) that had test pits with levels dating to both the Early Gaván phase and the Late Gaván phase. For each phase at each site, we recorded the weight (in g) of recovered burned daub, grouping the data into the Early Gaván and Late Gaván levels for the relevant test pits (table 11.2). To facilitate comparisons, we created a measure of relative weight ("Burned

Daub/Diag") by dividing the total weight of burned daub (V2071) by the total weight of diagnostic sherds (V103) recovered in the same group of proveniences (table 11.3). We then created a bar graph of the relative weights of burned daub in the Early Gaván and Late Gaván levels of the relevant test pits at B12, B21, and B97 (fig. 11.3).

If we compare the Early Gaván phase levels at the three sites, it is clear that B12 yielded a much higher relative weight of burned daub than B21 or B97, which would indicate that B12 was experiencing more attacks than the other two villages during Early Gaván times. The Late Gaván levels at B12 also yielded a higher relative weight of burned daub than B21 and B97. As we discussed in chapter 6, B12 was ringed by an impressive defensive earthwork and showed evidence of being repeatedly attacked during the Late Gaván phase. We interpreted disarticulated skeletons at the base of Mound A and in certain other public contexts as the remains of sacrificed captives. The very end of B12's occupation appears to have been caused by a major attack, marked by a widespread conflagration. We have argued that B12's attackers during the Late Gaván phase most likely came from adjacent polities, such as the Cedral chiefdom in the nearby Acequia–Anaro River drainage. At the same time, we should point out that the relative weight of burned daub at B12 was even higher for the Early Gaván phase than it was for the Late Gaván phase (fig. 11.3), implying that B12 experienced even more attacks during the earlier phase.

All these data, we submit, are consistent with the expectations of the warfare model of chiefdom formation (Carneiro, 1981, 1998; Redmond, 1994). If the somewhat larger size of B12 during the Early Gaván phase reflects the faction-building activities of one or more aspiring leaders, then a condition of frequent warfare (attacks in particular) in Early Gaván times could have provided a context in which aspiring war leaders promoted themselves as "chieftains," a short-term position that, in the face of continuing threats, might have been regularized and transformed into a permanent office of chief (Redmond, 1998a, 1998b). If an aspiring chieftain formed alliances with leaders in neighboring villages in order to recruit more warriors into their fighting force, such alliances could be transformed into permanent membership in a centralized regional polity: the Late Gaván chiefdom. In chapter 6, we suggested that such membership involved temporary aggregations at the paramount center of B12; we argued that there was enough unoccupied space inside the oval earthwork at B12 to allow all the inhabitants of the 33 other villages to take refuge there during times of war. We suggested that the regional leadership at B12 directed offensive and defensive warfare activities for the entire Gaván polity, which is why B12 continued to show the most evidence of hostilities throughout the Early Gaván and Late Gaván phases.

It is fair to say that our data are consistent with the proposition that population growth and warfare figured importantly in the formation of the Gaván chiefdom. Yet, in a manner reminiscent of what Earle reported for his Mantaro Valley case (1997: 117–122), warfare became prevalent in the Gaván system even though population, while growing, never reached a level that would have placed any significant pressure upon the subsistence base. Our data would thus not support models that view warfare as a direct response to population pressure (e.g., LeBlanc, 1999). Instead, we prefer a mutual-causal perspective on the relationship between population growth and warfare. We suspect that competition over prime agricultural land sparked hostilities among the initial inhabitants of the region during the Early Gaván phase, but we would also argue that the labor requirements of effective warfare (i.e., the need for warriors) encouraged the growth and concentration of population, which stimulated further competition and warfare, with attendant positive-feedback effects on human demography, a process that continued and probably accelerated with the rise of chiefdom organization in the Late Gaván phase.

Long-distance Exchange

In chapter 1, we reviewed the writings of anthropologists who have argued that an aspiring regional chief could have enhanced his power and authority by participating in networks of exchange with other distant elites, in order to obtain exotic prestige goods that not only could be used to signal the differential status of the aspiring chief, but also could be passed on by him to allies in other villages of his region, as a way of compensating them for their cooperation (Boomert, 1987; Earle, 1997: 209–210; Gassón, 2014; Helms, 1979; Spencer, 1982, 1987, 1994; Welch, 1991). Haller (2008: 5–7) called this approach the "Control of Esoteric Knowledge Model" and argued that it would be supported if the material manifestations of such knowledge (e.g., imported exotic materials) were found in association with nascent political centers "before or at the time of emergence of chiefly society" (Haller, 2008: 15). In our own case, this model would receive empirical support if

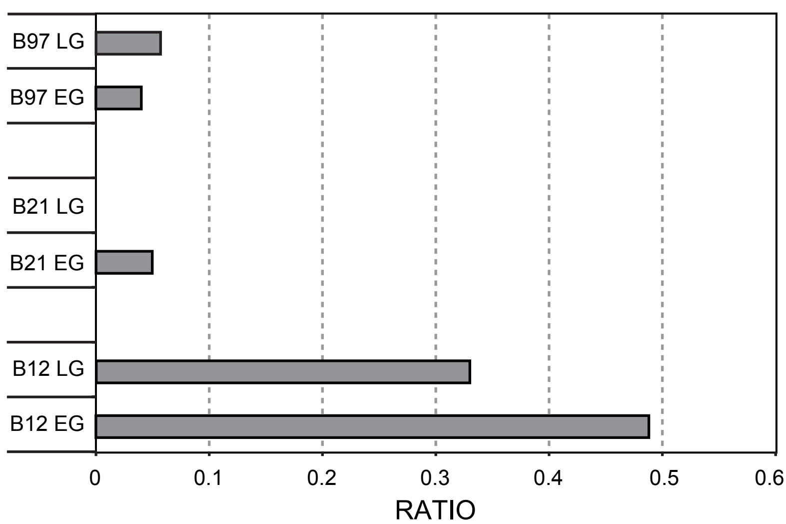

Figure 11.3. Bar graph of the ratio of V2071 (total weight of burned daub, in grams) to V103 (total weight of diagnostic sherds, in grams) for Early Gaván (EG) phase and Late Gaván (LG) phase levels of relevant test pits at B12, B21, and B97.

there were evidence of greater participation in long-distance exchange by the inhabitants of B12 during the Early Gaván phase, when B12 was the largest of three small villages, and also during the Late Gaván phase, when B12 became the first-tier center of a regional chiefdom comprising 34 habitation sites.

As we did earlier for burned daub, we can examine the distribution of fine imported stone at the three sites that had test pits with levels dating to both the Early Gaván and Late Gaván phases: B12, B21, and B97. First, consider the absolute and relative frequencies of polished stone, used for ornamentation; the raw materials include serpentinite, amphibolite, phyllite, and schist-quartzite, all of which originated in the Venezuelan Andes or beyond (tables 11.2, 11.3). Another line of evidence bearing on long-distance exchange would be the high-quality chert (generally reddish in color) that was used for making chipped stone tools (tables 11.2, 11.3). The nearest sources of this chert also lay in the Venezuelan Andes, specifically the La Quinta Formation (appendix D). For each phase at each site, we computed the relative frequency of polished stone by dividing the absolute frequency of polished stone (V2031) by the number of diagnostic sherds (V104) (table 11.3). In similar fashion, we computed the relative frequency of chert by dividing the absolute frequency of chert (V1003) by the total number of diagnostic sherds (V104) (table 11.3). We then generated bar graphs to depict the relative frequency of imported polished stone (fig. 11.4) and chert (fig. 11.5) in the Early Gaván and Late Gaván levels at B12, B21, and B97.

In both graphs, B21 yielded a higher relative frequency of the imported items than the other sites, and this was the case for the Early Gaván levels as well the Late Gaván levels (figs. 11.4, 11.5). Although B12 was the largest of the three earliest villages, and then went on to become the first-tier center of a regional chiefdom, the site did not enjoy preferential access to fine imported stone during the Early Gaván or Late Gaván phases. By contrast, even though B21 did have such preferential access, this advantage was evidently not enough to propel the site to first-tier status in Late Gaván times; instead it became a second-tier center under B12. Given that we have defined the chiefdom as a centralized regional polity, we cannot view these results as consistent with the prestige-good model of chiefdom formation. In that connection, we recall Earle's remark that prestige-good chiefdoms tended to evolve in areas with poor agricultural resources, leading to "the development of an export economy that connected the region's elite to a broad international exchange" (1997: 209). We also note his assertion that prestige-good chiefdoms were politically unstable because "reliance on international prestige-goods exchange made local societies vulnerable to forces beyond the influence of local action, and chiefdoms rose and fell rapidly" (1997: 209–210). By contrast, the Gaván chiefdom evolved in an area with rich, if somewhat circumscribed, agricultural resources in the form of prime floodplain lands. And it is fair to say that the Gaván chiefdom was not characterized by political instability. Although we have seen that warfare was prevalent in both the Early Gaván and Late Gaván phases, it is also the case that chiefdom organization appeared in the region around A.D. 550 and persisted for four centuries, hardly a pattern of unstable rise and fall.

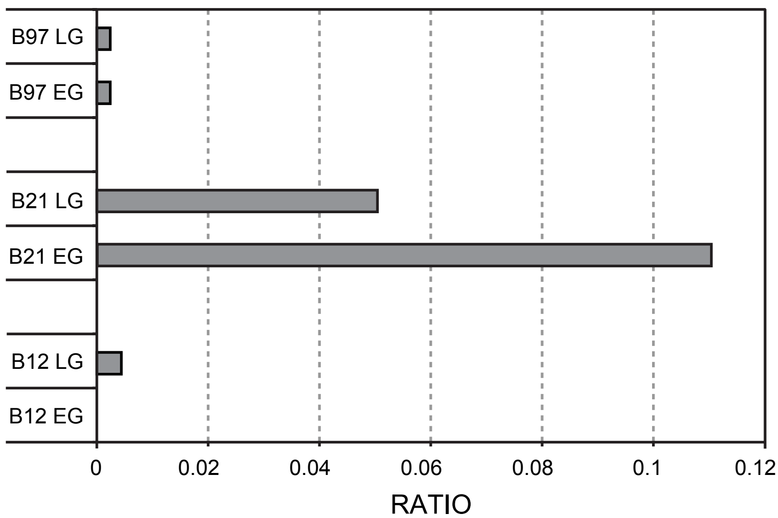

Figure 11.4. Bar graph of the ratio of V2031 (total count of polished stone fragments) to V104 (total count of diagnostic sherds) for Early Gaván (EG) phase and Late Gaván (LG) phase levels of relevant test pits at B12, B21, and B97.

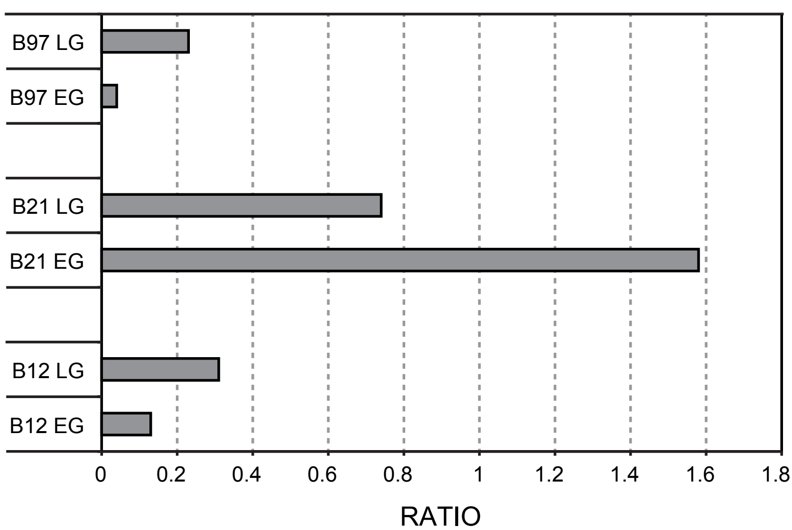

Figure 11.5. Bar graph of the ratio of V1003 (total count of chert fragments) to V104 (total count of diagnostic sherds) for Early Gaván (EG) phase and Late Gaván (LG) phase levels of relevant test pits at B12, B21, and B97.

Although our data do not provide support for the prestige-good model of chiefdom formation, this is not to say that prestige goods were never important in our study region. As we noted in the previous section, it is clear that polished stone objects from the Andes were being imported. Drawing upon our entire Late Gaván data set, we found that polished stone objects were relatively more frequent at B21 than at B12, which we suggested was consistent with a model of prestige goods entering the Gaván polity by way of the first-tier center and then being sent by the leadership at the regional center to elites at second-tier centers such as B21, as a way of reinforcing alliances between the regional and secondary elites. This distribution, we proposed, indicated that the regional elites at B12 made use of the imported polished stone not just as personal status symbols for themselves alone, but to compensate their allies at secondary centers. This argument, however, addresses only the importance of polished stone in the political dynamics of the developed Late Gaván chiefdom, and not its role in the formation of that chiefdom. If that were the case, then we should expect to find evidence of differential access to polished stone by an aspiring elite during the Early Gaván phase, before an intraregional prestige-good distribution system was in operation, which would not have happened until the centralized regional polity emerged around A.D. 550. The reasoning here is that the use of polished stone as a prestige good would surely have been based on a long-established association between polished stone objects and people of somewhat higher status, even if their higher relative status was, before A.D. 550, not permanently institutionalized. As we have noted, the main evidence we have of possibly higher-status people during the Early Gaván phase is the somewhat larger size of B12 relative to B21 and B97, which we have attributed to the faction-building activities of an aspiring elite at B12. Yet we have also seen that the Early Gaván levels at B12 produced relatively fewer fragments of imported polished stone than the Early Gaván levels at B21, which means we cannot substantiate a link between an aspiring regional elite and access to polished stone in the phase just prior to chiefdom formation. We should note that the same observation would apply to chert, which was not used for ornamentation but, like polished stone, was obtained through long-distance exchange and would have been highly prized for making chipped stone tools. To sum up, we conclude that the case of the Gaván chiefdom does not provide support for models that would see preferential access to exotic imported goods and associated esoteric information as the primary source of power in chiefdom formation.

Ritual-Ideological Legitimization

The "manipulation of ideology" model proposed by Earle focuses on the use of ideology to legitimize unequal access to resources and power, which is carried out "through the process of materialization—the performance and representation of ideology, and public participation by a social group" (1997: 205). The supporting evidence for this model, following Haller's (2008) two-phase approach, would include: (1) for the Early Gaván phase, relatively more ritual paraphernalia associated with the somewhat-larger B12 than with the other two villages (B21 and B97); and (2) for the Late Gaván phase, a continuation of the pattern of a higher relative frequency of ritual paraphernalia associated with B12, when it became the regional capital. Since we cannot date any ceremonial constructions to the Early Gaván phase, it is difficult to assess this model in terms of differential access to ritual facilities. As we have noted, B12 had the region's largest constructions to which a ceremonial function can be assigned during the Late Gaván phase, which would be consistent with its position as regional center.

To consider whether B12 was differentially associated with ritual paraphernalia during Early Gaván and Late Gaván times, let us examine the distribution of figurine fragments that we recovered in the Early Gaván and Late Gaván levels of test pits at B12, B21, and B97 (table 11.2). Although we have previously noted that figurine distribution can be interpreted either from a "community ritual" or a "household ritual" point of view, both interpretations recognize figurines as ritual artifacts. For each phase at each of the three sites (B12, B21, and B97), we computed the relative frequency of figurines by dividing the absolute frequency of figurine fragments (V2081) by the number of diagnostic sherds (V104) (table 11.3). We then generated a bar graph to depict the relative frequency of figurines in the Early Gaván and Late Gaván levels at B12, B21, and B97 (fig. 11.6). For the Early Gaván levels, figurine fragments were found only at B21. For the Late Gaván levels, small but similar relative frequencies were found at B12 and B97, but no figurines were recovered at B21. This pattern, we submit, is not what we would expect if the Gaván chiefdom had evolved according to the manipulation-of-ideology model.

Summary

Our assessment of the various models of chiefdom formation is far from flawless. Perhaps the most significant weakness is the relatively small amount of data we were able to recover for the Early Gaván phase, especially when compared to our Late Gaván data set. A further weakness is the uneven sample size from the three sites that had Early Gaván materials: there were just two test pits at B21, compared to five pits at B12 and nine pits at B97. As we noted earlier, some of the artifact frequencies were low enough to raise doubts about the meaning of the relative frequency measures that we computed. Consequently, we view our evaluation of the chiefdom formation models as tentative—solid enough to justify the effort, but underscoring the desirability of diachronic, regional data sets when one is studying ancient chiefdoms.

With these cautionary notes in mind, we offer the following conclusion: the most important causal factors in the formation of the Gaván chiefdom were *local resource control*, *population growth*, and *warfare*. The archaeological manifestations of these factors were differentially associated with B12, not only during the Early Gaván phase when it was the largest of three small villages, but also during the Late Gaván phase, when B12 had become the undisputed first-tier center of a chiefdom comprising 34 villages organized into a three-tiered regional settlement hierarchy. Although long-distance exchange and ceremonialism can both be documented—and seem to have played important roles in the operational dynamics of the Late Gaván chiefdom—the artifacts pertaining to those factors did not exhibit the distributional patterns that would be expected if they had played significant causal roles in the evolution of chiefdom organization in the first place.

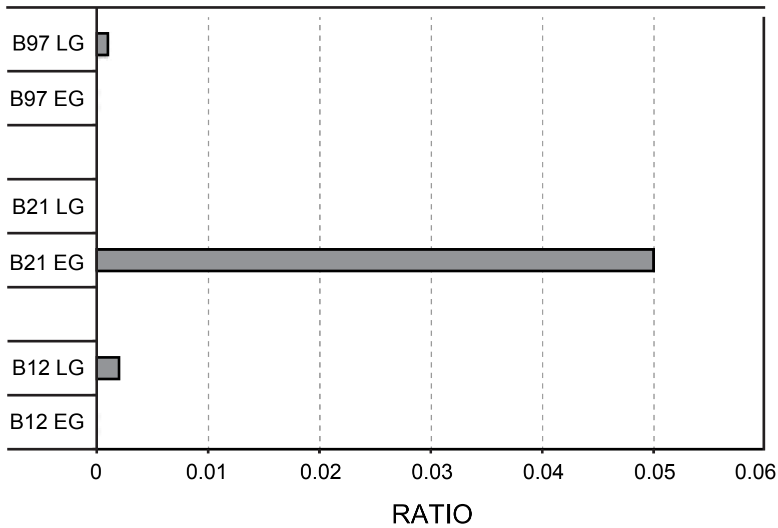

Figure 11.6. Bar graph of the ratio of V2081 (total count of figurine fragments) to V104 (total count of diagnostic sherds) for Early Gaván (EG) phase and Late Gaván (LG) phase levels of relevant test pits at B12, B21, and B97.

CLOSING THOUGHTS

The chiefdom, as a general concept, was already a hot topic in anthropology and archaeology when we started our fieldwork (Drennan and Uribe, 1987; Earle, 1991b), and now, as we write up the final results nearly three decades later, it seems the chiefdom is no less controversial (e.g., Carneiro, 2010a, 2010b; Pauketat, 2007, 2010). Pauketat's critique, in particular, poses questions for projects such as ours. For example, is the chiefdom nothing more than a "delusion" (Pauketat, 2007) held by certain naïve archaeologists? Does the chiefdom concept actually "block the way forward" (Pauketat, 2010: 168) when researchers use it in their investigations of the archaeological record? We do not imagine that the survey and excavation data we recovered in Barinas will resolve the chiefdom controversy all by themselves. But we do suggest that the validity of the chiefdom concept, like that of any theoretical proposition, is best evaluated by how well it helps anthropologists and archaeologists understand their data.

Reflecting upon what we have said so far in this chapter, it seems clear that the chiefdom has proved to be a useful conceptual tool in our efforts to analyze and interpret the Barinas data. Far from blocking the way forward, it helped illuminate the path. Yet what about those who would claim that we have been deluded all along? This seems a harsh allegation, though we do not deny that our conception of the chiefdom is a mental construct and thus potentially subject to the weaknesses that characterize most products of the human mind; it is surely less than perfect and hopefully improvable with further research. But is it a "delusion"? In Webster's Eleventh New Collegiate Dictionary, the concept of "falseness" plays a key role in the definition of *delusion*: "something that is falsely or delusively believed or propagated . . . a persistent false psychotic belief regarding the self or persons or objects outside the self." We suggest that a reasonable way to assess the "falseness" versus the "truthfulness" of a concept is through empirical verification. In our Barinas case, the key question is whether the chiefdom concept is consistent with the archaeological data. Although we accept that all conclusions in archaeology are tentative, subject to additional test and modification through future field and laboratory research, we feel comfortable in concluding that the expectations of the chiefdom concept, as laid out in chapter 1 and reprised in the current chapter, were consistent with the archaeological data that we recovered in Barinas. In our view, the chiefdom has shown itself to be a scientifically useful concept, one that deserves continuing application, evaluation, and refinement by anthropological archaeologists in the years to come.

We see our Barinas project not as the last word on pre-Hispanic chiefdoms in the western llanos, but rather as an initial contribution to what we will hope will be a long-term research program carried out by a younger generation of Venezuelan archaeologists, including some who are not yet born. We are pleased to note that this continuing research is off to a good start with the aforementioned investigations of Rafael Gassón (who worked with us as a student) and Juan Carlos Rey (a student of Gassón's) in the Acequia–Anaro River drainage, about 35 km to the south and west of the Canaguá River (Gassón, 1998, 2000, 2002, 2003; Rey, 2003). Using a methodology similar to ours—combining survey with excavation—Gassón and Rey have documented a pre-Hispanic chiefdom whose first-tier center was the site of El Cedral, which occupied the top tier of a three-tier regional settlement hierarchy. The Cedral regional polity resembled our Gaván case in that it was integrated by an impressive network of *calzadas* and was sustained, in part, by systems of drained-field agriculture. Although the Cedral and Gaván polities were roughly contemporaneous, there is no evidence that they were ever politically united. Rather, we have argued (with Gassón) that relations between the two chiefdoms were competitive and often hostile (Redmond et al., 1999). During the second half of the 1st millennium A.D., independent chiefdoms may well have emerged in several of the river valleys that distribute water from the Venezuelan Andes across the western llanos to the Orinoco River basin. Hopefully, fieldwork will be conducted in all these drainages, bringing the pre-Hispanic developments that occurred therein into the archaeological literature. Eventually, it may be possible to construct a comprehensive, empirically tested model of the cultural evolution of chiefdoms in this part of Venezuela. In the meantime, we conclude this monograph by offering a trial model, one that will surely be modified—or perhaps rejected and replaced—as a result of future investigations.

In chapter 1, we drew attention to a difference between the developmental trajectories of the western Venezuelan llanos and the middle Orinoco River valley. In the western llanos, the earliest sedentary villages made their appearance by 200 B.C. (Zucchi, 1967), and the first chiefdoms emerged around A.D. 550, as we have shown in this monograph. In the Parmana region of the middle Orinoco River valley, the first sedentary villages appeared during the La Gruta phase (2100–1600 B.C.), yet the first evidence of chiefdom organization here (in the form of a two-tiered regional settlement hierarchy) occurs much later during the Camoruco III phase (A.D. 1100–1500) (Roosevelt, 1980: tables 16–18; Spencer, 1998a: 110–112). Admittedly, there is little information currently available from the Parmana region on community layouts, household variability, intrasite artifact distributions, or burial patterns, so the determination of chiefdom emergence in the Camoruco III phase must remain tentative pending further fieldwork. Nevertheless, using the evidence in hand, we are left with an intriguing contrast: the first sedentary villages in Venezuela appeared in the middle Orinoco River area, but the earliest chiefdoms emerged in the western llanos.

To account for this developmental contrast, we propose a provisional model of the evolution of chiefdoms in Venezuela, following the scenario suggested by Spencer (1998a). To begin, let us accept the proposition by Roosevelt (1980: 195, 221) and Rouse (1978) that the earliest sedentary agricultural villages were established around 2100–1600 B.C. along the fertile alluvial zones of the middle Orinoco River. We also accept that Roosevelt has documented an increase in human population around 800–400 B.C. in the Parmana region, associated with a shift from manioc to maize as the staple crop (Roosevelt, 1980: 225–228, 235–238). We propose that this growing population of maize agriculturalists expanded up the Orinoco River to the mouth of the Apure River and then up the Apure River valley into the western llanos region. We imagine that this expansion occurred through a budding-off process whereby daughter villages established themselves farther and farther upstream along the alluvial zone.

We suggest that this expanding population reached the southeastern part of what is now Barinas state by roughly 200 B.C., as documented by Zucchi (1967, 1972b, 1973). It then reached the study area of our Barinas project by about A.D. 300, at the onset of the Early Gaván phase. In this part of northern Barinas, the high llanos meet the Andean piedmont. Here the expanding agriculturalists would have found themselves entering an area that was more environmentally circumscribed than any they had previously encountered. The best land for farming, the alluvial zone of the floodplain, becomes progressively narrower as one approaches the piedmont. In the piedmont, the most appropriate land for cultivation is restricted to small alluvial fans, which become fewer and much smaller as one climbs toward the high Andes themselves, with peaks that reach 4000–5000 m above sea level.

At this point, we should point out that much of the Andean region was already inhabited by the time the expanding agriculturalists approached the piedmont zone in northern Barinas. Wagner has documented occupations beginning around A.D. 300 in several Andean valleys, including the Boconó and Mucuchíes regions (Wagner, 1967, 1972, 1973a, 1973b, 1979). And the Santa Ana area has also yielded evidence of occupation at this time (Tarble, 1977). In our own study region, there is evidence of occupation at the site of B8 dating to the Early Curbatí phase (A.D. 300–550); this site overlooks an alluvial zone at the edge of the Andean piedmont (Spencer and Redmond, 1992). The expanding llanos agriculturalists probably engaged in exchange with some of these Andean groups—importing chert and polished stone, perhaps sending agricultural produce from the llanos in return. Yet it seems unlikely that the Andean valleys and piedmont could have absorbed many immigrants from the llanos at this time. Moreover, the other river valleys in the high llanos were probably also filling up with expanding agriculturalists. In short, when the llanos agriculturalists arrived in the high llanos of northern Barinas around A.D. 300, they would have entered a zone characterized by both environmental circumscription and social circumscription.

Carneiro (1981, 1998) has argued that such a situation—a growing agricultural population in an area with environmental and/or social circumscription—will tend to promote warfare and eventually lead to the emergence of chiefdoms, as effective war leaders institutionalize and broaden their authority, uniting several villages under a permanently centralized regional authority (Redmond, 1994, 1998b). We submit that this population-growth-and-warfare model is consistent with our Gaván-complex case. We have noted that the population of our study region went from zero inhabitants before A.D. 300 to 10.25 ha of occupation in A.D. 300–550 (Early Gaván phase), rising to 126.7 ha of occupation in A.D. 550–1000 (Late Gaván phase), a substantial increase that probably resulted from a combination of internal processes of demographic growth as well as continued immigration. The three earliest villages were established in places with particularly good access to expanses of prime floodplain. Between the Early and Late Gaván phases, all three villages grew larger and one of them (B12) emerged as the first-tier center of the politically centralized Late Gaván region. Although we doubt that the region's population levels ever pressed hard on the underlying carrying capacity, we think it likely that the combination of population growth in a situation of environmental and social circumscription could have fostered a context of intensifying competition over the best floodplain soils, not only intraregionally but also interregionally, since this rich agricultural resource might well have attracted the covetous attentions of outsiders. As we have seen, the burned daub evidence indicates that B12 experienced more attacks than the other two villages during the Early Gaván phase; its somewhat larger population may have been a defensive response to such attacks. It seems that the B12 leadership managed to deal effectively with the hostilities during Early Gaván times, because the site not only continued to be occupied but also grew precipitously to become the first-tier center of a centralized regional chiefdom during the Late Gaván phase. The rise of this chiefdom around A.D. 550 was accompanied by evidence of continuing warfare, such as the defensive oval earthwork at B12, multiple burning episodes that we interpreted as evidence of attacks, and the disarticulated skeletons at the base of Mound A and in other public contexts that we interpreted as sacrificed captives.

We suggest that an aspiring elite at B12—who were perhaps already engaged in faction-building and leading the defense of the 5 ha village during Early Gaván times—directed the construction of the oval earthwork, and perhaps also the sacrificing of captives. In this way, they presented themselves as effective military leaders against enemies who could have included some of the piedmont's inhabitants as well as other groups of llanos agriculturalists. We have suggested that the B12 elite directed the construction of an extensive *calzada* network to help link the growing number of villages into a centralized political region. They promoted the use of drained-field agriculture as a way of generating surpluses that could be used to support public ceremonies and also to sustain the temporary aggregations of villagers who sought refuge at the fortified regional center during wartime. The B12 elite also pursued long-distance trade with some Andean groups, in order to procure the high-quality chert needed to make agricultural implements and weapons of war as well as fine serpentinite and phyllite used for ornaments. The latter practice served in a system of intraregional prestige-good exchange that helped to reinforce the alliances between the regional elite and local leaders, rewarding the flow of surplus goods and labor from the subordinate villages into the first-tier center, a flow that was also facilitated by the regional *calzada* network.

To take an even bolder position, we propose that the northern edge of the high llanos, adjacent to the Andean piedmont, was precisely where the earliest chiefdoms emerged in what is now Venezuela. The Gaván chiefdom was probably one of several chiefdoms that evolved in this area around A.D. 550, though future fieldwork will be required to test that proposition. We would further propose that, once chiefdom organization evolved, it spread to other parts of Venezuela in a chain-reaction response (Carneiro, 1998). A regionally centralized chiefdom was a more significant enemy than a village-based society that lacked regional leadership. If threatened by a neighboring chiefdom, a region of independent villages would either have to capitulate, one by one, or organize themselves into an effective unit of resistance; the latter course would probably call for the development of centralized leadership on the regional level, accompanied by other features of the chiefdom. Such a scenario would entail an extensive diffusion of chiefdom organization from its point of origin in the northern high llanos to other parts of Venezuela. It apparently reached the middle Orinoco River area around A.D. 1100, at the onset of the Camoruco III phase, which we noted previously was the period with the earliest evidence of a regional settlement hierarchy in the Parmana region. Of course, years of additional fieldwork in many regions will be necessary before our model of chiefdom evolution and diffusion can be subjected to a comprehensive test, so we offer it here mainly as a topic for future research.

As we have seen, our data indicate that the Gaván chiefdom operated successfully for four centuries. The competitive pressures from neighboring chiefdoms were unrelenting, however, and eventually the Gaván polity suffered an attack from which it failed to recover. The regional center of B12 was burned to the ground and then completely abandoned, as were all the other villages of the Gaván polity. We do not know who carried out this attack, though we have singled out the Cedral chiefdom as a probable suspect. Nor do we know whether any inhabitants of the Gaván chiefdom survived the final attack. Some might have escaped, fleeing up the narrow valleys and ridges of the nearby Andes, although those areas were occupied by people who may not have welcomed refugees. Others might have been taken as captives to the Cedral chiefdom's regional center, where they most likely would have met an unpleasant fate.

TABLE 11.1
Habitation Area and Estimated Population for Early Gaván Phase and Late Gaván Phase Occupations.

Phase	Habitation Area	Estimated No. of Households	Population Estimate
Early Gaván	10.25 ha	42–62	208–311
Late Gaván	126.7 ha	512–764	2558–3818

TABLE 11.2
Frequency of Diagnostic Sherds, Weight of Diagnostic Sherds, Frequency of Chert Fragments, Frequency of Polished Stone Fragments, Frequency of Figurines, and Weight of Burned Daub for Early Gaván (EG) Phase and Late Gaván (LG) Phase Levels of Test Pits at B12, B21, and B97.

Site	Phase	Diag-Ct	Diag-Wt	Chert	Polished Stn	Figurines	Burned Daub
12	LG	1446	12,359 g	453	6	3	4058 g
12	EG	566	5410 g	72	0	0	2627 g
21	LG	19	149 g	14	1	0	0 g
21	EG	19	117 g	30	2	1	10 g
97	LG	2754	31,837 g	627	5	3	1739 g
97	EG	442	7401 g	19	1	0	298 g

EG = Early Gaván; LG = Late Gaván; Diag-Ct = total count of diagnostic sherds (V104); Diag-Wt = total weight of diagnostic sherds (V103); Chert = total count of chert fragments (V1003); Polished Stn = total count of polished stone fragments. (V2031); Figurines = total count of figurine fragments (V2081); Burned Daub = total weight of burned daub (V2071).

TABLE 11.3
Ratios of Chert Fragments to Diagnostic Sherds, Polished Stone Fragments to Diagnostic Sherds, Figurine Fragments to Diagnostic Sherds, and Burned Daub Fragments to Diagnostic Sherds for Early Gaván (EG) Phase and Late Gaván (LG) Phase Levels of Test Pits at B12, B21, and B97.

Site	Phase	Chert/Diag	Polished Stn/Diag	Figurines/Diag	Burned Daub/Diag
12	LG	0.31	0.004	0.002	0.328
12	EG	0.13	0	0	0.486
21	LG	0.74	0.05	0	0
21	EG	1.58	0.11	0.05	0.05
97	LG	0.23	0.002	0.001	0.055
97	EG	0.04	0.002	0	0.04

EG = Early Gaván; LG = Late Gaván; Chert/Diag = total count of chert fragments (V1003) divided by total count of diagnostic sherds (V104); Polished Stn/Diag = total count of polished stone fragments (V2031) divided by total count of diagnostic sherds (V104); Figurines/Diag = total count of figurine fragments (V2081) divided by total count of diagnostic sherds (V104); Burned Daub/Diag = total weight (in grams) of burned daub (V2071) divided by total weight (in grams) of diagnostic sherds (V103).

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APPENDIX A

GAVÁN-COMPLEX BURIALS

William N. Duncan and Emily L. de Berrizbeitia

In this appendix we present data on the eight burials (burials 1–8) that were excavated during the 1986 and 1988 seasons of the Barinas project. Data on these burials were recorded during the process of their excavation as well as in the laboratory. Berrizbeitia (E.L.B.) studied the remains in 1990 and submitted a written report about burials 1–4 (Berrizbeitia, personal commun., 1990). One of us (W.N.D.) conducted further analysis of all eight burials in 2007 and prepared this appendix, which combines the two burial analyses. Tables A.1 and A.2 were produced by W.N.D.

W.N.D. noted that all eight burials were quite friable and accordingly had been excavated in a pedestal fashion and left in the matrix for later assessment. The analysis of the remains in 2007 consisted of removing the remains from their surrounding matrix, and inventorying and describing them as outlined in Buikstra and Ubelaker (1994) whenever possible. Trying to separate the remains from the surrounding matrix generally destroyed the bone and permitted no closer examination of the remains. As such, some of the burials were examined with some of the surrounding matrix still attached. This technically hindered the possibility of scoring the bone surfaces for certain factors, such as taphonomic or pathological influences. However, virtually none of the bone surfaces (or dental surfaces for that matter) were observable for these factors on the remains that were extracted from the matrix, so it is unlikely that much information was lost. Additionally after quickly demonstrating that water dissolved a sample of the bone, none of the bones were washed with the exception of a portion of Burial 4 in an attempt to identify a distinct red pigment on some of the remains.

BURIAL 1

Burial 1 was excavated in Level 4 (B12-127; 0.60–0.80 m DBS) of T.17 at site B12 (fig. 6.2). T.17 (with coordinates N1998–1999/E1843) was placed on a low elongated mound. The elevation at the top southwest corner of the test pit was 97.23 m. The remains comprised disarticulated human bone and teeth fragments (fig. A.1). No burial pit was noted and no burial accompaniments were found. In her report, E.L.B. (personal commun., 1990) commented that "the first burial consists of small fragments of bone and teeth of a child; also observed were fragments of bone from an adult individual as well as small animal bones" (trans. by C. Spencer).

W.N.D. reported that the field notes from Burial 1 indicate it was likely a primary, extended, inclusive burial, of an indeterminate grave type, and lacked grave goods. He also noted that the field notes indicate that the burial may have been a juvenile and that at least some of the molars had a blue tint on them. E.L.B.'s initial laboratory notes indicate that this burial includes a primary interment of a child accompanied by fragments of adult bone and burned animal bones, which is consistent with the excavator's notes. The majority of the bones analyzed in 2007 were mature bones and at least one third molar was present, indicating an adult was present. Additionally, some of the bone fragments were burned. W.N.D. reported that he saw no remains in 2007 that were indisputably from a juvenile skeleton. It is possible that either the burial continued to decompose over the years between examinations or that some portion was separated and not present among the remains examined in 2007.

The authors note that Spencer and Redmond (1992: 147–149; chap. 6) have argued

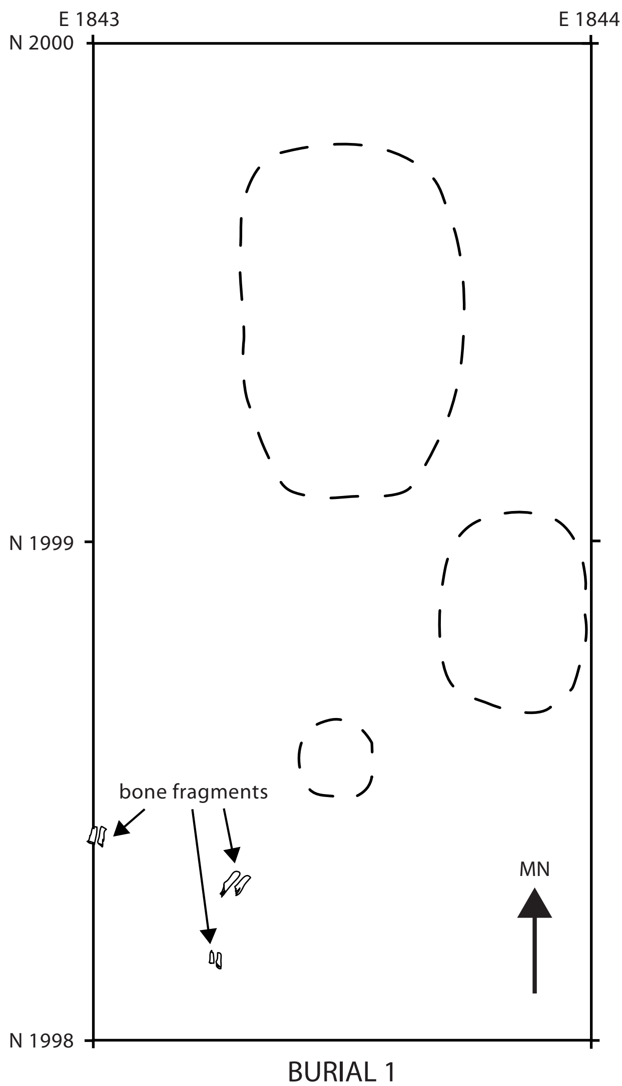

Figure A.1. Distribution of human teeth and bone fragments (Burial 1) in T.17 at B12.

that Burial 1 was not a burial in the traditional sense, but instead represented some disarticulated human body parts that were interred in the elongated mounded structure in which T.17 was excavated. This elongated structure does not appear to have been a residential construction; instead, it formed part of the southwestern edge of a small plaza area that was demarcated on the north side by Mound D and on the west side by Mound F. Spencer and Redmond (1992: 147–149; chap. 6) have also suggested that Burial 1 was similar to burials 2, 3, and 8 in that they all consisted of disarticulated human bone and were found in nonresidential or public contexts at B12.

BURIAL 2

Burial 2 was excavated in Level 8 (B12-139; 1.40–1.60 m DBS) of T.18 at site B12 (fig. 6.2). The coordinates of T.18 were N2030–2031/1784. The elevation at the top southwest corner of the test pit was 97.34 m. The field drawing (fig. A.2) shows at least three long bone fragments (labeled Nos. 3, 4, and 5) from an adult individual. E.L.B. (personal commun., 1990) remarked that "Burial 2 is composed of fragments of long bones of an adult individual" (trans. by C. Spencer). The bones of Burial 2 were found at a depth of 1.37–1.45 m DBS. W.N.D. observes that the field notes for Burial 2 indicated that it consisted of two arms and a leg of an adult (or adults). No convincing evidence of a burial pit was observed and no funerary accompaniments were found. W.N.D. reports that his osteological analysis of the remains here was consistent with the field report, finding evidence of adult long bones.

Spencer and Redmond (1992: 147–149; chap. 6) have suggested that Burial 2 is like burials 1, 3, and 8 in two respects: it seems to represent the disarticulated long bones of at least one human skeleton, and it was found in what was probably a nonresidential mound. This was the same elongated structure with which Burial 1 was associated.

BURIAL 3

Burial 3 was excavated in Level 8 (B12-139; 1.40–1.60 m DBS) of T.18 at site B12 (see fig. 6.1). The coordinates of T.18 were N2030–2031/E1784. The elevation at the top southwest corner of the test pit was 97.34 m. The field drawing (fig. A.2) shows two long bone fragments, probably from a single human leg fragment, which appeared at a depth of 1.57–1.58 m DBS. In her brief report, E.L.B. (1990) noted: "Burial No. 3 consists of adult long bone fragments. These fragments probably correspond to the tibia and the fibula" (trans. by C. Spencer).

W.N.D. reported that his osteological analysis of Burial 3 documented the presence of a tibia and fibula and no evidence of anatomical redundancy with Burial 2. The field drawings indicate that burials 2 and 3 were from roughly similar depths, and thus may both be part of a single deposit.

Spencer and Redmond (chap. 6) have noted that, while Burial 3 may represent part of the same individual represented by Burial 2, the bones of both deposits are not well articulated and thus may reflect disturbance and/or disarticulation before or after interment. They also pointed out that no burial pit was observed and no funerary accompaniments were found. They have suggested that Burial 3 resembled Burial 2, Burial 1, and Burial 8 in that it appears to represent an incomplete, largely disarticulated human skeleton, interred in a nonresidential mound (Spencer and Redmond, 1992: 147–149).

BURIAL 4

Burial 4 was excavated in T.27, the coordinates of which were N1926–1927/E1918 (fig. 6.2). The elevation at the top southwest corner of the test pit was 96.59 m. Burial 4 was interpreted in the field as a single articulated skeleton, although the preservation was poor. Only the skull and leg bones were easily identifiable in the field (fig. A.3). The top of the skull had an elevation of 0.92 m DBS, in Level 5 (B12-161). The elevation of the

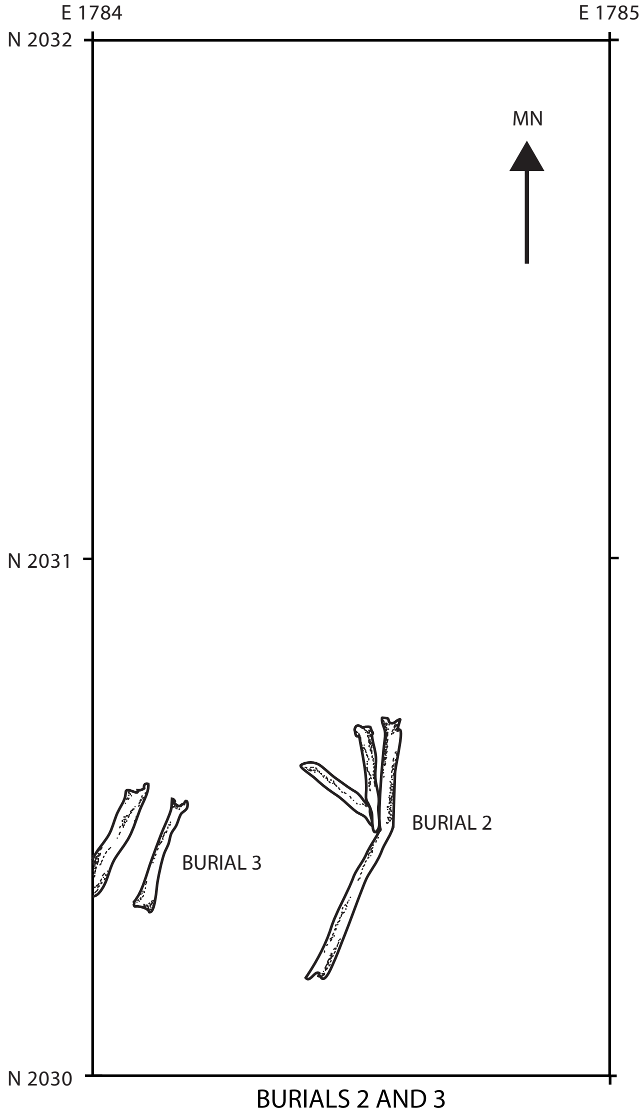

Figure A.2. Adult long bones that make up Burial 2 and Burial 3, in T.18 at B12.

knee area was 1.14 m DBS and the elevation of the right femur was 1.10 m DBS; the leg bones were found in Level 6 (B12-162). Two more proveniences, B12-163 and B12-169, represent material excavated while exposing the skeleton. The estimated orientation of the spinal column was 43° east of magnetic north. The distribution of the skull and leg bones would be consistent with a face down, extended burial position, although the body may have been doubled-over a bit at the waist, given the relatively close spacing between the top of the femur and the skull. Teeth were found beneath the skull at a depth of 1.00–1.20 m DBS, consistent with a face-down position. Before removal, measurements were taken of the left femur (length > 30 cm) and the tibia (length = 24 cm). The burial was interred in dark brown-black fill above a tan clay deposit. Unlike burials 1–3, Burial 4 was interpreted as an articulated skeleton, and it was associated with a house mound (fig. 6.2).

In addition to the adult remains, E.L.B. observed the bones of a child in the Burial 4 sample. She reported that "Burial No. 4 contains the re-

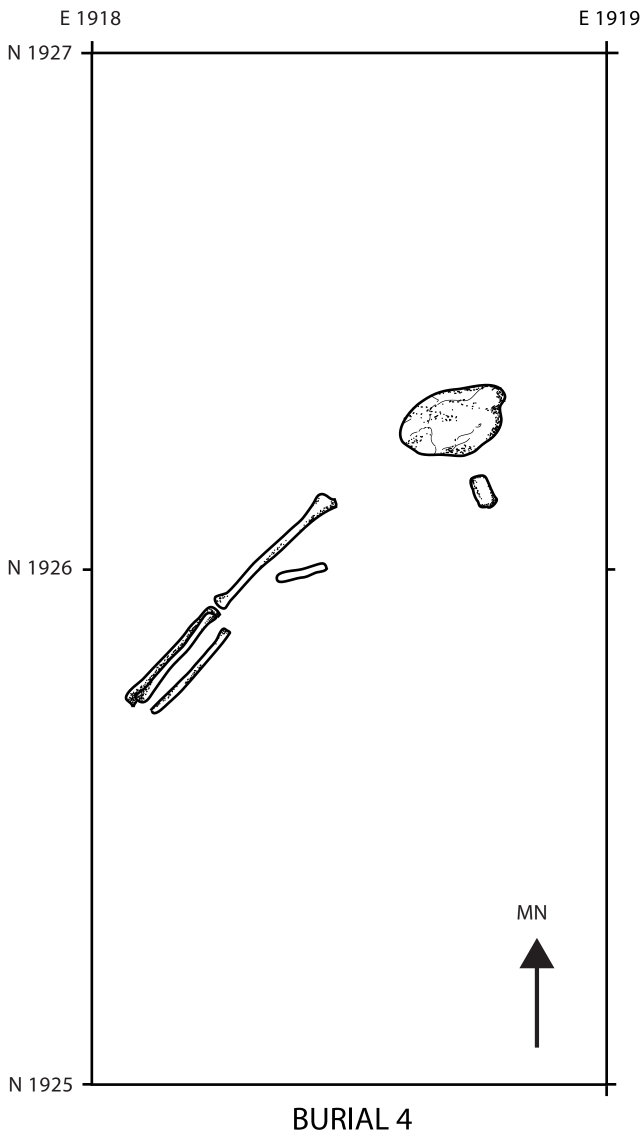

Figure A.3. Skull and leg bones of Burial 4, in T.27 at B97.

mains of two individuals, an adult and a child. Associated with this burial were several fragments of polished bone, which turned reddish in color after washing" (Berrizbeitia, personal commun., 1990, trans. by C. Spencer).

W.N.D. observed that the field notes indicate that this was an inclusive burial that had slumped over on its anterior side in situ; the grave type is indeterminate. W.N.D. also observed that the field notes indicate that the body was buried face down in an extended burial, although later lab notes suggested it might have been a seated burial. Associated artifacts included a possible polished bone and charcoal that may reflect the inclusion of perishable goods. The remains exhibited a red coloring. W.N.D.'s analysis in 2007 indicated that both adult and juvenile remains were present, as well as an isolated animal bone. There were two phalanges present and one may have been burned. Additionally, the skull exhibits possible spalling on the external table, which may indicate heat modification. W.N.D. observed no evidence of any cut marks in the 2007 analysis of the remains, although E.L.B. noted that she identified some cut marks in her earlier examination.

BURIAL 5

Burial 5 was excavated in T.56 and T.61 at site B97 (fig. 7.1). The ground surface elevations at the southwest corner of T.56 and the southwest corner of T.61 were both 98.39 m. The skull of Burial 5 was found in Level 4 (60–70 cm DBS) along the east side of T.56 (N1112–1113/E893). This led us to open another 1 × 2 m pit, T.61, adjacent to the east side of T.56. The rest of Burial 5 was excavated in Level 4 (60–70 cm DBS) of T.61. Burial 5 lay in a simple pit that had been dug into the underlying clay beneath a living surface or house floor. Burial 5 was not associated with any detectable funerary accompaniments.

W.N.D. observed that this was an inclusive burial of a single adult individual in an extended, supine position, oriented with its head to the northwest (fig. A.4). The field notes indicated that the arms were crossed on the chest and possibly tied, and that there were fractures of the distal humeri. W.N.D. noted that his observation of the remains is consistent with this being a primary interment of a single adult; however, no other demographic details could be elucidated from the bones. There was no evidence that the humeral fractures were perimortem, but there were at least two hands next to each other in the matrix, and a radius and ulna were in pronation, which is consistent with the hands being crossed on the chest. Also there were two small chips of cortical bone that were different shades of light bluish gray with mottled surfaces on both sides (Gley 8/5PB8/1 and Gley 10/B, 7/1) but it is unclear whether this reflects heat modification. Spencer and Redmond (chap. 7) have suggested that the crossed hands of Burial 5 might represent the position of a deceased individual whose body was carried in a hammock to the grave and buried therein, similar to the positions of Lucayan-Taíno burials recovered at the Ostionoid period (A.D. 600–1500) site of Preacher's Cave in the Bahamas, which were wrapped in plaited mats with the hands crossed (Schaffer et al., 2012).

BURIAL 6

Burial 6 was first encountered during the excavation of Level 7 (1.20–1.40 m DBS) of T.173 (fig. 6.2). To allow for the excavation of Burial 6 (fig. A.5), the original dimensions of T.173 (N1966–1967/E2011) were expanded to the west, appending a 1.5 m^2 section (N1966.00–1967.50/E2010). W.N.D. observed that the field notes report a complete, partially flexed single adult lying on its back and slightly on its right side, interred in a simple intrusive pit. Grave goods, including two ceramic bottles and an effigy vessel, accompanied the burial. The osteological analysis confirmed the presence of an adult, but little else could be ascertained from the remains. The phalanges exhibited the same pale red color as those reported in Burial 4. There were also isolated fish vertebrae included in the matrix of these remains.

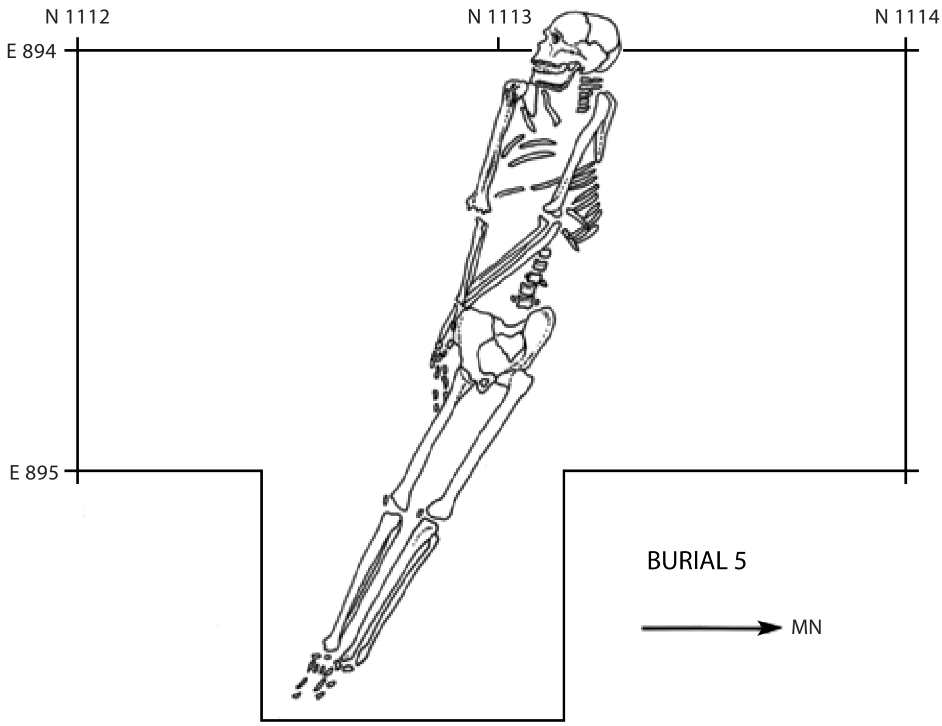

Figure A.4. Burial 5, in T.61 at B97.

As described by Spencer and Redmond (chap. 6), Burial 6 was an articulated adult skeleton that extended from approximately N1966.65/E2010.67 at the top of the skull, to N1967.40/E2112.00 at the feet. The top elevation at the skull was 96.40 m, while the top elevation at the hip was 96.36 m. The cranial orientation was 220° and the spinal orientation was 218°. Measured in the ground, the burial had a length of 154 cm and a width of 34 cm. The body was in a slightly flexed position, a bit on its right side. The body had been twisted from the pelvis down, so that the kneecaps pointed downward. The excavator noted the following degrees of flexure: 0° at the shoulder; 160° at the hip; 150° at the elbow; and 180° (i.e., straight) at the knee. The stratification of Burial 6 was deemed to be intrusive; the edges of the pit were noted on the western side of the excavation (fig. 6.101). Burial 6 was judged to be associated with three ceramic vessels, which were given lab numbers V.1, V.2, and V.3 (fig. A.5); all were in a state of very poor preservation. Note that the vessel reported here as V.3 was originally given number V.4 in the field; the designation was changed during the analysis to V.3. Because the V.4 designation was not assigned to any other vessel, we trust that no confusion should result from any future research on these materials. V.1 was identified by the excavators as a bottle. The depth at the bottle's mouth was 96.23 m, while the depth at its base was 96.10 m. V.2 was also identified as a bottle; the depth of its mouth was 96.20 m. V.3 lay at a depth of 96.18 m and was identified as an effigy vessel.

BURIAL 7

Burial 7 was found while excavators were removing the bones of Burial 6, which Burial 7 predated. W.N.D. observes that the field notes indicate that this burial was a primary burial of a single extended individual from a disturbed context. Osteological examination found that the individual was an adult and that there was no evidence of the presence of multiple individuals.

In chapter 6, Spencer and Redmond note that only the upper body of Burial 7 was excavated, because the lower portion extended into the profile of the excavation at the E2012.00 line (fig. A.6). Burial 7 was judged to be an articulated skeleton, though poorly preserved. It was interred on its back with the face up, in an extended position. The elevation at the skull was 96.12 m, and the elevation at the hip was 96.14 m. The excavators suggested that Burial 7 had been disturbed when Burial 6 was interred immediately above it. Noting the dislocation of Burial 7's left arm bone, the excavators proposed that sufficient

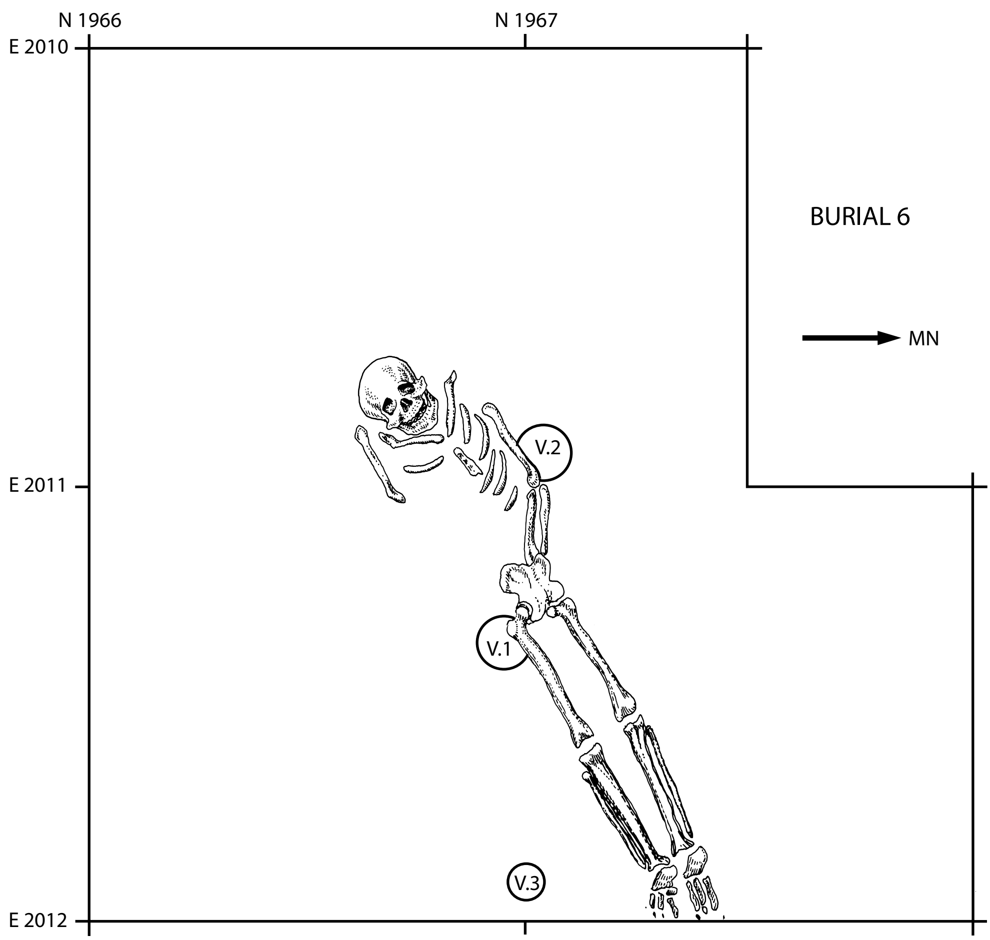

Figure A.5. Burial 6, in Area A at B12.

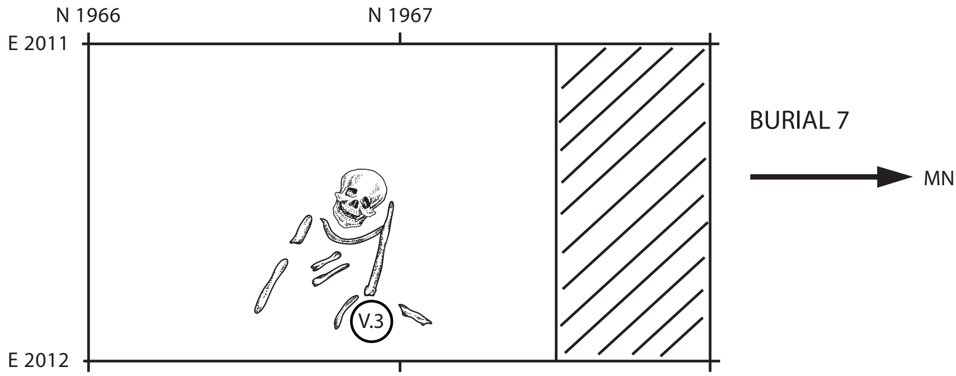

Figure A.6. Burial 7, in Area A at B12.

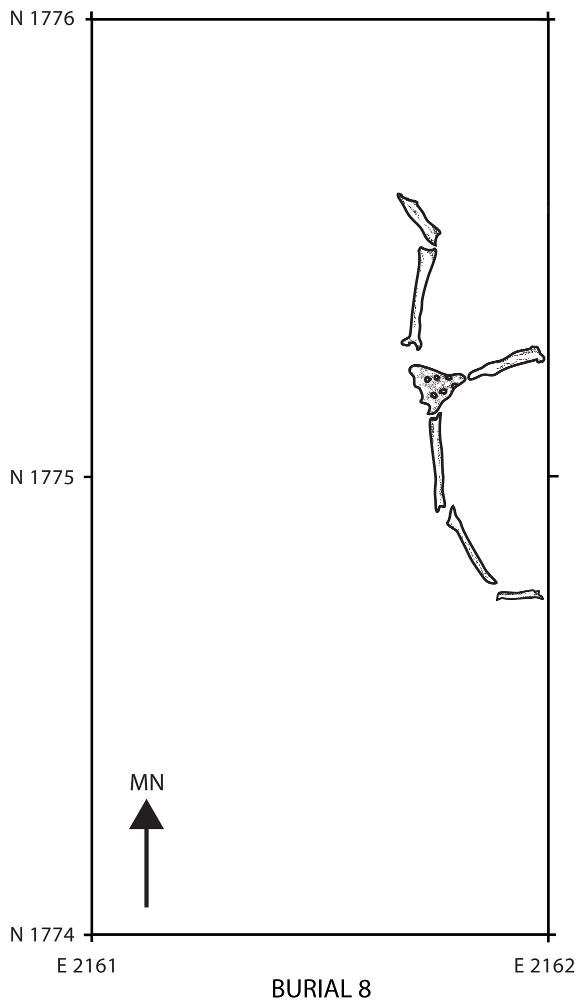

Figure A.7. Disarticulated bones comprising Burial 8, in T.183 at B12.

time had elapsed between the interment of Burial 7 and that of Burial 6, so that the skin and connective tissue attaching Burial 7's left arm bone to the shoulder had decayed. The excavators could not agree whether the effigy vessel designated as V.3, at a depth of 96.18 m, accompanied Burial 6 or Burial 7; to cover both possibilities, its location has been indicated on the drawings of both burials (figs. A.5, A.6). The reader should bear in mind, however, that V.3 is just one vessel and was probably intended to accompany either Burial 6 or Burial 7.

BURIAL 8

Burial 8 was recovered at a depth of 90 cm DBS, within Level 5 (80–100 cm DBS) of T.183, excavated into the lower stratigraphic layers of Mound A at B12 (fig. 6.2). The excavation notes indicated that this was not a complete burial, but rather some disarticulated bones in an inclusive context (fig. A.7). The coordinates of the test pit were N1774-1775/E2161 and the datum at its top southwest corner at 97.48 m (some 10-15 cm below the actual eroded ground surface). There were no funerary accompaniments. W.N.D. observed that the remains included flatbones, most of which were os coxae, or bones of the pelvic girdle area. Spencer and Redmond (chap. 6; 1992: 147–149) have noted that, like the other partial human remains found at B12 (burials 1, 2, 3), Burial 8 was deposited in what they have interpreted as a nonresidential or public context, in this case the site's largest earthen mound.

ACKNOWLEDGMENTS

W.N.D. wishes to thank Elsa Redmond and Charles Spencer for the invitation to work on the remains from Barinas. Additionally he would like to thank Rafael Gassón and the scientific staff of the Departamento de Antropología of the Instituto Venezolano de Investigaciones Científicas (IVIC) in Altos de Pipe, Venezuela. They could not have been more accommodating. Funding for this research was provided by the American Museum of Natural History.

TABLE A.1
Osteological Inventory for Gaván-Complex Burials.

Burial	Element	Age	Burial	Element	Age
1	Unidentified cortical bone		1	Unidentified flat bone	
1	Long bone		2	Femur	Adult
1	Metatarsal		2	Humerus	Adult
1	Metacarpal		2	Humerus	Adult
1	Flatbones		2	Tibia	Adult
1	Skull bones		2	Radius/Ulna	Adult
1	Tibial Fibula in articulation	Adult	2	Unidentified cortical bone	
1	Ulna	Adult	2	Unidentified longbones	Adult
1	Unidentified cortical bone		3	Tibia	
1	Radius ulna frag	Adult	3	Fibula	
1	Metacarpal fragment	Adult	4	Tibia	Juvenile
1	Unidentified cortical bone		4	Fibula	Juvenile
1	Unidentified flat bone	Adult	4	Tibia	
1	Unidentified cortical bone		4	Fibula	
1	Fragment of an maxillary incisor	Adult	4	Unidentified tooth crown	
1	Mandibular right second molar	Adult	4	Unidentified cortical bone	
1	Canine crown		4	Cervical vertebra 1	Adult
1	3rd molar crown		4	Vertebrae articular facet	

TABLE A.1
Osteological Inventory for Gaván-Complex Burials.
(Continued)

Burial	Element	Age
4	Animal bone	
4	Skull fragments	
4	Metacarpal	
4	Skull fragments	
4	Unidentified cortical bone	
4	Phalanges	Adult
4	Femur	Adult
4	Unidentified tooth crown	Adult
4	Unidentified cortical bone	
5	Rib 1	Adult
5	Humerus	
5	Cranial vault fragments	
5	Skull fragments	
5	Incisor fragment	
5	Unidentified cortical bone	
5	Frontal	Adult
5	Parietal	Adult
5	Temporal	Adult
5	Occipital	Adult
5	Mandible	Adult
5	Maxilla	Adult
5	Nasal	Adult
5	Zygomatic	Adult
5	Palatine	Adult
5	Ulna	Adult
5	Ilium	Adult
5	Pubis	Adult
5	Radius	Adult
5	Ulna	Adult
5	Tarsals	
5	Metatarsals	
5	Radius	Adult
5	Unidentified cortical bone	
5	Sacrum	
5	Vertebrae	
5	Rib fragments	
5	Ilium	Adult
5	Pubis	Adult
5	Unidentified cortical bone	
5	Ribs	
5	Thoracic vertebrae 1–9	Adult
5	Scapula	Adult
5	Femur	Adult
5	Unidentified cortical bone	
5	Tibia	Adult
5	Tarsal	
5	Ribs	
5	Vertebrae	Adult
5	Ribs	Adult
5	Clavicle	Adult
5	Scapula	Adult
5	Ribs	Adult
5	Humerus	Adult
5	Hand bones	Adult
5	Humerus	Adult
5	Tibia	Adult
5	Fibula	Adult
5	Femur	Adult
5	Tibia	Adult
5	Fibula	
5	Burned bone human	
5	Femur	Adult
5	Femur	Adult
5	Unidentified long bone fragment	
6	Animal	
6	Humerus	
6	Phalanges	
6	Phalanges	
6	Flatbones	
6	Ulna/Radius	
6	Metatarsals	Adult
6	Tarsal fragment	
6	Femur	Adult
6	Ribs	
6	Pelvis	
6	Humerus	Adult
6	Radius	
6	Ulna	
6	Clavicle	
6	Scapula	Adult
6	Femur	
6	Phalanges	Adult
7	Rib 3–10	
7	Cervical vertebrae 1	
7	Parietal	
7	Frontal	
7	Maxilla	
7	Mandible	
7	Long bone	
7	Proximal manual phalanx	Adult
7	Long bone fragments	
8	Thoracic vertebra 1–9	Adult
8	Long bone UCF	
8	Unidentified cortical bone	
8	Flatbone	
8	Unidentified cortical bone	
8	Flatbone	
8	Unidentified cortical bone	
8	Os coxae	

TABLE A.2
Dental Inventory for Burial 5.

Tooth	Side	Field	Number
Maxillary	R	Molar	3
Maxillary	R	Molar	2
Maxillary	R	Molar	1
Maxillary	R	Premolar	4
Maxillary	L	Incisor	1
Maxillary	L	Incisor	2
Maxillary	L	Canine	1
Maxillary	L	Premolar	3
Maxillary	L	Premolar	4
Maxillary	L	Molar	1
Maxillary	L	Molar	2
Mandibular	L	Premolar	4

APPENDIX B

A TRIAL ANALYSIS OF USE-WEAR EVIDENCE ON CHIPPED STONE TOOLS

Charles S. Spencer and Elsa M. Redmond

As an adjunct to our general analysis of lithic artifacts, using the variables described in chapter 2, we selected 60 chipped stone tools from Gaván-complex proveniences for a more specialized analysis of use-wear evidence. To be selected, the artifact had to be either a recognizable tool type (scraper, adze, blade, axe, etc.) or else a utilized flake that had so much evidence of repeated or heavy utilization that it nearly qualified as a formal tool. We assigned each tool a unique number consisting of its provenience designation plus an additional number ranging from 1 to 60. Drawing upon the work of Keeley (1980) and Vaughn (1985), we set up a recording scheme that consisted of 15 variables, which are labeled UWV1 through UWV15; the "UWV" prefix stands for "Use-Wear Variable." We examined each stone tool with a ×10 hand lens as well as with a binocular microscope that had a range of magnifications; views in the ×100–200 range turned out to be comparable to the photographs in Vaughn's (1985) work. A metric caliper was used to measure the length, width, and thickness of each tool (to the nearest 0.01 cm). A protractor and hand lens were used to measure edge angle (to the nearest degree). Each tool was illustrated and the pertinent figure number is provided. At the conclusion of the analysis, the 60 analyzed tools were boxed up for separate curation in the storage facility of the Departamento de Antropología at IVIC.

A cautionary note is necessary before we proceed. Although we consider ourselves to be competent general analysts of chipped stone artifacts, we do not claim to be other than neophyte analysts of use-wear evidence on stone tools. We recognize, as we did throughout our analysis, that even a reference book as detailed and well presented as Vaughn's (1985) was no substitute for years of personal experience. Consequently, we ask the reader to regard our analysis as no more than a trial effort, a caveat made explicit in the title of this appendix. Our interpretations are best viewed as tentative hypotheses, which it is hoped will be subjected to a more rigorous test when some future researcher, more skilled in use-wear analysis than we, has an opportunity to take another look at this sample of stone tools.

VARIABLE DIRECTORY FOR USE-WEAR ANALYSIS OF CHIPPED STONE TOOLS

UWV1: Tool number (provenience designation plus tool number)
Illustration: Figure number
UWV2: Material
UWV3: Typology (tool type, presence of retouching, whole or partial tool)
UWV4: Maximum length (cm)
UWV5: Maximum width (cm)
UWV6: Maximum thickness (cm)
UWV7: Edge angle (°)
UWV8: Nature of use-wear
UWV9: Polish location (dorsal, ventral, both)

UWV10: Degree and nature of polish
UWV11: Extent of polish
UWV12: Use motion (transverse, longitudinal, diagonal)
UWV13: Use characterization (scraping, cutting, grooving, planing, chopping, etc.)
UWV14: Contact material
UWV15: Hafting evidence (yes or no)

RESULTS OF ANALYSIS

UWV1: B12-754-1 (Mound A surface collection).
Illustration: Figure B.1.
UWV2: Chert.
UWV3: Scraper; with retouching on dorsal side; whole tool.
UWV4: 3.85 cm.
UWV5: 3.17 cm.
UWV6: 0.97 cm.
UWV7: 30°.
UWV8: Micropolish; with some thin, shallow striations perpendicular to the working edge.
UWV9: Polish on ventral sides.
UWV10: Intensive polish.
UWV11: Up to 2.5 mm from edge, in area of retouch only; does not extend past area of retouch; banding.
UWV12: Transverse use motion.
UWV13: Scraping.
UWV14: Hides.
UWV15: No hafting evidence.

UWV1: B12-754-2 (Mound A surface collection).
Illustration: Figure B.1.
UWV2: Chert.
UWV3: Blade; no retouching; partial tool.
UWV4: 2.32 cm.
UWV5: 2.22 cm.
UWV6: 0.53 cm.
UWV7: 20°.
UWV8: Micropolish; microflaking, with some longitudinal striations parallel to working edge.
UWV9: Polish on dorsal and ventral sides.
UWV10: Generic light polish.
UWV11: Polish < 1 mm from working edge; banding.
UWV12: Longitudinal use motion.
UWV13: Cutting.
UWV14: Meat.
UWV15: No hafting evidence.

UWV1: B12-754-3 (Mound A surface collection).
Illustration: Figure B.1.
UWV2: Chert.
UWV3: Scraper; no retouching; whole tool.
UWV4: 5.78 cm.
UWV5: 4.29 cm.
UWV6: 1.30 cm.
UWV7: 50°.
UWV8: Micropolish; edge-rounding; thin shallow striations parallel to working edge.
UWV9: Polish on dorsal and ventral sides.
UWV10: Intensive polish.
UWV11: Highly banded; < 1 mm from working edge.
UWV12: Longitudinal use motion.
UWV13: Cutting, sawing.
UWV14: Hides, bone, meat, tendons.
UWV15: No hafting evidence.

UWV1: B12-754-4 (Mound A surface collection).
Illustration: Figure B.1.
UWV2: Chert.
UWV3: Scraper; retouching on ventral side; whole tool.
UWV4: 4.18 cm.
UWV5: 3.65 cm.
UWV6: 1.32 cm.
UWV7: 20°.
UWV8: Polish; a few thin shallow striations at an oblique angle to working edge.
UWV9: Polish on ventral and dorsal sides, but more evident on ventral side.
UWV10: Weak generic polish.

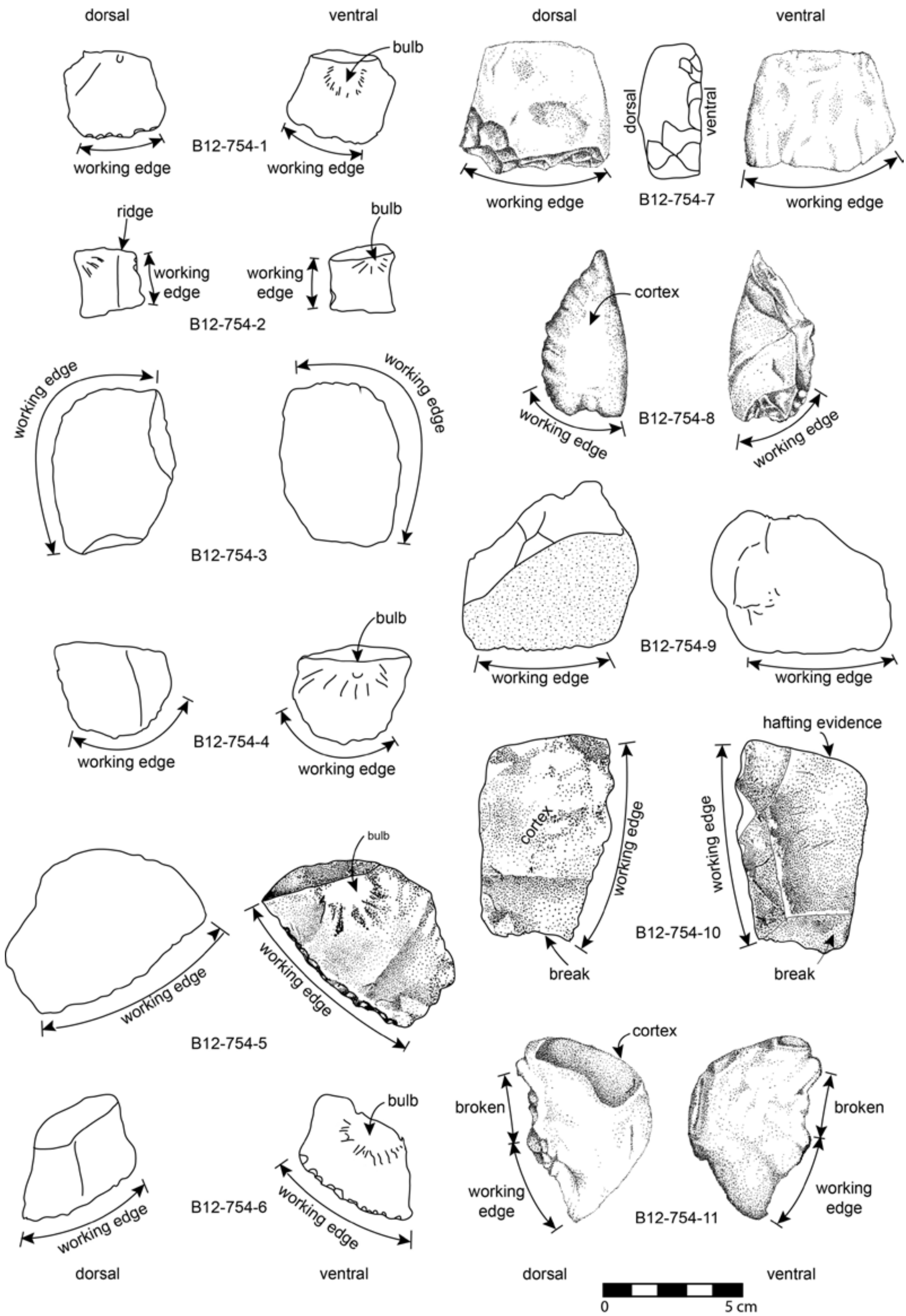

Figure B.1. Chert tools B12-754-1 through B12-754-11.

UWV11: No notable banding; polish extends to 3–5 mm from working edge.
UWV12: Diagonal use motion.
UVW13: Cutting.
UWV14: Meat.
UWV15: No hafting evidence.

UWV1: B12-754-5 (Mound A surface collection).
Illustration: Figure B.1.
UWV2: Chert.
UWV3: Scraper; retouching on ventral side; whole tool.
UWV4: 7.17 cm.
UWV5: 5.05 cm.
UWV6: 1.91 cm.
UWF7: 25°.
UWF8: Polish; with thin shallow striations at an oblique angle to working edge.
UWV9: Polish on ventral and dorsal sides.
UWV10: Generic weak polish.
UWV11: Polish up to 2 mm from working edge in area of retouch primarily, mainly on ventral surface; no banding.
UWV12: Diagonal use motion.
UWV13: Cutting.
UWV14: Meat.
UWV15: No hafting evidence.

UWV1: B12-754-6 (Mound A surface collection).
Illustration: Figure B.1.
UWV2: Chert.
UWV3: Scraper; retouching on ventral side; whole tool.
UWV4: 5.17 cm.
UWV5: 3.0 cm.
UWV6: 2.01 cm.
UWV7: 35°.
UWV8: Polish; with thin shallow striations at an oblique angle to working edge.
UWV9: Polish on ventral and dorsal sides.
UWV10: Moderate polish.
UWV11: Highly banded; continuous polish < 1 mm from working edge.
UWV12: Diagonal use motion.
UWV13: Cutting.
UWV14: Bone, meat.
UWV15: No hafting evidence.

UWV1: B12-754-7 (Mound A surface collection).
Illustration: Figure B.1.
UWV2: Chert.
UWV3: Scraper-plane; retouching on dorsal side; whole tool.
UWV4: 5.58 cm.
UWV5: 4.77 cm.
UWV6: 2.46 cm.
UWV7: 80°.
UWV8: Polish.
UWV9: Polish on ventral (bottom) side.
UWV10: Moderate polish.
UWV11: Polish is heavier < 1 mm from working edge, but occurs intermittently across ventral surface.
UWV12: Transverse use motion.
UWV13: Scraping.
UWV14: Hides.
UWV15: No hafting evidence.

UWV1: B12-754-8 (Mound A surface collection).
Illustration: Figure B.1.
UWV2: Chert.
UWV3: Scraper; retouching on ventral side; whole tool, with dorsal cortex.
UWV4: 6.10 cm.
UWV5: 3.08 cm.
UWV6: 1.41 cm.
UWV7: 35°.
UWV8: Polish; plus tiny, amorphous silica gel deposits.
UWV9: Polish on ventral side.
UWV10: Medium polish.
UWV11: Banded < 1 mm from working edge, with thin, short extensions of polish perpendicular to working edge; also tiny silica gel blobs.

UWV12: Transverse use motion.
UWV13: Scraping.
UWV14: Plants, as indicated by tiny silica blobs, possibly from plant phytoliths.
UWV15: No hafting evidence.

UWV1: B12-754-9 (Mound A surface collection).
Illustration: Figure B.1.
UWV2: Chert.
UWV3: Scraper; some retouching on ventral side; whole tool, with cortex on dorsal side.
UWV4: 7.02 cm.
UWV5: 6.00 cm.
UWV6: 2.50 cm.
UWV7: 30°.
UWV8: Polish.
UWV9: Polish on ventral side.
UWV10: Medium polish.
UWV11: Heaviest polish up to 1–2 mm from working edge; not highly banded; polish grades off, showing tails extending 5 mm or so from working edge.
UWV12: Transverse use motion.
UWV13: Scraping.
UWV14: Hides.
UWV15: No hafting evidence.

UWV1: B12-754-10 (Mound A surface collection).
Illustration: Figure B.1.
UWV2: Chert.
UWV3: Axe/cleaver; retouching; partial tool, with cortex on dorsal side.
UWV4: 7.07 cm.
UWV5: 4.83 cm.
UWV6: 1.94 cm.
UWV7: 70°.
UWV8: Polish, with slight polish tails and striations perpendicular to working edge; also with some microflaking.
UWV9: Polish on ventral and dorsal sides, but more evident on dorsal side.
UWV10: Highly polished; developed polish.
UWV11: Highly banded; band < 1 mm thick.
UWV12: Transverse use motion.
UWV13: Chopping, striking; good candidate for a weapon.
UWV14: Bone.
UWV15: Hafting evidence observed.

UWV1: B12-754-11 (Mound A surface collection).
Illustration: Figure B.1.
UWV2: Chert.
UWV3: Utilized flake; probable knife; slight retouching; cortex on dorsal side.
UWV4: 5.39 cm.
UWV5: 3.53 cm.
UWV6: 1.22 cm.
UWV7: 20°.
UWV8: Polish; also some microflaking.
UWV9: Polish on ventral and dorsal sides.
UWV10: Developed polish.
UWV11: Banded; up to 4 mm on ventral side.
UWV12: Probably longitudinal use motion.
UWV13: Cutting; probably in both directions, longitudinally.
UWV14: Fresh hides and meat.
UWV15: No hafting evidence.

UWV1: B12-754-12 (Mound A surface collection).
Illustration: Figure B.2.
UWV2: Chert.
UWV3: Utilized flake; probable knife; slight retouching; cortex on dorsal side.
UWV4: 5.39 cm.
UWV5: 3.53 cm.
UWV6: 1.22 cm.
UWV7: 20°.
UWV8: Polish; some microflaking.
UWV9: Ventral and dorsal sides.
UWV10: Developed polish.
UWV11: Banded polish; up to 4 mm on ventral side.
UWV12: Probably longitudinal.
UWV13: Cutting; longitudinally; probably in both directions.

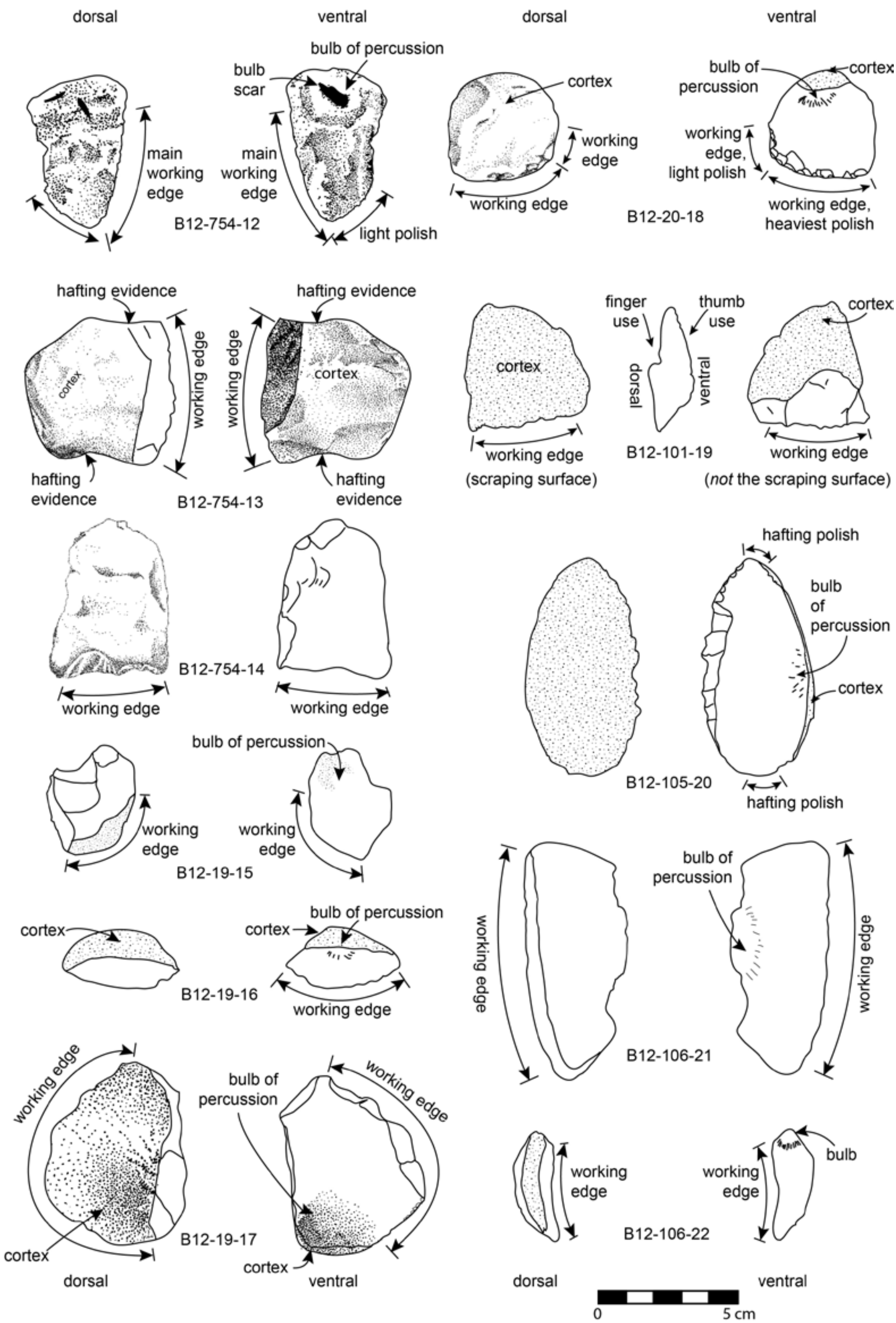

Figure B.2. Chert tools B12-754-12 through B12-106-22.

UWV14: Fresh hides and meat.
UWV15: No hafting evidence.

UWV1: B12-754-13 (Mound A surface collection).
Illustration: Figure B.2.
UWV2: Chert.
UWV3: Core chopper; retouching; whole tool, with cortex.
UWV4: 5.25 cm.
UWV5: 5.07 cm.
UWV6: 1.85 cm.
UWV7: 60°.
UWV8: Polish.
UWV9: Polish on both sides.
UWV10: Medium polish.
UWV11: Polish restricted to a narrow band up to 2 mm from working edge.
UWV12: Probably transverse use motion.
UWV13: Chopping, hitting.
UWV14: Bone or other hard material; probable weapon.
UWV15: Hafting evidence observed.

UWV1: B12-754-14 (Mound A surface collection).
Illustration: Figure B.2.
UWV2: Chert.
UWV3: Core tool; adze; retouching on dorsal side; whole tool, cortex on dorsal side.
UWV4: 5.12 cm.
UWV5: 3.85 cm.
UWV6: 1.70 cm.
UWV7: 80°.
UWV8: Polish on ventral side, with striations, moderately deep, perpendicular and diagonal to working edge; microflaking on dorsal side.
UWV9: Polish and striations on ventral side; microflaking, no polish, on dorsal side.
UWV10: Light polish, but with deep striations.
UWV11: Patches of light polish up to 4 mm from working edge; not notably banded.
UWV12: Diagonal use motion, with some transverse.
UWV13: Scraping.
UWV14: Fresh hides; striations probably caused by grit; wood (seasoned or hardwood) also a possibility.
UWV15: No hafting evidence.

UWV1: B12-19-15 (T.1; Level 1).
Illustration: Figure B.2.
UWV2: Chert.
UWV3: Utilized flake; whole tool, cortex on dorsal side.
UWV4: 4.28 cm.
UWV5: 3.14 cm.
UWV6: 0.80 cm.
UWV7: 40°.
UWV8: Polish, edge-rounding, striations.
UWV9: Polish along ventral side and along rounded working edge; longitudinal striations in the polished area.
UWV10: Developed polish with moderately developed striations.
UWV11: Highly banded; extends less than 1 mm from working edge.
UWV12: Longitudinal use motion.
UWV13: Cutting or sawing.
UWV14: Hard material; bone working; possibly grooving.
UWV15: No hafting evidence.

UWV1: B12-19-16 (T.1; Level 1).
Illustration: Figure B.2.
UWV2: Chert.
UWV3: Utilized flake; whole tool, cortex on dorsal side.
UWV4: 4.04 cm.
UWV5: 2.24 cm.
UWV6: 1.23 cm.
UWV7: 60°.
UWV8: Polish.
UWV9: Polish on dorsal and ventral sides.
UWV10: Developed polish along working edge.
UWV11: Continuous band up to 5 mm from working edge, with patches of developed polish extending 2–3 mm from working edge on both dorsal and ventral sides.

UWV12: Longitudinal use motion.
UWV13: Cutting or sawing; whittling.
UWV14: Wood.
UWV15: No hafting evidence.

UWV1: B12-19-17 (T.1; Level 1).
Illustration: Figure B.2.
UWV2: Chert.
UWV3: Side scraper, retouching along working edge; whole tool, with cortex.
UWV4: 6.39 cm.
UWV5: 4.98 cm.
UWV6: 2.26 cm.
UWV7: 40°.
UWV8: Polish, with light striations perpendicular to working edge.
UWV9: Polish on ventral side.
UWV10: Developed polish.
UWV11: Developed polish in continuous band up to 1–1.5 mm from working edge; patches of medium and light polish up to 3–4 mm from working edge.
UWV12: Transverse use motion.
UWV13: Scraping/planing.
UWV14: Wood.
UWV15: No hafting evidence.

UWV1: B12-20-18 (T.1; Level 2).
Illustration: Figure B.2.
UWV2: Chert.
UWV3: Scraper, retouching on ventral side; whole tool, cortex on dorsal side.
UWV4: 3.97 cm.
UWV5: 3.86 cm.
UWV6: 1.65 cm.
UWV7: 55°.
UWV8: Polish, with a few shallow striations perpendicular to working edge.
UWV9: Polish on ventral side.
UWV10: Medium polish.
UWV11: Polish visible mainly along working edge and in area of retouching up to about 2 mm from working edge; beyond this, only light patchy polish visible; striations occur beyond the area of retouching, usually right at the interface between the retouched zone and the unretouched area.
UWV12: Transverse use motion.
UWV13: Scraping.
UWV14: Hides, probably fresh, with striations caused by grit.
UWV15: No hafting evidence.

UWV1: B12-101-19 (T.3; Level 1).
Illustration: Figure B.2.
UWV2: Chert.
UWV3: Core tool scraper; retouching on ventral side; cortex on both sides.
UWV4: 4.43 cm.
UWV5: 4.43 cm.
UWV6: 1.63 cm.
UWV7: 55°.
UWV8: Dull, greasy polish.
UWV9: Polish along working edge and on dorsal side; polish right along working edge on ventral side, < 0.5 mm from working edge.
UWV10: Light-to-medium polish.
UWV11: On dorsal surface, continuous polish along working edge and up to 1 mm from working edge, with patches of lighter polish up to 4–5 mm from working edge.
UWV12: Probably transverse use motion.
UWV13: Scraping.
UWV14: Probably fresh hides, because polish extends slightly into nonworking surface on ventral side, although the scraping surface is dorsal side.
UWV15: No hafting evidence.

UWV1: B12-105-20 (T.4; Level 1).
Illustration: Figure B.2.
UWV2: Chert.
UWV3: Flake tool; axe; retouching on ventral side; cortex on dorsal side.
UWV4: 7.74 cm.
UWV5: 4.03 cm.
UWV6: 1.51 cm.
UWV7: 45°.

UWV8: No use polish, aside from hafting evidence noted.
UWV9-UWV14: Not applicable.
UWV15: Hafting evidence (polish) on both ends. We interpret this artifact as a weapon that was hafted but not used enough to result in observable use-wear.

UWV1: B12-106-21 (T.6; Level 1).
Illustration: Figure B.2.
UWV2: Chert.
UWV3: Blade, with two dorsal ridges.
UWV4: 5.58 cm.
UWV5: 2.39 cm.
UWV6: 0.62 cm.
UWV7: 50°.
UWV8: Polish.
UWV9: Polish on ventral and dorsal sides; more evident on ventral.
UWV10: Light polish.
UWV11: Continuous light polish on ventral side, along working edge up to 1 mm from edge; also light patches of polish on ventral side extending up to 4–5 mm from working edge, even farther in places.
UWV12: Diagonal use motion.
UWV13: Cutting.
UWV14: Probably meat.
UWV15: No hafting evidence.

UWV1: B12-106-22 (T.6; Level 1).
Illustration: Figure B.2.
UWV2: Chert.
UWV3: Blade, with two dorsal ridges; some retouching before use along working edge; slightly serrated edge.
UWV4: 3.95 cm.
UWV5: 1.43 cm.
UWV6: 0.56 cm.
UWV7: 25°.
UWV8: Polish plus thin, shallow striations at a diagonal to working edge.
UWV9: Dorsal and ventral sides; more evident on ventral.
UWV10: Light polish.
UWV11: Continuous polish along working edge up to 0.5 mm from edge; light patchy distribution of polish up to 3–4 mm from working edge.
UWV12: Diagonal use motion.
UWV13: Cutting.
UWV14: Meat.
UWV15: No hafting evidence.

UWV1: B12-106-23 (T.6; Level 1).
Illustration: Figure B.3.
UWV2: Chert.
UWV3: Flake scraper; retouching on ventral side; cortex on dorsal side.
UWV4: 4.85 cm.
UWV5: 3.84 cm.
UWV6: 1.86.
UWV7: 30°.
UWV8: Polish; striations on dorsal side perpendicular to working edge.
UWV9: Polish along working edge, extending only slightly (< 0.5 mm) onto ventral side; dorsal side has visible striations and a little polish.
UWV10: Light polish.
UWV11: See entry for UVW9, above.
UWV12: Transverse use motion.
UWV13: Scraping.
UWV14: Fresh hides with grit.
UWV15: No hafting evidence.

UWV1: B12-112-24 (T.9; Level 1).
Illustration: Figure B.3.
UWV2: Chert.
UWV3: Blade; two dorsal ridges.
UWV4: 3.30 cm.
UWV5: 1.05 cm.
UWV6: 0.41 cm.
UWV7: 20°.
UWV8: Polish, microchipping, light striations at a diagonal to the working edge.
UWV9: Polish on dorsal and ventral sides.
UWV10: Light polish.

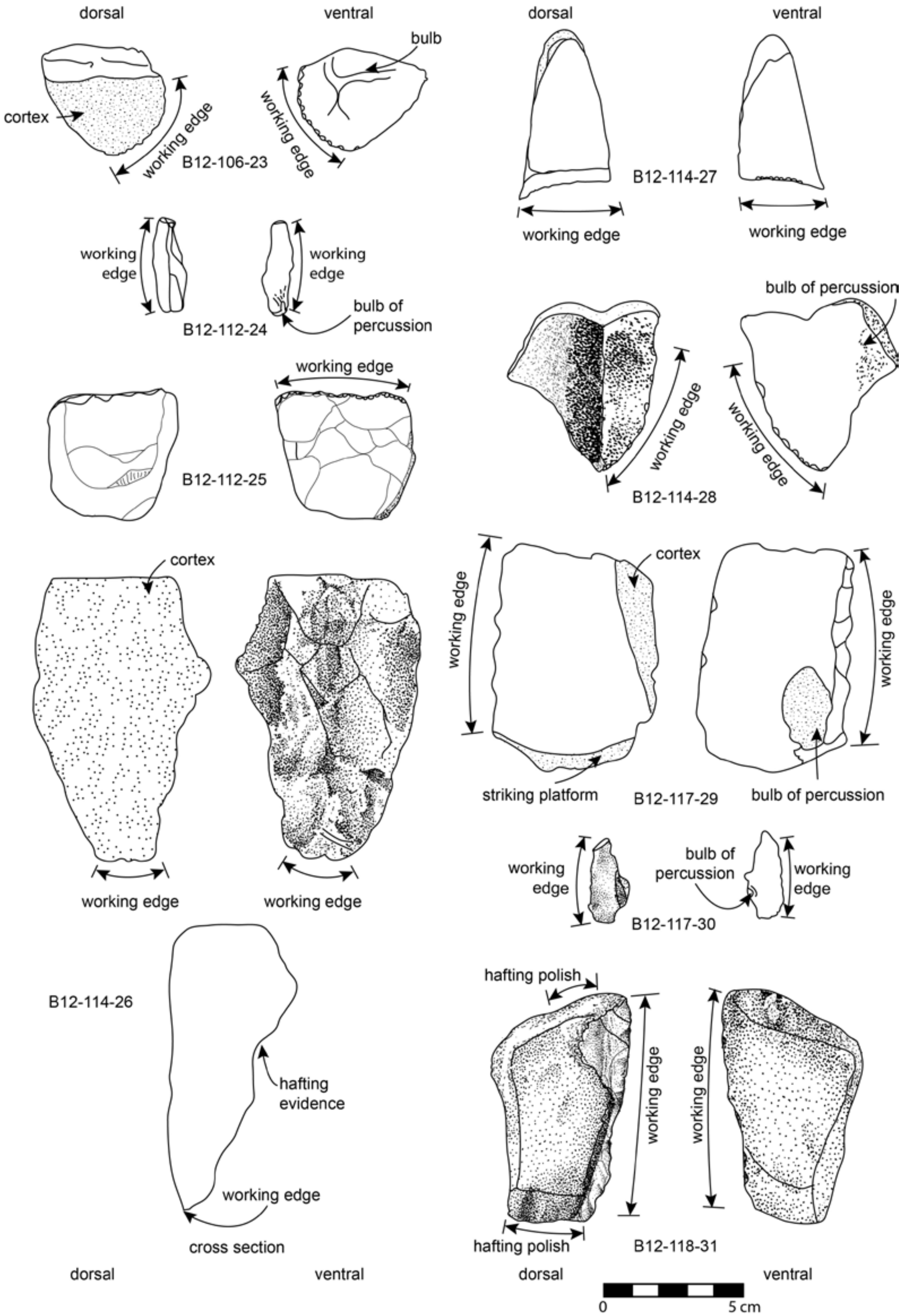

Figure B.3. Chert tools B12-106-23 through B12-118-31.

UWV11: Polish along cutting edge < 0.5 mm from edge.
UWV12: Diagonal use motion.
UWV13: Cutting.
UWV14: Meat.
UWV15: No hafting evidence.

UWV1: B12-112-25 (T.9; Level 1).
Illustration: Figure B.3.
UWV2: Chert.
UWV3: Reused core chopper; retouching on ventral and dorsal sides; cortex present.
UWV4: 4.90 cm.
UWV5: 4.73 cm.
UWV6: 2.85 cm.
UWV7: 75°.
UWV8: Polish.
UWV9: Dorsal and ventral sides.
UWV10: Medium polish.
UWV11: Moderately well banded, up to 1 mm from working edge.
UWV12: Transverse use motion.
UWV13: Chopping.
UWV14: Bone.
UWV15: No hafting evidence.

UWV1: B12-114-26 (T.9; Level 2).
Illustration: Figure B.3.
UWV2: Chert.
UWV3: Core-tool side scraper; retouching on ventral side; whole tool, cortex on dorsal side.
UWV4: 6.83 cm.
UWV5: 4.22 cm.
UWV6: 3.35 cm.
UWV7: 40°.
UWV8: Polish, pitting, microflaking due to edge damage, edge-rounding, ventral side is heavily scarred.
UWV9: Polish on dorsal and ventral sides.
UWV10: Light polish.
UWV11: Heaviest polish along working edge; patchy elsewhere on both surfaces away from working edge; pitting.
UWV12: Transverse use motion.
UWV13: Digging.
UWV14: Soil.
UWV15: Hafting evidence observed; rounded, polished sides.

UWV1: B12-114-27 (T.9; Level 2).
Illustration: Figure B.3.
UWV2: Chert.
UWV3: Flake adze, tranchet bit edge with minor pressure-flaking retouching along working edge; whole tool.
UWV4: 5.79 cm.
UWV5: 2.77 cm.
UWV6: 1.71 cm.
UWV7: 80°.
UWV8: Polish.
UWV9: Polish on ventral side.
UWV10: Light polish.
UWV11: Scattered patches of light polish across entire ventral surface.
UWV12: Transverse use motion.
UWV13: Scraping/planing.
UWV14: Wood.
UWV15: No hafting evidence.

UWV1: B12-114-28 (T.9; Level 2).
Illustration: Figure B.3.
UWV2: Chert.
UWV3: Utilized flake; retouching along one edge, on both sides; whole tool, cortex visible.
UWV4: 3.68 cm.
UWV5: 3.39 cm.
UWV6: 1.16 cm.
UWV7: 20°.
UWV8: Polish, edge-rounding, edge damage, striations diagonal to working edge.
UWV9: Polish on dorsal and ventral surfaces.
UWV10: Medium polish.
UWV11: Continuous polish along working edge up to 1 mm from edge.
UWV12: Diagonal use motion.
UWV13: Sawing.
UWV14: Bone (restricted polish, considerable edge damage from sawing hard material).

UWV15: No hafting evidence.

UWV1: B12-117-29 (T.16; Level 1).
Illustration: Figure B.3.
UWV2: Chert.
UWV3: Flake-tool side scraper; retouching on ventral side; tool fragment with cortex striking platform.
UWV4: 5.62 cm.
UWV5: 4.15 cm.
UWV6: 1.34 cm.
UWV7: 75°.
UWV8: Bright polish striations parallel to working edge; some edge-rounding.
UWV9: Polish on dorsal side and along working edge; striations on dorsal side; some polish along working edge, extending < 0.5 mm from working edge on ventral side.
UWV10–UWV11: Bright, developed, heavy polish along the dorsal working edge and distributed patchily across entire dorsal surface; patches of medium and heavy polish.
UWV12: Transverse use motion.
UWV13: Planing/scraping.
UWV14: Wood (very bright, extensive polish).
UWV15: No hafting evidence.

UWV1: B12-117-30 (T.16; Level 1).
Illustration: Figure B.3.
UWV2: Chert.
UWV3: Utilized flake.
UWV4: 3.03 cm.
UWV5: 1.32 cm.
UWV6: 0.30 cm.
UWV7: 15°.
UWV8: Polish, microflaking.
UWV9: Polish on dorsal and ventral sides.
UWV10: Medium polish.
UWV11: Continuous polish along working edge < 0.5 mm from edge; highly banded.
UWV12: Longitudinal use motion.
UWV13: Sawing (working edge microflaking, back-and-forth motion).
UWV14: Bone; hard material (highly banded).
UWV15: No hafting evidence.

UWV1: B12-118-31 (T.15; Level 1).
Illustration: Figure B.3.
UWV2: Chert.
UWV3: Core-tool axe or cleaver; retouching on dorsal side; whole tool.
UWV4: 8.45 cm.
UWV5: 5.13 cm.
UWV6: 2.57 cm.
UWV7: 70°.
UWV8: Polish; striations perpendicular to working edge; some edge damage; some edge-rounding.
UWV9: Polish along working edge and a little bit of polish on the ventral surface.
UWV10: Moderate polish.
UWV11: Banded along working edge and < 0.5 mm from working edge.
UWV12: Transverse use motion.
UWV13: Chopping; good candidate for hafted axe.
UWV14: Bone.
UWV15: Hafting evidence observed.

UWV1: B12-118-32 (T.15; Level 1).
Illustration: Figure B.4.
UWV2: Chert.
UWV3: Flake end scraper; retouching on distal end; whole tool, cortex present.
UWV4: 7.12 cm.
UWV5: 1.86 cm.
UWV6: 0.67 cm.
UWV7: 15°.
UWV8: Polish; edge-rounding; microflaking; striations perpendicular to working edge.
UWV9 Polish on dorsal and ventral sides, but more on dorsal side.
UWV10: Developed polish, bright.
UWV11: Continuous polish along working edge; patchy distribution up to 5 mm from working edge on dorsal surface.
UWV12: Transverse use motion.
UWV13: Scraping, gouging, planing, whittling.
UWV14: Wood.

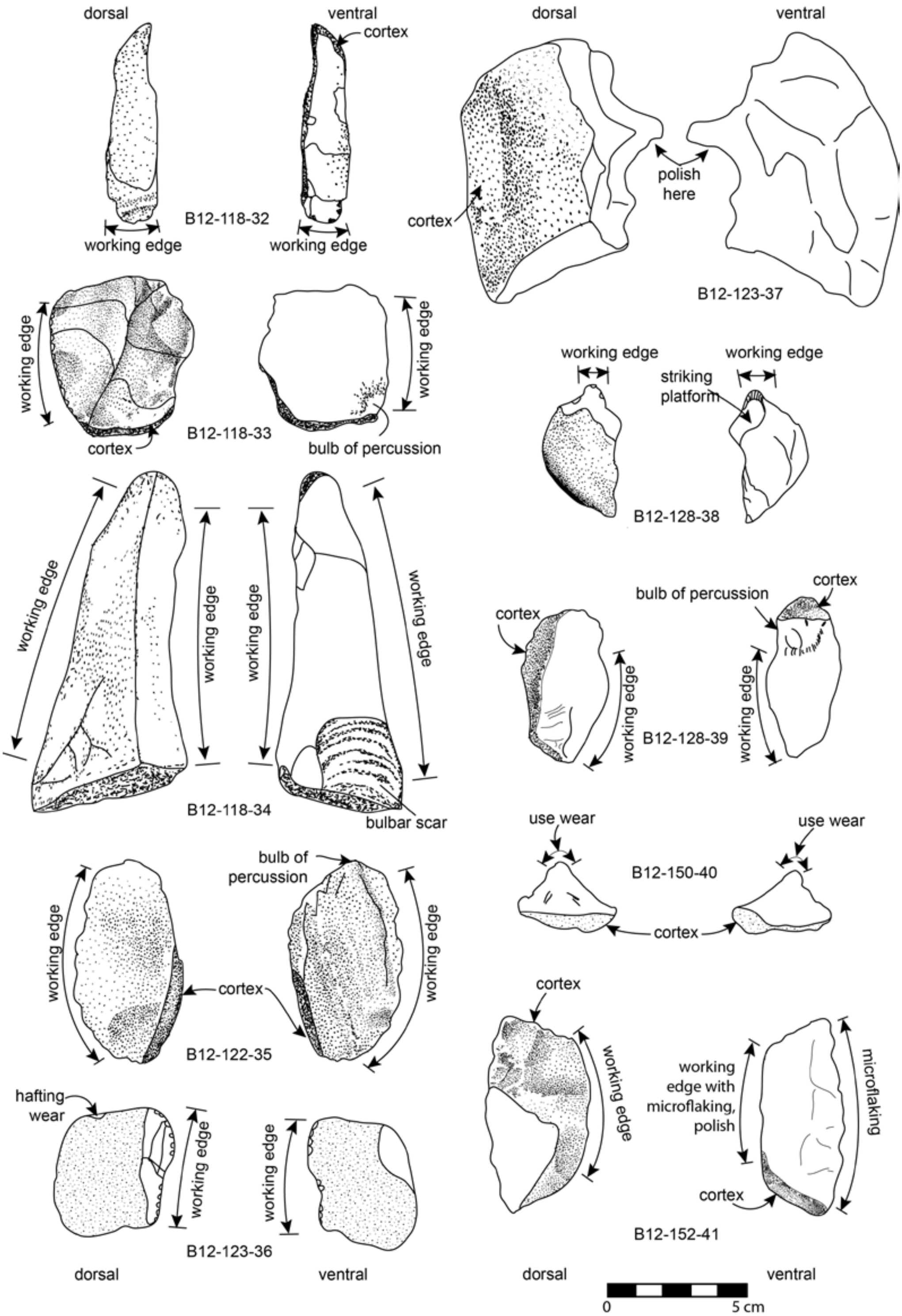

Figure B.4. Chert tools B12-118-32 through B12-152-41.

UWV15: No hafting evidence.

UWV1: B12-118-33 (T.15; Level 1).
Illustration: Figure B.4.
UWV2: Chert.
UWV3: Flake scraper; retouching along working edge of dorsal side.
UWV4: 5.43 cm.
UWV5: 5.15 cm.
UWV6: 2.25 cm.
UWV7: 35°.
UWV8: Polish; striations perpendicular to working edge.
UWV9: Polish on ventral side.
UWV10: Medium, dull polish.
UWV11: Continuous polish along working edge, but patchy over ventral surface.
UWV12: Transverse use motion.
UWV13: Scraping.
UWV14: Fresh hides (dull greasy luster).
UWV15: No hafting evidence.

UWV1: B12-118-34 (T.15; Level 1).
Illustration: Figure B.4.
UWV2: Chert.
UWV3: Simple utilized blade; whole tool.
UWV4: 8.01 cm.
UWV5: 3.60 cm.
UWV6: 2.16 cm.
UWV7: 60°.
UWV8: Polish.
UWV9: Polish on both sides and along both working edges of blade.
UWV10: Developed polish.
UWV11: Polish continuous along working edge; fingers of polish extend diagonally 3–4 mm from working edge.
UWV12: Diagonal use motion.
UWV13: Cutting.
UWV14: Meat, fresh hides.
UWV15: No hafting evidence.

UWV1: B12-122-35 (T.17; Level 1).
Illustration: Figure B.4.
UWV2: Chert.
UWV3: Utilized flake; retouching on one side; whole tool, cortex present.
UWV4: 7.06 cm.
UWV5: 3.85 cm.
UWV6: 1.61 cm.
UWV7: 25°.
UWV8: Polish; edge-rounding; dull, smooth pitting between polished domes.
UWV9: Polish on ventral and dorsal sides.
UWV10: Developed polish but dull.
UWV11: Polish across entire surface on dorsal side; polish extends 1 mm from working edge on ventral side; continuous edge-rounding along working edge.
UWV12: Transverse use motion.
UWV13: Scraping.
UWV14: Fresh hides (greasy luster, some polish on nonworking edge).
UWV15: No hafting evidence.

UWV1: B12-123-36 (T.17; Level 2).
Illustration: Figure B.4.
UWV2: Chert.
UWV3: Core-tool axe/cleaver; unifacially struck, but with pressure-flaking on both sides; whole tool, cortex present.
UWV4: 4.71 cm.
UWV5: 4.27 cm.
UWV6: 1.79 cm.
UWV7: 35°.
UWV8: Polish; edge-rounding; striations perpendicular to working edge; microflaking.
UWV9: Polish along working edge on both sides.
UWV10: Medium polish, dull.
UWV11: Polish continuous along working edge; scattered patches of polish elsewhere; not banded.
UWV12: Transverse use motion.
UWV13: Chopping, butchering.
UWV14: Meat, bone.
UWV15: Hafting evidence present.

UWV1: B12-123-37 (T.17; Level 2).
Illustration: Figure B.4.

UWV2: Chert.
UWV3: Core-tool graver, unifacial retouching on dorsal side; whole tool; cortex present.
UWV4: 6.58 cm.
UWV5: 5.11 cm.
UWV6: 3.11 cm.
UWV7: 40°.
UWV8: Polish.
UWV9: Polish on graver edge between dorsal and ventral sides.
UWV10: Developed polish.
UWV11: Polish only on the working edge of the graver point.
UWV12: Longitudinal use motion.
UWV13: Engraving, incising.
UWV14: Wood, probably.
UWV15: No hafting evidence.

UWV1: B12-128-38 (T.19; Level 1).
Illustration: Figure B.4.
UWV2: Chert.
UWV3: Flake-tool graver, with graver point on striking platform; whole tool; cortex present.
UWV4: 4.72 cm.
UWV5: 2.68 cm.
UWV6: 1.44 cm.
UWV7: 40°.
UWV8: Bright polish, but not banded; edge-rounding; striations parallel to working edge.
UWV9: Polish on dorsal and ventral sides on the graving point.
UWV10: Medium polish.
UWV11: Polish on the working edge of point; polish is continuous, extending 2–3 mm from working edge.
UWV12: Longitudinal use motion.
UWV13: Graving, incising.
UWV14: Wood.
UWV15: No hafting evidence.

UWV1: B12-128-39 (T.19; Level 1).
Illustration: Figure B.4.
UWV2: Chert.
UWV3: Utilized flake; pressure-flaking retouching along working edge; whole tool; cortex present.
UWV4: 5.62 cm.
UWV5: 3.13 cm.
UWV6: 1.79 cm.
UWV7: 35°.
UWV8: Polish; microflaking; edge-rounding.
UWV9: Polish along working edge along both dorsal and ventral sides.
UWV10: Developed polish along working edge, but dull and rough.
UWV11: Continuous polish along working edge; patches of developed polish halfway across dorsal and ventral surfaces.
UWV12: Diagonal use motion.
UWV13: Cutting, sawing.
UWV14: Plant material; not highly fibrous because polish is dull.
UWV15: No hafting evidence.

UWV1: B12-150-40 (T.30; Level 1).
Illustration: Figure B.4.
UWV2: Chert.
UWV3: Flake-tool graver; light retouching; whole tool; cortex on dorsal side.
UWV4: 3.45 cm.
UWV5: 2.17 cm.
UWV6: 1.26 cm.
UWV7: 15°.
UWV8: Polish.
UWV9: Polish on working edge.
UWV10: Moderate polish on working edge; greasy.
UWV11: Continuous polish along working edge; restricted to edge only.
UWV12: Longitudinal use motion.
UWV13: Cutting.
UWV14: Fresh hides, meat.
UWV15: No hafting evidence.

UWV1: B12-152-41 (T.27; Level 3).
Illustration: Figure B.4.
UWV2: Chert.

UWV3: Flake-tool scraper; retouching and use-wear on two edges; whole tool.
UWV4: 7.27 cm.
UWV5: 3.87 cm.
UWV6: 2.24 cm.
UWV7: 65°.
UWV8: Polish; edge damage; microflaking.
UWV9: Polish along working edge and on ventral side.
UWV10: Greasy, moderately bright polish.
UWV11: Fairly continuous along working edge.
UWV12: Transverse use motion.
UWV13: Scraping.
UWV14: Fresh hides.
UWV15: No hafting evidence.

UWV1: B12-155-42 (T.30; Level 2).
Illustration: Figure B.5.
UWV2: Chert.
UWV3: Adze; retouching; whole tool; cortex present.
UWV4: 6.16 cm.
UWV5: 2.90 cm.
UWV6: 1.91 cm.
UWV7: 80°.
UWV8: Polish; edge-rounding.
UWV9: Polish on working edge and on dorsal and ventral sides.
UWV10: Moderately to well-developed polish; moderately bright, but not as bright as bone polish.
UWV11: Continuous polish along working edge; tapers off dramatically after 0.5 mm from working edge.
UWV12: Transverse use motion.
UWV13: Scraping, planing, whittling.
UWV14: Wood.
UWV15: No hafting evidence.

UWV1: B12-157-43 (T.27; Level 4).
Illustration: Figure B.5.
UWV2: Chert.
UWV3: Side scraper; retouching on ventral side; whole tool; cortex present.
UWV4: 6.12 cm.
UWV5: 3.5 cm.
UWV6: 1.73 cm.
UWV7: 55°.
UWV8: Polish.
UWV9: Polish on working edge, and on dorsal surface.
UWV10: Light-medium, developed polish; not bright.
UWV11: Polish mainly on working edge; patchy polish away from working edge.
UWV12: Transverse use motion.
UWV13: Scraping.
UWV14: Fresh hides.
UWV15: No hafting evidence.

UWV1: B97-176-44 (T.46; Level 1).
Illustration: Figure B.5.
UWV2: Chert.
UWV3: Blade scraper; microretouching on ventral side; whole tool; cortex on both ends.
UWV4: 6.04 cm.
UWV5: 2.1 cm.
UWV6: 1.02 cm.
UWV7: 45°.
UWV8: Polish; microflaking; edge-rounding.
UWV9: Polish on working edge and on ventral side.
UWV10: Moderately bright polish, scattered.
UWV11: Polish along working edge and up to 3–4 mm from edge; not continuous.
UWV12: Transverse use motion.
UWV13: Scraping; whittling; sharpening.
UWV14: Wood.
UWV15: No hafting evidence.

UWV1: B97-176-45 (T.46; Level 1).
Illustration: Figure B.5.
UWV2: Flake-tool graver; whole tool; no cortex.
UWV4: 4.75 cm.
UWV5: 3.15 cm.
UWV6: 1.96 cm.
UWV7: 45°.
UWV8: Polish.

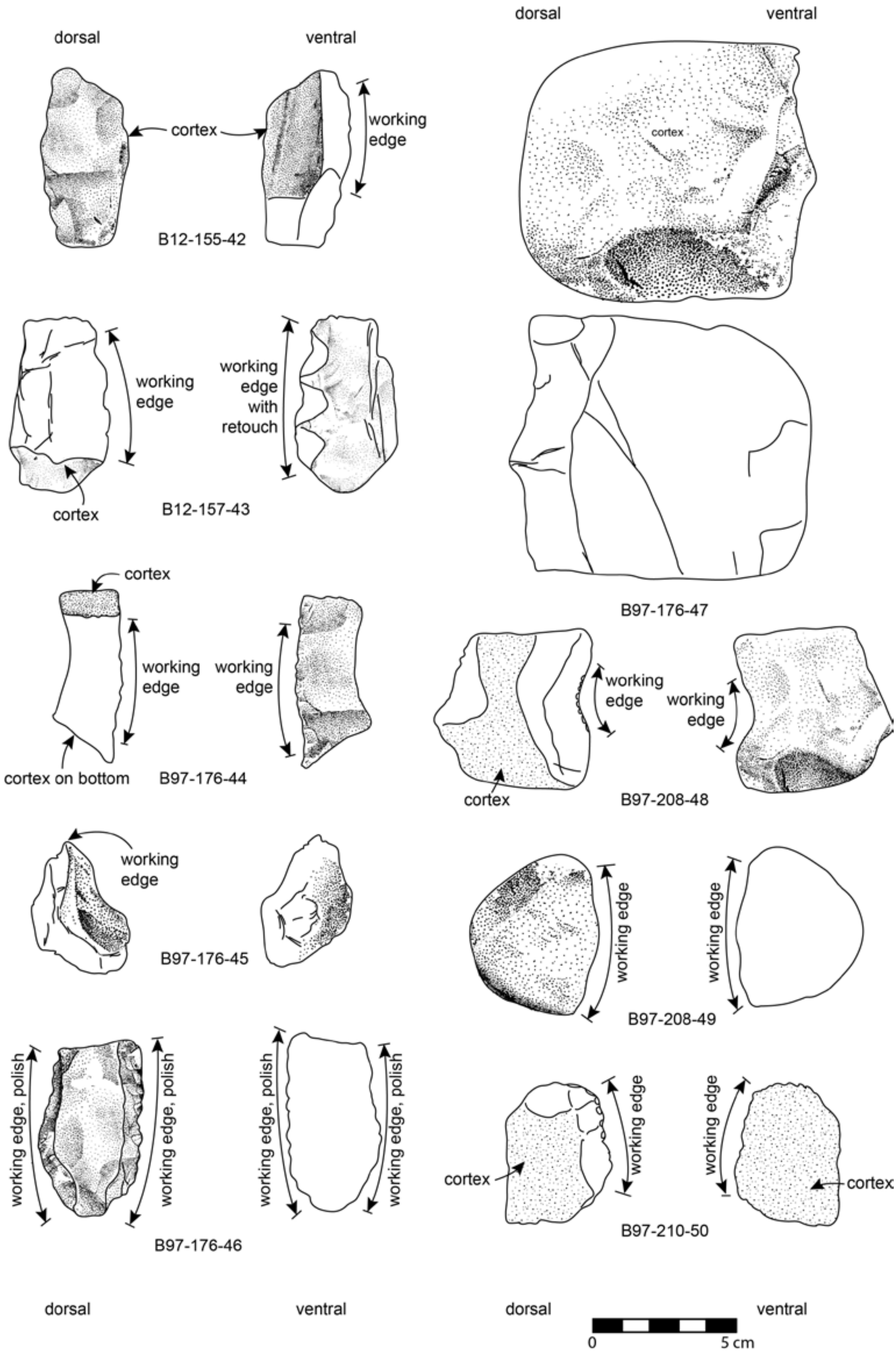

Figure B.5. Chert tools B12-155-42 through B12-210-50.

UWV9: Polish on tip of working edge and on dorsal side.
UWV10: Moderately developed polish.
UWV11: Polish on tip of working edge and up to 1–2 mm from edge on dorsal side.
UWV12: Transverse use motion.
UWV13: Grooving.
UWV14: Wood.
UWV15: No hafting evidence.

UWV1: B97-176-46 (T.46; Level 1).
Illustration: Figure B.5.
UWV2: Chert.
UWV3: Core-tool double side scraper; retouching; whole tool; cortex present.
UWV4: 6.04 cm.
UWV5: 3.60 cm.
UWV6: 1.40 cm.
UWV7: 65°.
UWV8: Polish.
UWV9: Working edge and ventral side.
UWV10: Medium bright polish along working edge, then scattered weak polish.
UWV11: Polish on working edge; starts to weaken 0.5 mm from edge.
UWV12: Transverse use motion.
UWV13: Scraping.
UWV14: Hides.
UWV15: No hafting evidence.

UWV1: B97-176-47 (T.46; Level 1).
Illustration: Figure B.5.
UWV2: Chert.
UWV3: Core axe or cleaver; whole tool; cortex present; no evidence of use, possible reject.
UWV4: 7.27 cm.
UWV5: 6.28 cm.
UWV6: 2.55 cm.
UWV7: 55°.
UWV8-UWV14: No evidence of use-wear.
UWV15: No hafting evidence.
Note: This artifact is probably best interpreted as an unused axe; it was made and then discarded before use.

UWV1: B97-208-48 (T.57; Level 2).
Illustration: Figure B.5.
UWV2: Chert.
UWV3: Core-tool adze; retouching; whole tool; cortex present.
UWV4: 5.39 cm.
UWV5: 5.26 cm.
UWV6: 3.28 cm.
UWV7: 65°.
UWV8: Polish; edge damage; microflaking.
UWV9: Polish on ventral side (side with cortex).
UWV10: Moderate polish.
UWV11: Bright polish along working edge and up to 1 cm and more from edge, with polish tails as you get further from edge; not highly banded.
UWV12: Transverse use motion.
UWV13: Scraping, planing.
UWV14: Wood (good example of wood polish).
UWV15: No hafting evidence.

UWV1: B97-208-49 (T.57; Level 2).
Illustration: Figure B.5.
UWV2: Chert.
UWV3: Flake-tool scraper; whole tool; cortex present.
UWV4: 5.60 cm.
UWV5: 4.48 cm.
UWV6: 1.23 cm.
UWV7: 30°.
UWV8: Polish; edge-rounding; micropitting.
UWV9: Working edge and ventral side.
UWV10: Dull polish.
UWV11: Polish all along working edge and up to 1–2 mm from edge on ventral side.
UWV12: Longitudinal use motion.
UWV13: Grooving or cutting; longitudinal scraping.
UWV14: Leather, dry hides.
UWV15: No hafting evidence.

UWV1: B97-210-50 (T.58; Level 2).
Illustration: Figure B.5.
UWV2: Chert.

UWV3: Core-tool adze; retouching on dorsal side; whole tool; cortex present.
UWV4: 4.71 cm.
UWV5: 3.49 cm.
UWV6: 1.96 cm.
UWV7: 65°.
UWV8: Polish; edge damage; microflaking.
UWV9: Polish on working edge and on ventral side.
UWV10: Bright polish; weakly developed.
UWV11: Polish on working edge; very light polish up to 3 mm from edge.
UWV12: Transverse use motion.
UWV13: Planing; whittling; scraping.
UWV14: Wood.
UWV15: No hafting evidence.

UWV1: B97-211-51 (T.56; Level 3).
Illustration: Figure B.6.
UWV2: Chert.
UWV3: Flake-tool scraper-plane or spokeshave; whole tool; cortex present.
UWV4: 4.48 cm.
UWV5: 2.8 cm.
UWV6: 1.36 cm.
UWV7: 65°.
UWV8: Polish; microflaking; edge damage.
UWV9: Polish on working edge and dorsal side.
UWV10: Bright polish, moderately developed.
UWV11: Polish continuous along working edge and scattered across entire dorsal surface.
UWV12: Transverse use motion.
UWV13: Whittling; shaving; scraping.
UWV14: Wood (good example of this).
UWV15: No hafting evidence.

UWV1: B97-230-52 (T.63; Level 2).
Illustration: Figure B.6.
UWV2: Chert.
UWV3: Flake-tool graver; whole tool; cortex present.
UWV4: 3.13 cm.
UWV5: 3.28 cm.
UWV6: 1.11 cm.
UWV7: 22°.
UWV8: Polish.
UWV9: Polish on tip and on dorsal working edge.
UWV10: Bright polish, well developed.
UWV11: Polish continuous on graver tip and up to 5 mm along the concave curve or dorsal working edge.
UWV12: Longitudinal use motion.
UWV13: Grooving.
UWV14: Wood.
UWV15: No hafting evidence.

UWV1: B12-461-53 (T.168; Level 1).
Illustration: Figure B.6.
UWV2: Chert.
UWV3: Core-tool scraper; retouching on ventral side; whole tool; cortex present.
UWV4: 5.69 cm.
UWV5: 3.65 cm.
UWV6: 2.10 cm.
UWV7: 40°.
UWV8: Polish; some edge-rounding.
UWV9: Polish on working edge; dorsal and ventral sides.
UWV10: Polish not overly bright; medium development; somewhat dull, greasy.
UWV11: Polish continuous along working edge; on dorsal side, scattered up to 1–2 mm from edge, not highly banded, fading gradually; on ventral side, very scattered along ridges up to 3 mm from working edge, fading gradually.
UWV12: Transverse use motion.
UWV13: Scraping.
UWV14: Leather; dry hides; soft material (no edge damage; polish conforms to entire edge; greasy polish, not too bright; some polish on both sides).
UWV15: No hafting evidence.

UWV1: B12-461-54 (T.168; Level 1).
Illustration: Figure B.6.
UWV2: Chert.
UWV3: Core-tool scraper; minimal retouching; whole tool; cortex present.

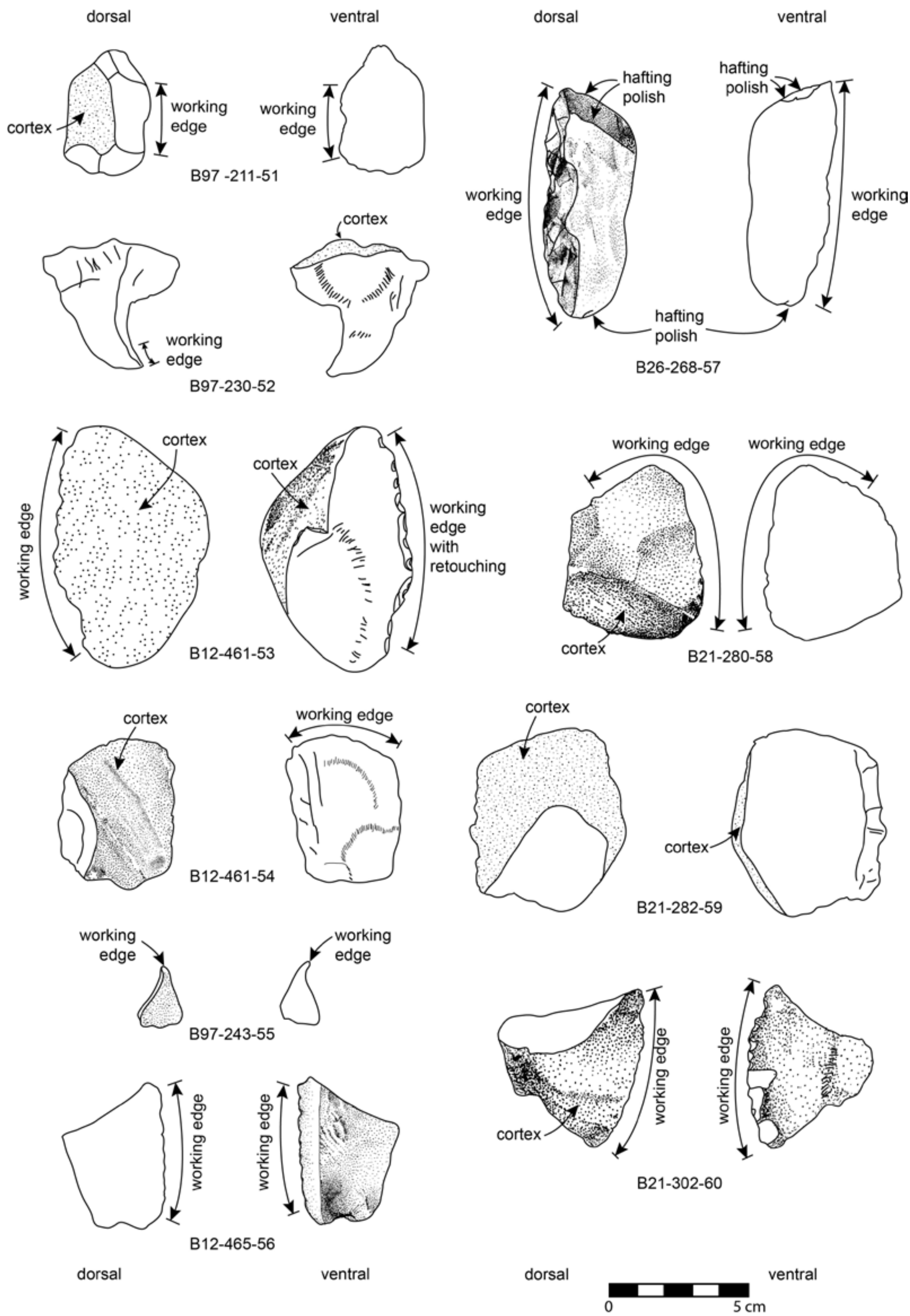

Figure B.6. Chert tools B12-211-51 through B12-302-60.

UWV4: 5.5 cm.
UWV5: 4.13 cm.
UWV6: 2.34 cm.
UWV7: 40°.
UWV8: Polish; some edge-rounding.
UWV9: Polish on working edge; dorsal and ventral sides.
UWV10: Dull polish; medium development.
UWV11: On dorsal side, continuous along working edge, with very scattered patches up to 8 mm from edge; on ventral side, continuous along working edge, with scattered tails up to 5 mm from edge.
UWV12: Transverse use motion.
UWV13: Scraping.
UWV14: Leather; dry hides (conforms to nooks and crannies of working edge, no edge damage, some edge-rounding, polish on both sides).
UWV15: No hafting evidence.

UWV1: B97-243-55 (T.66; Level 2).
Illustration: Figure B.6.
UWV2: Chert.
UWV3: Flake-tool graver; minimal retouching; whole tool; slight cortex present.
UWV4: 2.22 cm.
UWV5: 1.31 cm.
UWV6: 0.50 cm.
UWV7: 25°.
UWV8: Polish.
UWV9: Polish on point of graver and on concave working edge.
UWV10: Polish weakly developed; fairly bright, especially considering the weak development.
UWV11: Polish on tip and up to 3 mm from working edge on concave edge.
UWV12: Longitudinal use motion.
UWV13: Grooving.
UWV14: Wood.
UWV15: No hafting evidence.

UWV1: B12-465-56 (T.170; Level 2).
Illustration: Figure B.6.
UWV2: Chert.
UWV3: Flake-tool scraper; retouching; whole tool; minimal cortex present.
UWV4: 5.06 cm.
UWV5: 3.59 cm.
UWV6: 0.93 cm.
UWV7: 40°.
UWV8: Polish.
UWV9: Working edge on dorsal and ventral sides.
UWV10: Medium development of polish, dull to medium bright.
UWV11: On dorsal side, continuous polish along working edge, then fading out up to 3 mm from working edge, with tails; on ventral side, continuous polish along working edge, then fading out at up to 5 mm from working edge, with tails.
UWV12: Transverse use motion.
UWV13: Scraping.
UWV14: Leather, dry hides.
UWV15: No hafting evidence.

UWV1: B26-268-57 (T.80; Level 2).
Illustration: Figure B.6.
UWV2: Chert.
UWV3: Core-tool chopper; retouching; whole tool; cortex present.
UWV4: 8.22 cm.
UWV5: 3.08 cm.
UWV6: 2.0 cm.
UWV7: 75°.
UWV8: Polish; edge damage.
UWV9: Polish along the entire working edge, and on each side.
UWV10: Polish well-developed; dull, not bright; edge damage.
UWV11: Polish along the edge of the cortex and worked area itself; polish all over the worked area, some 2 cm across, and up to 1 mm on each cortical face.
UWV12: Transverse use motion.
UWV13: Chopping.
UWV14: Wood, plant material in general; general-purpose tool for chopping vegetation.

UWV15: Hafting evidence present.

UWV1: B21-280-58 (T.90; Level 1).
Illustration: Figure B.6.
UWV2: Sandstone.
UWV3: Flake-tool scraper; retouching; whole tool; cortex present.
UWV4: 6.25 cm.
UWV5: 4.96 cm.
UWV6: 1.85 cm.
UWV7: 20°.
UWV8: Polish; edge-rounding; some pitting.
UWV9: Polish on working edge, and on dorsal and ventral sides.
UWV10: Dull polish.
UWV11: Polish continuous along working edge, and up to 2–3 mm on dorsal and ventral sides.
UWV12: Longitudinal use motion.
UWV13: Cutting, grooving.
UWV14: Leather; dry hides.
UWV15: No hafting evidence.

UWV1: B21-282-59 (T.101; Level 1).
Illustration: Figure B.6.
UWV2: Chert.
UWV3: Flake-tool double side scraper; retouching; whole tool; cortex present.
UWV4: 6.58 cm.
UWV5: 5.43 cm.
UWV6: 1.88 cm.
UWV7: 55°.
UWV8: Polish; striations (restricted in distribution).
UWV9: Working edge; dorsal and ventral sides.
UWV10: Polish shows weak-medium development; somewhat dull.
UWV12: Transverse use motion.
UWV13: Scraping.
UWV14: Dry hides (polish on both sides, no edge damage, no edge-rounding; striations probably caused by grit).
UWV15: No hafting evidence.

UWV1: B21-302-60 (T.111; Level 2).
Illustration: Figure B.6.
UWV2: Chert.
UWV3: Primary-flake tool (utilized core) adze; retouching on ventral surface; partial tool; cortex present.
UWV4: 5.92 cm.
UWV5: 5.32 cm.
UWV6: 2.90 cm.
UWV7: 65°.
UWV8: Polish; edge damage.
UWV9: Polish on working edge and dorsal side.
UWV10: Polish shows medium development; bright.
UWV11: On dorsal side, scattered over entire dorsal surface; no polish on ventral side.
UWV12: Transverse use motion.
UWV13: Planing; whittling; smoothing.
UWV14: Wood (polish only on dorsal side, edge damage, bright, scattered, not banded).
UWV15: No hafting evidence.

SUMMARY OF RESULTS

We now summarize our assessment of stone-tool uses at Gaván-complex sites, bearing in mind the provisional nature of our use-wear analysis. To construct table B.1, we used no surface finds but only those tools that were recovered through excavations at B12, B97, B21, and B26. We then recorded how many times we inferred one of the following uses: weapon, wood/plants, soil, meat, bone, and hides. It is important to note that this collection of tools should not be considered a representative sample; many more tools were analyzed from B12 than from the other sites. We should also point out that one tool from B12 was interpreted as having been used for both meat and bone, so it was recorded for both uses in table B.1. We have also recorded how many coin envelopes with animal bone were recovered in all the excavations at each site (table B.1).

The only tool in this analysis that we interpreted as a weapon came from B12. Although we hesitate to make too much of a single occurrence, it is nevertheless consistent with our conclusion, based on several lines of evidence, that the regional center of B12 was more involved in offensive and, especially, defensive warfare than the other Gaván-complex sites (chap. 11). By contrast, all four sites yielded tools with use-wear evidence of chopping wood and/or plant materials (table B.1); the relatively higher frequencies at B12 and B97 may reflect relatively more engagement in such activities, though it may also reflect the greater amount of excavation conducted at those two sites. In any case, it seems reasonable to infer that chopping wood and clearing brush with stone tools occurred at all the Gaván-complex sites. Agricultural implements made of wood were undoubtedly widespread, and we suspect that stone-tipped agricultural implements were not uncommon, although only a single tool at B12 showed use-wear evidence of having been used for digging in the soil (table B.1). The reason for this, we would suggest, is that agricultural implements were usually tipped not with finished tools, but rather with flakes; as such, they would have been recorded in our coding scheme as utilized flakes, not tools, and thus we would not have subjected them to the use-wear analysis reported in this appendix. It is important to note that utilized chert flakes (V1036) were found at all of our excavated sites. If some of them were used as agricultural implements, then they should show use-wear evidence of digging; perhaps a future researcher will have the opportunity to explore this possibility by examining a sample of these utilized flakes, currently curated in the IVIC storage facilities.

Use-wear evidence of processing meat and bone was observed only on stone tools from B12 (table B.1). If the consumption of meat was status related, this distribution would be consistent with our interpretation of B12 as the seat of the regional chiefly elite (chap. 11). B12 also yielded the most evidence for the processing of hides, although B97 and B21 (both second-tier sites) also showed occurrences of this use-wear; by contrast, B26 (a third-tier village) did not (table B.1). It could be that the use of hides, for clothing or perhaps to make skin bags, was also status related. Animal bone was not common in our Gaván-complex excavations. Nevertheless, the distribution of our animal bone samples is consistent with the use-wear results, providing additional support for the idea that the consumption of animal products was status related. We excavated the greatest number of coin envelopes of animal bone at B12, followed by B97 and then B21; we found no animal bone at B26 (table B.1).

TABLE B.1
Inferred Stone Tool Uses and Animal Bone at Gaván-Complex Sites.

Site	Weapon	Wood/Plants	Soil	Meat	Bone	Hides	Animal Bone
B12	1	9	1	5	6	11	19 envelopes
B97	0	6	0	0	0	2	5 envelopes
B21	0	1	0	0	0	2	1 envelope
B26	0	1	0	0	0	0	0

APPENDIX C

REPORT ON POLLEN SAMPLES 54, 114, AND 442

Milagro Rinaldi and Elsa M. Redmond

Note on author contributions: M.R. conducted a pollen analysis based on three soil samples excavated at the sites of B97, B26, and B27 (Rinaldi, personal commun., 1990). E.M.R. translated the original report from Spanish to English and prepared this appendix as well as the accompanying table (table C.1).

PP Sample 54 (provenience B97-0181; T.47; 40–60 cm DBS): The probable presence of quinoa, or *quinua* (*Chenopodium quinoa*, Chenopodiaceae), in very low frequency, and of *yopo* (*Piptadenia peregrina*, Leguminosae) in low frequency were observed.

Other pollen types identified in the sample include an intermediate to high frequency of Compositae and Cyperaceae. The pollen of Gramineae is present but very degraded. Among the spores are low frequencies of *Alsophila* sp. (Cyatheaceae), *Lycopodium* sp. (foveolate) (Lycopodiaceae), and *Cyathea* sp. (verrucate) (Cyatheaceae). Two pollen types remain unidentified. Also present were some microscopic plant and animal fragments, or palynodebris, including probable mycorrhizae. In general, the preservation of palynomorphs was poor in this soil sample from the second-order center of Potrero de Elías (B97).

PP Sample 114 (provenience B26-0271; T.78; 20–40 cm DBS): The probable presence of *añil*, or indigo (*Indigofera tinctoria* or *I. añil*, Leguminosae), in intermediate frequency, and a low frequency of *Astroloja*, or pipevine (*Aristolochia ringens*, Aristolochiaceae), were observed. A low frequency of another pollen type identified as *Aristolochia* sp. was also observed, but it exhibited clavate instead of verrucate sculpturing on its surface. The pollen of *guayabo* (*Psidium guajava*, Myrtaceae) and *icaco* (*Chrysobalanus icaco*, Chrysobalanaceae) were present in very low frequencies. High frequencies of maize (*Zea mays*) pollen were obtained, perhaps of the Yucatan variety since the pollen grain size is smaller (±80–90 μm) than that of the maize cultivated now (> 110 μm). The high frequencies of maize obtained in this sample 114 from B26 were greater than those in sample 442 from B27. A very low frequency of *ocumo* (*Xanthosoma sagittifolium*, Araceae) was present. Also, *yopo* (*Piptadenia peregrina*, Leguminosae) was present in very low frequency.

Other pollen types identified in the sample are Compositae, including a type similar to *Trixis* sp. but smaller in size and without conspicuous polar areas, in low to intermediate frequency. An intermediate frequency of a type similar to *Plantago* sp. (Plantaginaceae) was observed, as were pollen grains of *Sida* sp. (Malvaceae), but without pores. The type *Symplocos* sp. was present in low to intermediate frequencies. An intermediate to high frequency of *Dyckia* sp. (Bromeliaceae) was present; the type *Talinum paniculatum* (Portulaceae) was identified, in low frequency. Pollen grains similar to *Berberis* sp. (Berberidaceae) were present in low frequency. An intermediate to high frequency of *Alternanthera* sp. (Amaranthaceae) was present. Onagraceae pollen was observed in low frequencies. Pollen grains similar to the type *Pistacia* sp. (Anacardiaceae) were present in low to intermediate frequencies, as were pollen grains similar to *Harpalyce* sp. (Leguminosae) in very low frequency. Sample 114 from the B26 village site contained the greatest diversity of pollen types. Among the spores was a very low frequency of *Alsophila* sp. (Cyatheaceae), *Polypodium* sp. (verrucate) (Polypodiaceae), and an unidentified type. Some palynodebris was observed as well. In general, the palynomorphs in this sample from T.78 at Potrero Urpianero (B26) were well preserved.

PP Sample 442 (provenience B27-0770; T.186; 20–40 cm DBS): The probable presence of *ají*, or chile pepper (*Capsicum frutescens*, Solanaceae), was detected in very low frequency. A low frequency of *corozo* (*Acrocomia sclerocarpa*, Palmae) and *guapo*, or arrowroot (*Maranta arundinacea*, Marantaceae), in very low frequency were observed. High frequencies of maize (*Zea mays*) were present, although not as abundant as those observed in the previous sample 114 from B26. *Palomero* (*Myrica pubescens*, Myricaceae) was present in very low frequency. A low frequency of quinoa (*Chenopodium quinoa*, Chenopodiaceae) was noted, as was a low frequency of tomato (*Lycopersicum esculentum*, Solanaceae), probably a variety different from that of today, since the pollen grains were smaller. *Yopo* (*Piptadenia peregrina*) was present in very low frequency.

Other pollen types identified in the sample include a very low frequency of *Alternanthera* sp. (Amaranthaceae). An intermediate to high frequency of Compositae was present, including a type similar to *Trixis* sp., only smaller in size and without conspicuous polar areas (also present in sample 114). Pollen grains similar to the type *Cuphea* sp. (Lythraceae) were present in low frequency. A very low frequency of *Cecropia* sp. (Moraceae) was observed. Pollen grains similar to *Dyckia* sp. (Bromeliaceae) were present in low frequency. A very low frequency of *Gomphrena* sp. (Amaranthaceae), only of larger size, was observed. Pollen grains of a type similar to *Polycarpae* sp. (Caryophyllaceae) were present in very low frequency, as was Cyperaceae. The type *Juglans* sp. (Juglandaceae) was present in low frequency. Pollen grains similar to the type *Ruellia-Distictella* sp. (Bignonciaceae-Acanthaceae) were observed in very low frequency, as were pollen grains of a type similar to *Ipomoea* sp. (Convolvulaceae), but with spines that are differently shaped and striated. A low frequency of *Camarea* sp. (Malpighiaceae) was observed. Among the spores was a low frequency of *Alsophila* sp. (Cyatheaceae), a low frequency of *Jamesonia* sp. (Pteridaceae), and a low frequency of an unidentified smooth-surface monolete. Spores similar to the type *Lycopodium* sp. (foveolate) (Lycopodiaceae) were present in very low frequency. A low frequency of an unidentified spiny trilete was observed. More spores of mycorrhizae were evident in this sample than in samples 54 and 114, and fewer plant and animal particles, or palynodebris, than that observed in sample 114. In general, the preservation of palynomorphs was good in this soil sample from the drained fields of El Recostón de La Tigra (B27).

Additional Comments: According to the existing palynological literature on soil pollen analysis, the pollen grains of the following species offer little resistance to the chemical techniques of soil pollen extraction, and are highly unlikely to be recovered: *anón*, or sweetsop (*Annona squamosa*); *chirimoya*, or *cherimoya* (*A. cherimola*); *manirote*, or *soncoya* (*A. purpurea*) (Annonaceae); *capacho*, or *achira* (*Canna edulis*, Cannaceae); *plátano*, or plantain (*Musa paradisiaca*, Musaceae); *aguacate*, or avocado (*Persea americana*, Lauraceae); and *pendanga*, or *pitanga*, or Surinam cherry (*Eugenia uniflora*, Myrtaceae) (Piña-Dumoulín et al., 2010). Moreover, none of the samples contained pollen types representing the following plants: *auyama*, or squash (*Cucurbita maxima*); *batata*, or sweet potato (*Ipomoea batata*); cacao (*Theobroma cacao*); *chaparro*, or *nanche*, or golden spoon (*Byrsonima crassifolia*); *chayote*, or christophene (*Sechium edule*); *chugua*, or *ruba*, or *ulluco* (*Ullucus kunthii*); *cocuiza* (*Furcrae humboldtiana*); *cocurito*, or *cucurito* (*Maximiliana regia*); *culantro de monte*, or coriander (*Eryngium foetidum*); *curichagua*, or beach milkvine (*Ibatia muricata*); *guamacho* (*Peireskia guamacho*); *malanga*, or imperial taro (*Colocasia antiquorum*); *ñame*, or yam (*Dioscorea alata, D. bulbifera* and *D. cayenensis*); *onoto*, or *achiote* (*Bixa orellana*); *piña*, or pineapple (*Ananas sativus*); *tabaco*, or tobacco (*Nicotiana tabacus*); *totumo*, or gourd (*Crescentia cujete*); *turma*, or wild potato (*Solanum otites*); *yuca*, or manioc (*Manihot*); *zapote* (*Calocarpum mammosum*); and *zarzaparilla* (*Smilax* sp.).

It should be emphasized that the results of this pollen analysis are preliminary and subject to future confirmation with additional picture keys. Palynological studies of modern day vegetation and of the deposition of modern pollen should be conducted in the study area. Nevertheless, the results of the preliminary analysis of three soil samples from the second-tier center (B97), the third-tier village site (B26), and the drained fields (B27) in the Gaván locality (table C.1) demonstrate the potential that archaeological palynology has for the investigation of the prehistoric landscape and the prehistoric utilization of plant resources in the study region. They also build upon the results of Salgado de Labouriau's (1979) pollen analysis of sediments recovered from the drained fields of Caño Ventosidad, which were investigated by Alberta Zucchi and William Denevan (Denevan and Zucchi, 1978; Zucchi and Denevan, 1979). Sample CV-3 obtained from test excavation 1-E in a canal between two ridge-shaped fields at a depth of 0.72 m contained Graminea pollen grains having diameters larger than those characteristic of wild grasses (46–55 μm), yet smaller than the pollen grains of maize (*Zea mays*) cultivated today (85–125 μm); the poor preservation and flattening of the grains did not permit Salgado de Labouriau to securely identify them as cultivated maize. Sample CV-3 also contained the pollen of squash (Cucurbitaceae), of both the wild form *melancia*, and the cultivated *Cucurbita* sp., although the grains were smaller than those of *Cucurbita* cultivated today (Salgado de Labouriau, 1979).

TABLE C.1
Pollen Analysis Results from B26, B27, and B97.

B26	B27	B97	Pollen Taxa	Common Names	Potential Uses	References
5	1	0	Amaranthaceae: *Alternanthera* sp.	*quiebraquiebra*	medicinal	Pittier, 1970: 372
0	1	0	Amaranthaceae: *Gomphrena* sp.?	*suspiro*, globe amaranth	ornamental, medicinal	Duke and Vásquez, 1994: 81; Pittier, 1970:395
3	0	0	Anacardiaceae: *Pistacia* sp.?	wild pistacho		Austin, 2004: 1093
1	0	0	Araceae: *Xanthosoma sagittifolium*	*ocumo*	root crop	Pittier, 1970: 331–332
2	0	0	Aristolochiaceae: *Aristolochia ringens*	*astroloja*, pipevine	ornamental, medicinal	Pittier, 1970: 140
2	0	0	Aristolochiaceae: *Aristolochia* sp. (clavate)			Pittier, 1970: 140
2	0	0	Berberidaceae: *Berberis* sp.?	*uña de gato*		Pittier, 1970: 603
0	1	0	Bignoniaceae-Acanthaceae: *Ruellia-Distictella* sp.?	*flor de sangre*, wild petunia	ornamental, medicinal	Pittier, 1970: 247–248; Austin, 2004: 985
5	2	0	Bromeliaceae: *Dyckia* sp.			Bennett, 2000
0	1	0	Caryophyllaceae: *Polycarpae* sp.?		medicinal	Funk et al., 2007; Johnson, 1999: 648
3	5	5	Compositae: *Trixis* sp.?	*Juan de la calle*, *manzanilla*	ornamental, medicinal	Pittier, 1970: 248, 286; Funk et al., 2009
0	1	0	Convolvulaceae: *Ipomoea* sp.?	*batata*, sweet potato	root crop	Pittier, 1970: 147–148
0	2	1	Chenopodiaceae: *Chenopodium quinoa*	*quinua*, quinoa	pseudo-seed crop, medicinal	Pearsall, 1992: van Wyk and Wink, 2004: 404
1	0	0	Chrysobalanaceae: *Chrysobalanus icaco*	*icaco*, cocoplum	shrub with edible fruit	Pittier, 1970: 280
1	2	2	Cyatheaceae: *Alsophila* sp.	*helecho*, fern	edible pith	Duke, 1970: 354
0	0	2	Cyatheaceae: *Cyathea* sp. (verrucate)	*helecho*, tree fern		
0	1	5	Cyperaceae			
6	6	?	Gramineae: *Zea mays*	*maíz*, maize	seed crop	Morey, 1975: 46; Pittier, 1970: 298–300
0	2	0	Juglandaceae: *Juglans* sp.	*nogal*, walnut	nut, medicinal, hardwood	Pittier, 1970: 328; Estomba et al., 2005
1	0	0	Leguminosae: *Harpalyce* sp.?	*raíz de cobra*, snake root	medicinal	Silva et al., 1999
4	0	0	Leguminosae: *Indigofera tinctoria* or *I. anil*	*añil*, indigo	dye, medicinal	Pittier, 1970: 134; Schnee, 1973: 364
1	1	2	Leguminosae: *Piptadenia peregrina*	*yopo*	hallucinogen	Morey, 1975: 85
0	1	2	Lycopodiaceae: *Lycopodium* sp. (foveolate)	*gusanillo*		Pittier, 1970: 273

TABLE C.1
Pollen Analysis Results from B26, B27, and B97.
(Continued)

B26	B27	B97	Pollen Taxa	Common Names	Potential Uses	References
0	2	0	Lythraceae: *Cuphea* sp.?			
4	0	0	Malvaceae: *Sida* sp.	*escoba*, arrowleaf	making brooms, fiber, medicinal	Pittier, 1970: 219–220; Balée, 1994: 77
0	1	0	Malpighiaceae: *Camarea* sp.	*arnica*	medicinal	Amorozo, 2004: 158
0	1	0	Marantaceae: *Maranta arundinacea*	*guapo*, arrowroot	root crop for starch	Morey, 1975: 78; Pittier, 1970: 266
0	1	0	Moraceae: *Cecropia* sp.	*yagrumo*	fiber, dye, medicinal	Pittier, 1970: 420–421
0	1	0	Myricaceae: *Myrica pubescens*	*palomero*	wax, medicinal	Pittier, 1970: 347; Araujo and Esquerre, 2004
1	0	0	Myrtaceae: *Psidium guajava*	*guayabo*, guava	tree fruit, medicinal	Pittier, 1970: 269; Giovannini and Heinrich, 2009
2	0	0	Onagraceae			
0	2	0	Palmae: *Acrocomia sclerocarpa*	*corozo*	fermented drink	Pittier, 1970: 214
4	0	0	Plantaginaceae: *Plantago* sp.?	*llantén*	medicinal	Pittier, 1970: 296; Ososki et al., 2002
2	0	0	Portulaceae: *Talinum paniculatum*	*verdolaga*	leaf vegetable, medicinal	Pittier, 1970: 416
1	0	0	Polypodiaceae: *Polypodium* sp. (verrucate)	*helecho*, *calaguala*	medicinal	Pittier, 1970: 175
0	2	0	Pteridaceae (Polypodiaceae): *Jamesonia* sp.	*helecho*, *trencilla*	medicinal	Bussman and Sharon, 2006; Pittier, 1970: 259
0	1	0	Solanaceae: *Capsicum frutescens*	*ají*, chile pepper	condiment, medicinal	Morey, 1975: 47; Pittier, 1970: 119; van Wyk and Wink, 2004: 79
0	2	0	Solanaceae: *Lycopersicum esculentum*	*tomate*, tomato	fruit	Pittier, 1970: 404
3	0	0	Symplocaceae: *Symplocos* sp.	sweetleaf, yellowwood	medicinal, dye	Austin, 2004: 1109–1111
2	0	0	Trigoniaceae: *Trigonia* sp.			

Note: Key to relative frequencies: 0 = absent; 1 = very low frequency; 2= low frequency; 3 = low to intermediate frequency; 4 = intermediate frequency; 5 = intermediate to high frequency; 6 = high frequency.

APPENDIX D

SOURCE IDENTIFICATIONS OF STONE ARTIFACTS

Ramón Sifontes G. and Carlos Schubert

In May of 1988, the authors of this appendix jointly examined several samples of the stone artifacts recovered by Spencer and Redmond in their excavations at Gaván-complex sites. The goal of the exercise was to identify the source materials of selected artifacts so they could be used as a reference collection during the laboratory analysis that took place between 1988 and 1992. The authors wrote the source identifications directly on the individual coin envelopes containing the artifacts that were examined. While they were doing so, Redmond and Spencer recorded the key points of their commentary, which we reproduce here. These notes and the reference collection were used to guide the source identifications that were recorded in the lithic section of the project's database (chap. 2). In addition, the authors made themselves available for occasional consultations when the laboratory team requested confirmation of specific identifications. As a general observation, it is noteworthy that many of the chert artifacts were identified as coming from the La Quinta Formation, an extensive Jurassic formation in the Venezuelan Andes, on which the authors had previously published (Schubert et al., 1979).

Provenience B12-646: (1) Chert of volcanic origin, La Quinta Formation. (2) Sandstone with smoky quartz, La Quinta Formation.

Provenience B12-754: (1) Chert from the La Quinta Formation (red color due to oxidation) (figs. D.1, D.2). (2) Possible rhyolite, siliceous volcanic from the La Quinta Formation. (3) Quartzite, available in the river valleys of the Andean piedmont. (4) Sandstone.

Provenience B97-248: (1) Chert with conchoidal fracture pattern, fine grained, from the La Quinta Formation, or from one of the Cretaceous/Mesozoic or Tertiary formations along the flanks of the Venezuelan Andes. Chert color can range from black to yellow to red. (2) Dark siliceous rock, fine-grained sandstone or dark silica that lacks conchoidal fracture and is coarse-grained; it occurs in small pockets in the Venezuelan Andes, not extensive.

Provenience B97-254: (1) Chert with feldspar inclusions and gas-release holes, from the La Quinta Formation. (2) Chert with manganese oxide inclusion.

Provenience B26-266: (1) Chert from the La Quinta Formation. (2) Quartzitic sandstone.

Provenience B26-267: (1) Chert from the La Quinta Formation.

Provenience B97-243: (1) Chert. (2) Siliceous sandstone. (3) Metamorphic sandstone, Mucuchíes Formation, Venezuelan Andes. (4) Sandstone with smoky quartz and mica. (5) Cretaceous sandstone, with black inclusions that are iron oxides; its light greenish (green/gray) color is unusual; cretaceous sedimentary rock from the Venezuelan Andes. (6) Paleozoic amphibolite from the Sierra Nevada Formation, the Mucuchachí Formation, or the El Águila Formation, all in the Venezuelan Andes (fig. D.3).

Figure D.1. Chert axe with bone polish and hafting evidence (see appendix B); reddish in appearance due to oxidation; La Quinta Formation (for drawing see fig. B.1: B12-754-10).

Figure D.2. Chert chopper with bone and meat polish and hafting evidence (see appendix B); reddish in appearance due to oxidation; La Quinta Formation (for drawing see fig. B.2: B12-754-13).

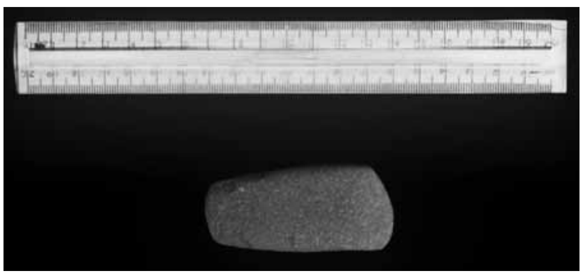

Figure D.3. Amphibolite celt, cutting edge on right side; Sierra Nevada or Mucuchíes Formation (for drawing of similar celt see fig. 6.32).

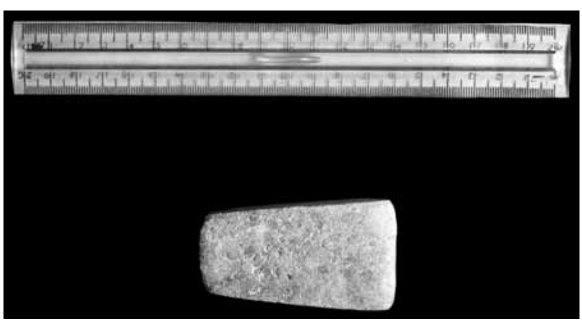

Figure D.4. Polished stone axe, siliceous rock, precipitate of recent volcanic origin, from Sierra de Perijá west of Lake Maracaibo or from Colombia (for drawing see fig. 7.41).

Provenience B21-307: (1) Chert, dark, from the La Quinta Formation. Paleozoic amphibolite, metamorphic, Sierra Nevada Formation; the greenish color and density are diagnostic of Paleozoic metamorphic rocks. (3) Metamorphic quartzite, coded as sandstone, from a Paleozoic formation (e.g., El Águila Formation, Mucuchachí Formation or Sierra Nevada Formation).

Provenience B21-319: (1) Red chert, with great quantities of iron oxides, but still from the La Quinta Formation. (2) Sedimentary sandstone, from the base of the Apón Formation or the Río Negro Formation; Cretaceous base rocks, Venezuelan Andes. (3) Metamorphic quartzite (coded as sandstone) from Paleozoic metamorphic formations (e.g., El Águila Formation, Mucuchachí Formation, or Sierra Nevada Formation). (4) Fine-grained metamorphic amphibolite.

Provenience B97-240: (1) Siliceous rock, concretionary, a precipitate of recent volcanic origin, possibly a geyser formation; probably not from the Venezuelan Andes, but from the Sierra de Perijá west of Lake Maracaibo or from Colombia (fig. D.4).

APPENDIX E

RADIOCARBON AND THERMOLUMINESCENCE DATES FROM GAVÁN-COMPLEX SITES

Charles S. Spencer, Elsa M. Redmond, and Rafael A. Gassón

Some of the charcoal samples that were collected during the excavations conducted by Spencer and Redmond at Gaván-complex sites were selected for radiocarbon dating and submitted to Beta Analytic, Inc., in Miami, Florida (table E.1). In addition, a number of excavated sherds from Gaván-complex sites were subjected to thermoluminesence dating at three laboratories: (1) the thermoluminescence dating facility in the Laboratorio de Arqueometría, established by the late Jesús Eduardo Vaz at the Instituto Venezolano de Investigaciones Científicas; (2) the thermoluminesence dating facility that Cynthia Peterson directed during the 1980s in the Department of Physics at the University of Connecticut; and (3) the thermoluminescence dating laboratory at Alpha Analytic, a subsidiary of Beta Analytic, Inc. (table E.2). Gassón also excavated charcoal samples at the El Cedral site, in the Acequia–Anaro River drainage, that were submitted to Beta Analytic, Inc. (table E.1). The results of these analyses helped us define the temporal limits of the Gaván complex (A.D. 300–1000), as well as the chronological placement of the Early Gaván phase (A.D. 300–550) and the Late Gaván phase (A.D. 550–1000).

We now offer some commentary on the results, beginning with the radiocarbon analyses (table E.1). Except where noted, all radiocarbon samples were recovered in excavations at Gaván-complex sites, directed by Spencer and Redmond.

Beta-16648, excavated at El Gaván (B12) and associated with provenience B12-161, yielded a conventional radiocarbon date of A.D. 455 ± 80, falling within the Early Gaván phase (A.D. 300–550). This radiocarbon date is consistent with the excavated context, a relatively deep excavation level (Level 5: 80–100 cm DBS) of T.27 at B12. We judge Beta-16648 to be a nonproblematic date.

Beta-27258, associated with provenience B12-759, produced a conventional radiocarbon date of A.D. 650 ± 100 (table E.1), corresponding to the Late Gaván phase (A.D. 550–1000). This sample was recovered at a depth of 187 cm DBS in T.183, a test pit placed in the bulldozed side of Mound A at B12. This level would correspond to one of the earliest construction layers of Mound A, implying that Mound A was built in the Late Gaván phase, an interpretation that would be consistent with our overall assessment of the construction sequence at B12. Beta-27258 would seem to be a nonproblematic date.

Beta-117265 was recovered by Gassón at the El Cedral site, the first-tier center in the Acequia–Anaro River drainage (see description of site B33 in Redmond and Spencer, 2007: 201–211). The conventional radiocarbon date was A.D. 680 ± 50 (table E.1), which would correspond to the Late Gaván phase in the Gaván-complex sequence that Spencer and Redmond established for the Canaguá River drainage. This date appears to be consistent with the stratigraphic context: 60–70 cm DBS in Operation 2. We consider this date to be nonproblematic.

Beta-117266 was also excavated by Gassón at the El Cedral site. This sample's conventional radiocarbon date, A.D. 690 ± 50, also corresponds to the Late Gaván phase in the Gaván-complex sequence (table E.1). This date and its stratigraphic context, 80–90 cm DBS in Operation 2, are consistent with the previous date from El Cedral. We view this as a nonproblematic date.

Beta-177550, associated with provenience B12-474 at El Gaván (B12), yielded a conventional radiocarbon date of A.D. 530 ± 50, falling toward the end of the Early Gaván phase (table E.1). This chronological placement is consistent with the stratigraphic context of the sample: Level 5 (80–100 cm DBS) of T.171. We regard this date as nonproblematic.

Beta-177551 was excavated by Gassón at the site of Lomitas Florideñas, a second-order center in the Acequia–Anaro River drainage (see description of site B13 in Redmond and Spencer, 2007: 136–141). It produced a conventional radiocarbon date of A.D. 190 ± 40 (table E.1), about a century before the onset of the Early Gaván phase (A.D. 300–550) in the Canaguá River drainage. The possibility of such an early occupation at Lomitas Florideñas would certainly be worthy of further investigation. But the current paucity of data from the site makes it impossible for us to judge whether this radiocarbon date is reasonable or problematic.

Beta-217828, associated with provenience B12-624, was a charcoal sample from a carbonized postmold in Floor 1 of Area A at B12. It yielded a conventional radiocarbon date of A.D. 330 ± 60 (table E.1). This date falls within the Early Gaván phase. At first glance, this date would seem to be too early for a postmold in the uppermost, and thus the latest, house floor in Area A, which was probably inhabited until the end of the Late Gaván phase. However, we should remember that the radiocarbon analysis is dating the death of the tree that produced the post. If the ancient inhabitants of B12 tended to curate especially fine posts, reusing them again and again as they rebuilt and refurbished their houses, then it might not be too surprising for a burned post to yield a radiocarbon date much earlier than the final use of that post in a house construction. We regard this as a nonproblematic date, but this judgment rests on the assumption that the post in question originated from a tree that had been cut during the Early Gaván phase, many years prior to the final, Late Gaván phase use of the post in Floor 1 of Area A.

Beta-237342 was recovered by Gassón at El Cedral, the first-tier site in the Acequia–Anaro River drainage. It produced a conventional radiocarbon date of A.D. 740 ± 40 (table E.1), which would correspond to the Late Gaván phase in the Canaguá River drainage. This date seems consistent with the stratigraphic context: 50–60 cm DBS in Operation 2. Note that the two previously discussed samples from this same operation at El Cedral (Beta-117265 and Beta-117266) came from deeper levels and they both yielded dates that corresponded to the Late Gaván phase. We consider this to be a nonproblematic date.

Beta-237343 was also excavated by Gassón at El Cedral. It yielded a conventional radiocarbon date of A.D. 690 ± 40 (table E.1). This date would also correspond to the Late Gaván phase in the sequence of the Canaguá River drainage. Notably, this date came from a very deep stratigraphic context: 120–130 cm DBS in Operation 2. The fact that a radiocarbon date from this provenience aligned with the Late Gaván phase might indicate that the cycle of chiefdom development at El Cedral was slightly later than the one focused on El Gaván (Redmond, Gassón, and Spencer, 1999: fig. 7.9). We offer this suggestion as a hypothesis for some future investigator of El Cedral to explore.

Beta-235038, associated with provenience B97-188, was excavated at Potrero de Elías (B97). It yielded a conventional radiocarbon date of A.D. 10 ± 40 (table E.1), which would fall about three centuries before the onset of the Early Gaván phase as we have defined it. The stratigraphic context of this sample is 40–60 cm DBS, which seems inconsistent with such an early date. We think it is likely that this chunk of charcoal derived from a tree that died many years before B97 was occupied, and ended up becoming part of the site's depositional record when the brush was cleared and a village established in the Early Gaván phase. It is important to note that T.54, the test pit that contained this sample, yielded evidence of a flooding incident in Layer C, predating the occupation evidence in Layer B. The charcoal in this sample was found in excavation Level 3, which included the bottom of Layer B, most of Layer C, and a bit of Layer D (chap. 7). This charcoal sample may well have been deposited at T.54's location during the flooding incident that is evidenced in Layer C.

Beta-235039, associated with provenience B97-258, was also excavated at B97. The resulting conventional radiocarbon date was A.D. 360 ± 40, falling in the Early Gaván phase (table E.1). This date seems consistent with the relatively deep stratigraphic context of the sample: 60–80 cm DBS in T.73. B97, like B12, shows evidence of occupation in both the Early Gaván phase and the Late Gaván phase, so we consider this to be an acceptable, nonproblematic date.

Beta-235040, associated with provenience B21-297, was recovered at Buenos Aires (B21). It yielded a conventional radiocarbon date of A.D. 700 ± 40 (table E.1). This date falls within the early half of the Late Gaván phase, a chronological placement consistent with the stratigraphic context of the sample: 40–50 cm DBS of T.108. We judge this date to be nonproblematic.

Beta-235041, associated with provenience B21-305, was also excavated at B21. It produced a conventional radiocarbon date of B.C. 1070 ± 40 (table E.1). This date seems much too early, given the sample's stratigraphic context: 50–60 cm DBS of T.108, the excavation level just below that of the previous date. We suspect that this piece of charcoal derived from a tree or plant that died many years before this deposit was laid down.

Beta-307540 and Beta-307541 were both recovered at B27, the drained-field facility (La Tigra). Beta-307540 came from 20–40 cm DBS in T.186, while Beta-307541 came from 40–60 cm DBS in T.185. Both samples were based on charcoal recovered during the laboratory analysis; they were submitted to Beta Analytic, Inc. for analysis in 2011, well after the publication of Spencer et al. (1994). These two samples yielded radiocarbon dates of the modern period. In our discussion of the B27 drained fields (chap. 8), we concluded that the fields were used in two different periods: during the Late Gaván phase and again in modern times. This conclusion was based on three lines of evidence: (1) the association between the B27 fields and the nearby Late Gaván habitation site of B26 as well as the adjacent Late Gaván *calzada*, which passed alongside B27 on its way to the regional center of B12; (2) the absence of occupation evidence in the vicinity of B27 that pertained to any period other than the Late Gaván phase and modern times; and (3) our interview with local farmers, who told us that the B27 drained fields were discovered in the mid-20th century by the locality's first settlers, who recognized that the vegetation-choked canals were the remains of an ancient irrigation system. These 20th-century farmers cleared brush and reexcavated the canals, heaping the dirt and brush on top of the fields. As a consequence of this history of usage, it would not be surprising to recover radiocarbon dates at the drained fields that pertain either to the Late Gaván phase or to modern times. In the case of Beta-307540 and Beta-307541, both dates fall in modern times. Nevertheless, the pollen analysis conducted on a sample from B27 found evidence of a wide range of plants, including some that were more likely to have been cultivated during the Late Gaván phase than during modern times (appendix C). Although we would have been delighted to obtain radiocarbon dates from B27 corresponding to the Late Gaván phase, we regard the two modern dates as nonproblematic because they pertain to the latter of the two known periods of use of the drained fields.

We now proceed to comment on the thermoluminescence dates on excavated sherds. The first of these, from provenience B12-20 and processed in Peterson's lab at the University of Connecticut, yielded a date of A.D. 338 ± 260, corresponding to the Early Gaván phase (table E.2). The analyzed sherd was excavated at B12, specifically from Level 2 (20–40 cm DBS) of T.1. This was the lowest level excavated in T.1; we do not know whether there was a deeper deposit, because we were unable to continue the excavation of this pit to sterile (for reasons noted in chap. 6). Nevertheless, we do not view the context of this sample as inconsistent with an Early Gaván date. We also need to recognize the possibility that the context could be Late Gaván phase, but the sherd in question might have come from an Early Gaván phase vessel that was redeposited in a later deposit. In this regard, we note that T.1 at B12 falls within the zone that we have inferred was occupied during both the Early Gaván and Late Gaván phases, so the possibility of such a redeposition cannot be ruled out.

Thermoluminescence date 1088a, associated with provenience B12-474, was processed in Vaz's laboratory at the Instituto Venezolano de Investigaciones Científicas (IVIC). It yielded a date of A.D. 490 ± 90 (table E.2). This date falls within the Early Gaván phase, which is consistent with the excavated context of the sherd: T.171 at B12, from a depth of 95–96 cm DBS. We view this as a nonproblematic date.

Thermoluminescence date 1088b, associated with provenience B12-759 and also processed at IVIC, produced a date of A.D. 410 ±90 (table E.2). This date also corresponds to the Early Gaván phase. The context of the excavated sherd was T.183 at B12, from a depth of 190–200 cm DBS, consistent with the Early Gaván phase. We regard this date as nonproblematic.

Thermoluminescence date 1088c, associated with provenience B12-530 and processed at IVIC, yielded a date of A.D. 760 ± 120 (table E.2), which falls within the Late Gaván phase. The analyzed sherd was recovered at B12, specifically in Area A, at a depth of 0–20 cm DBS, a context that is consistent with the Late Gaván phase.

Thermoluminescence date 1088d, associated with provenience B12-624 and processed at IVIC, produced a date of A.D. 900 ± 120 (table E.2). This date corresponds to the Late Gaván phase, which, like the previous date, is consistent with the excavated context: Area A at B12, from a depth of 0–20 cm DBS. The date of this sherd probably falls close to the time of abandonment of Floor 1 in Area A, and, by extension, with the time of abandonment of the entire site of B12. We see this as a nonproblematic date.

The next thermoluminescence date, from provenience B12-19 and processed at the University of Connecticut, produced a date of A.D. 839 ± 384 (table E.2), corresponding to the Late Gaván phase. The excavated context of this sample was T.1 at B12, from Level 1 (0–20 cm DBS). Like the previous sample, this result falls close to the time of B12's abandonment.

Thermoluminescence date Alpha-1277, processed by Alpha Analytic, Inc., yielded a date of A.D. 1040 ± 208 (table E.2). This date falls at the end of the Late Gaván phase, which is consistent with the excavated context of the sample: T.1 at B12, from Level 1 (0–20 cm DBS). This date, even more than the two previous ones, probably lies quite close to the time of abandonment of B12. We regard this date as nonproblematic.

TABLE E.1
Radiocarbon Dates from Gaván-Complex Sites.

Beta No.	Provenience	Context	Conventional Age (B.P.)	Conventional Date	2-Sigma Calibration
16648	B12-161	T.27 Level 5: 80–100 cm DBS	1495 ± 80	A.D. 455 ± 80	n.a.
27258	B12-759	T.183: 187 cm DBS	1300 ± 100	A.D. 650 ± 100	n.a.
117265	El Cedral	Op. 2: 60–70 cm DBS	1270 ± 50	A.D. 680 ± 50	n.a.
117266	El Cedral	Op. 2: 80–90 cm DBS	1260 ± 50	A.D. 690 ± 50	n.a.
177550	B12-474	T.171 Level 5: 80–100 cm DBS	1420 ± 50	A.D. 530 ± 50	Cal B.P. 1400–1270
177551	Lomitas Florideñas	Op. 1: 100–110 cm DBS	1760 ± 40	A.D. 190 ± 40	Cal B.P. 1720–1540
217828	B12-624	Area A, Fl. 1: Carbonized postmold	1620 ± 60	A.D. 330 ± 60	Cal B.P. 1690–1660 and Cal B.P. 1630–1380
237342	El Cedral	Op. 2: 50–60 cm DBS	1210 ± 40	A.D. 740 ± 40	Cal B.P. 1260–1050
237343	El Cedral	Op. 2: 120–130 cm DBS	1260 ± 40	A.D. 690 ± 40	Cal B.P. 1280–1070
235038	B97-188	T.54 Level 3: 40–60 cm DBS	1940 ± 40	A.D. 10 ± 40	Cal B.P. 1980–1820
235039	B97-258	T.73 Level 4: 60–80 cm DBS	1590 ± 40	A.D. 360 ± 40	Cal B.P. 1560–1390
235040	B21-297	T.108 Level 3: 40–50 cm DBS	1250 ± 40	A.D. 700 ± 40	Cal B.P. 1280–1070
235041	B21-305	T.108 Level 4: 50–60 cm DBS	3020 ± 40	B.C. 1070 ± 40	Cal B.P. 3350–3080
307540	B27-770	T.186 Level 2: 20–40 cm DBS	Modern	Modern	n.a.
307541	B27-772	T.185 Level 3: 40–60 cm DBS	Modern	Modern	n.a.

TABLE E.2
Thermoluminescence Dates from B12.

Lab	Provenience	Context	Age	Date
UConn	B12-20	T.1 Level 2: 20–40 cm DBS	1612 ± 260	A.D. 338 ± 260
IVIC (1088a)	B12-474	T.171: 95–96 cm DBS	1460 ± 90	A.D. 490 ± 90
IVIC (1088b)	B12-759	T.183: 190–200 cm DBS	1540 ± 90	A.D. 410 ± 90
IVIC (1088c)	B12-530	Area A: 0–20 cm DBS	1190 ± 120	A.D. 760 ± 120
IVIC (1088d)	B12-624	Area A: 0–20 cm DBS	1050 ± 120	A.D. 900 ± 120
UConn	B12-19	T.1 Level 1: 0–20 cm DBS	1111 ± 384	A.D. 839 ± 384
Alpha (1277)	B12-19	T.1 Level 1: 0–20 cm DBS	910 ± 208	A.D. 1040 ± 208

APPENDIX F

ANALYSIS OF MISFIRED SHERDS AND KILN WASTERS FROM B12, B21, AND B97

Charles S. Spencer and Elsa M. Redmond

During the course of the laboratory analysis of excavated ceramics, we encountered a number of sherds that showed evidence of firing mishaps. We classified them as "misfired sherds or kiln wasters" and recorded them as V334 in the main ceramic data set. After doing so, we subjected these sherds to a further analysis, which yielded the data set in table F.1. Here we present the variable directory that we used in this analysis. Note that we use the terms "misfired sherds," "kiln wasters," and "wasters" to refer to all sherds showing evidence of firing accidents of whatever type; we distinguish among the various kinds of such evidence in table F.1. In carrying out this analysis, we followed a methodology based on that developed by Redmond (1979) in her study of a pre-Hispanic ceramic workshop in the Tehuacán Valley of Puebla, Mexico.

Sherds with evidence of firing mishaps were recovered in excavations at B12, B21, and B97. Of these, B97 produced by far the greatest number of kiln wasters: a total of 232 sherds weighing 2142 g. These kiln wasters were recovered in the following 15 test pits at B97: T.46, T.55, T.56, T.57, T.61, T.63, T.64, T.65, T.66, T.67, T.68, T.69, T.70, T.71, and T.73. As we pointed out in chapter 7, the wide distribution of these pits suggests that there was no specialized area of the site devoted to ceramic production. The most common vessel form with evidence of a firing accident at B97 was the outleaned-wall bowl (OWB), the rims of which (V418) comprised 71.9% of all the rim sherds (V403) that were classified as kiln wasters. The most common evidence of a firing accident was spalled, cracked surfaces (V447), which were recorded on 51.7% of all the kiln wasters (V402) at B97.

At B21 we excavated a total of eight sherds (weighing 82 g) that we classified as kiln wasters. They were recovered in the following four test pits: T.91, T.111, T.114, and T.115 (chap. 9). As in the case of B97, these pits are widely distributed across the site, which implies that there was no specialized focus of ceramic production here. The most common evidence of a firing accident was pitted surfaces (V450), noted on 62.5% of the kiln wasters.

In our excavated sample from B12, we classified a total of four sherds (weighing 43 g) as kiln wasters, which were recovered from three test pits: T.31, T.169, and T.171 (chap. 6). As at B97 and B21, these pits at B12 are widely distributed, indicating that there was no specialized locus of ceramic production within the site. At B12, two forms of firing-accident evidence were noted: spalled, cracked surfaces (V447) and blowouts (V449), each found on 50% of the kiln wasters.

VARIABLE DIRECTORY FOR MISFIRED SHERDS AND KILN WASTERS

V1: Provenience number
V2: Site number
V3: Excavation operation designation

I. Basic Weights and Counts

V401: Total weight of misfired sherds and kiln wasters (g)

V402: Total number of misfired sherds and kiln wasters

V403: Total number of misfired sherds and kiln wasters that are rim sherds

V404: Total number of misfired sherds and wasters that are body sherds

II. Paste Color

V405: Pale Yellow-Brown, Light Brown

V406: Red-Yellow

V407: Brick (Red-Brown)

V408: Brown

V409: Dark Gray

V410: Gray

III. Degree of Oxidation

V411: Evenly oxidized; no dark core

V412: Partly reduced; dark core

IV. Surface Color

V413: Pale yellow-range

V414: Orange

V415: Brown-gray

V416: Other

V. Vessel Forms

V417: Convex-wall bowl rims

V418: Outleaned-wall bowl rims

V419: Vertical-wall bowl rims

V420: Bowl rims with annular bases

V421: Plate rims

V422: Composite-silhouette bowl rims

V423: *Budare* (griddle) rims

V424: *Budare* (griddle) body sherds

V425: *Tecomate* rims

V426: *Olla* rims

V427: Cylindrical tub rims

V428: Bottle rims

V429: Lid rims and handles

V430: Bowl rims with mammiform feet

V431: Base angles from convex-wall, outleaned-wall, and vertical-wall bowls

V432: Composite-silhouette bowl base angles

V433: Indeterminate bases

V434: Bottle inflections and bases

V435: Annular bases

V436: Bowls with pedestal bases

V437: Feet

V438: Footed annular bases (annular bases with feet)

V439: *Coladores* (strainers)

V440: Body sherds with flanges

V441: Special form features

V442: Decorated or slipped body sherds

V443: Other body sherds

V444: Indeterminate

V445: Indeterminate rims

V446: Others

VI. Type of Misfiring Noted (a single sherd can be counted more than once)

V447: Spalled, cracked surfaces

V448: Mineral inclusions

V449: Blowouts

V450: Pitted surfaces

V451: Deformed

V452: Others

TABLE F.1
Kiln Wasters and Misfired Sherds from Gaván-Complex Sites.

V1	V2	V3	V401	V402	V403	V404	V405	V406	V407	V408	V409	V410	V411	V412	V413
176	B97	T.46	35	9	4	5	0	2	4	2	0	1	8	1	0
178	B97	T.46	676	87	27	60	0	22	54	6	0	4	82	5	2
201	B97	T.55	33	5	0	5	1	1	0	3	0	0	5	0	2
202	B97	T.55	2	1	0	1	0	1	0	0	0	0	1	0	1
206	B97	T.56	76	5	5	0	0	5	0	0	0	0	5	0	5
207	B97	T.57	3	1	0	1	0	0	0	1	0	0	1	0	0
211	B97	T.56	74	3	3	0	0	3	0	0	0	0	3	0	0
218	B97	T.61	3	1	0	1	0	0	1	0	0	0	1	0	0
219	B97	T.61	2	1	0	1	0	0	1	0	0	0	1	0	0
220	B97	T.69	44	2	1	1	0	0	2	0	0	0	2	0	0
225	B97	T.69	607	64	27	37	0	27	14	22	0	1	62	2	0
229	B97	T.63	23	5	3	2	0	1	3	0	0	1	5	0	0
230	B97	T.63	11	1	0	1	0	0	1	0	0	0	1	0	0
234	B97	T.67	16	1	0	1	0	0	1	0	0	0	1	0	0
237	B97	T.64	82	2	1	1	0	2	0	0	0	0	2	0	0
239	B97	T.65	122	9	4	5	0	0	9	0	0	0	9	0	0
240	B97	T.65	4	1	0	1	0	0	1	0	0	0	1	0	0
241	B97	T.64	35	4	4	0	0	0	2	2	0	0	4	0	0
243	B97	T.66	92	3	0	3	0	0	0	3	0	0	3	0	0
246	B97	T.70	13	2	0	2	0	0	2	0	0	0	2	0	0
247	B97	T.68	7	2	0	2	0	0	2	0	0	0	2	0	0
248	B97	T.68	18	2	0	2	0	1	1	0	0	0	2	0	0
249	B97	T.71	149	19	9	10	0	1	9	8	0	1	19	0	1
257	B97	T.73	15	2	1	1	0	0	2	0	0	0	2	0	0
284	B21	T.91	26	1	0	1	0	1	0	0	0	0	1	0	0
302	B21	T.111	15	2	1	1	0	1	0	1	0	0	2	0	0
306	B21	T.114	23	2	1	1	0	1	1	0	0	0	2	0	0
309	B21	T.115	18	3	0	3	0	1	2	0	0	0	3	0	0
466	B12	T.169	32	1	0	1	0	1	0	0	0	0	1	0	1
469	B12	T.171	6	1	1	0	0	1	0	0	0	0	1	0	1
154	B12	T.31	5	2	0	2	0	0	0	2	0	0	0	2	0

V1	V2	V3	V414	V415	V416	V417	V418	V419	V420	V421	V422	V423	V424	V425	V426
176	B97	T.46	6	2	1	1	2	0	0	0	0	0	0	1	0
178	B97	T.46	73	8	1	1	23	0	0	0	0	0	0	0	0
201	B97	T.55	1	2	0	0	0	0	0	0	0	0	0	0	0
202	B97	T.55	0	0	0	0	0	0	0	0	0	0	0	0	0
206	B97	T.56	0	0	0	1	3	0	0	0	0	0	0	0	0
207	B97	T.57	0	1	0	0	0	0	0	0	0	0	0	0	0
211	B97	T.56	0	1	0	0	0	3	0	0	0	0	0	0	0
218	B97	T.61	1	0	0	0	0	0	0	0	0	0	0	0	0
219	B97	T.61	1	0	0	0	0	0	0	0	0	0	0	0	0
220	B97	T.69	0	2	0	0	1	0	0	0	0	0	0	0	0
225	B97	T.69	40	24	0	1	19	1	0	3	0	0	0	0	0
229	B97	T.63	1	3	1	0	3	0	0	0	0	0	0	0	0
230	B97	T.63	1	0	0	0	0	0	0	0	0	0	0	0	0

TABLE F.1
Kiln Wasters and Misfired Sherds from Gaván-Complex Sites.
(Continued)

V1	V2	V3	V414	V415	V416	V417	V418	V419	V420	V421	V422	V423	V424	V425	V426
234	B97	T.67	1	0	0	0	0	0	0	0	0	0	0	0	0
237	B97	T.64	0	2	0	0	1	0	0	0	0	0	0	0	0
239	B97	T.65	0	9	0	0	4	0	0	0	0	0	0	0	0
240	B97	T.65	1	0	0	0	0	0	0	0	0	0	0	0	0
241	B97	T.64	2	2	0	0	3	0	0	1	0	0	0	0	0
243	B97	T.66	0	3	0	0	0	0	0	0	0	0	0	0	0
246	B97	T.70	2	0	0	0	0	0	0	0	0	0	0	0	0
247	B97	T.68	2	0	0	0	0	0	0	0	0	0	0	0	0
248	B97	T.68	1	1	0	0	0	0	0	0	0	0	0	0	0
249	B97	T.71	9	8	1	0	4	3	0	1	0	0	0	0	0
257	B97	T.73	2	0	0	0	1	0	0	0	0	0	0	0	0
284	B21	T.91	0	1	0	0	0	0	0	0	0	0	0	0	0
302	B21	T.111	1	1	0	0	0	0	0	0	0	0	0	0	0
306	B21	T.114	1	1	0	0	1	0	0	0	0	0	0	0	0
309	B21	T.115	3	0	0	0	0	0	0	0	0	0	0	0	0
466	B12	T.169	0	0	0	0	0	0	0	0	0	0	0	0	0
469	B12	T.171	0	0	0	0	0	1	0	0	0	0	0	0	0
154	B12	T.31	0	2	0	0	0	0	0	0	0	0	0	0	0

V1	V2	V3	V427	V428	V429	V430	V431	V432	V434	V435	V436	V437	V438	V439	V440
176	B97	T.46	0	0	0	0	0	0	0	0	0	0	0	0	0
178	B97	T.46	0	0	1	0	0	0	0	1	0	0	1	0	0
201	B97	T.55	0	0	0	0	0	0	0	0	0	0	0	0	0
202	B97	T.55	0	0	0	0	0	0	0	0	0	0	0	0	0
206	B97	T.56	0	0	0	0	0	0	0	0	0	0	0	0	0
207	B97	T.57	0	0	0	0	0	0	0	0	0	0	0	0	0
211	B97	T.56	0	0	0	0	0	0	0	0	0	0	0	0	0
218	B97	T.61	0	0	0	0	0	0	0	0	0	0	0	0	0
219	B97	T.61	0	0	0	0	0	0	0	0	0	0	0	0	0
220	B97	T.69	0	0	0	0	0	0	0	0	0	0	0	0	0
225	B97	T.69	0	0	1	0	0	0	0	0	0	0	0	0	0
229	B97	T.63	0	0	0	0	0	0	0	0	0	0	0	0	0
230	B97	T.63	0	0	0	0	0	0	0	0	0	0	0	0	0
234	B97	T.67	0	0	0	0	0	0	0	0	0	0	0	0	0
237	B97	T.64	0	0	0	0	0	0	0	0	0	0	0	0	0
239	B97	T.65	0	0	0	0	0	0	0	0	0	0	0	0	0
240	B97	T.65	0	0	0	0	0	0	0	0	0	0	0	0	0
241	B97	T.64	0	0	0	0	0	0	0	0	0	0	0	0	0
243	B97	T.66	0	0	0	0	0	0	3	0	0	0	0	0	0
246	B97	T.70	0	0	0	0	0	0	0	0	0	0	0	0	0
247	B97	T.68	0	0	0	0	0	0	0	0	0	0	0	0	0
248	B97	T.68	0	0	0	0	0	0	0	0	0	0	0	0	0
249	B97	T.71	0	0	0	0	0	0	0	0	0	0	0	0	0
257	B97	T.73	0	0	0	0	0	0	0	0	0	0	0	0	0
284	B21	T.91	0	0	0	0	0	0	0	0	0	0	0	0	0
302	B21	T.111	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE F.1
Kiln Wasters and Misfired Sherds from Gaván-Complex Sites.
(Continued)

V1	V2	V3	V427	V428	V429	V430	V431	V432	V434	V435	V436	V437	V438	V439	V440
306	B21	T.114	0	0	0	0	0	0	0	0	0	0	0	0	0
309	B21	T.115	0	0	0	0	0	0	0	0	0	0	0	0	0
466	B12	T.169	0	0	0	0	0	0	0	0	0	0	0	0	0
469	B12	T.171	0	0	0	0	0	0	0	0	0	0	0	0	0
154	B12	T.31	0	0	0	0	0	0	0	0	0	0	0	0	0

V1	V2	V3	V441	V442	V443	V444	V445	V446	V447	V448	V449	V450	V451	V452
176	B97	T.46	0	0	0	0	0	0	6	1	1	1	1	0
178	B97	T.46	0	0	0	0	0	0	60	4	5	27	2	0
201	B97	T.55	0	0	0	0	0	0	4	0	1	0	0	0
202	B97	T.55	0	0	0	0	0	0	1	0	0	0	0	0
206	B97	T.56	0	0	0	1	0	0	5	0	0	0	0	0
207	B97	T.57	0	0	0	0	0	0	1	0	0	0	0	0
211	B97	T.56	0	0	0	0	0	0	2	0	1	0	0	0
218	B97	T.61	0	0	0	0	0	0	0	0	1	0	0	0
219	B97	T.61	0	0	0	0	0	0	0	0	1	0	0	0
220	B97	T.69	0	0	0	0	0	0	0	0	1	1	0	0
225	B97	T.69	0	0	0	0	2	0	21	0	2	41	0	0
229	B97	T.63	0	0	0	0	0	0	0	0	0	5	0	0
230	B97	T.63	0	0	0	0	0	0	0	0	0	1	0	0
234	B97	T.67	0	0	0	0	0	0	1	0	0	0	0	0
237	B97	T.64	0	0	0	0	0	0	2	0	0	0	0	0
239	B97	T.65	0	0	0	0	0	0	9	0	0	0	0	0
240	B97	T.65	0	0	0	0	0	0	0	0	0	1	0	0
241	B97	T.64	0	0	0	0	0	0	0	0	0	4	0	0
243	B97	T.66	0	0	0	0	0	0	0	0	0	3	0	0
246	B97	T.70	0	0	0	0	0	0	0	0	1	2	0	0
247	B97	T.68	0	0	0	0	0	0	2	0	0	0	0	0
248	B97	T.68	0	0	0	0	0	0	0	0	1	1	0	0
249	B97	T.71	0	0	0	1	0	0	4	0	0	15	0	0
257	B97	T.73	0	0	0	0	0	0	2	0	0	0	0	0
284	B21	T.91	0	0	0	0	0	0	0	0	0	1	0	0
302	B21	T.111	0	0	0	0	0	1	1	0	1	0	0	0
306	B21	T.114	0	0	0	0	0	0	1	0	0	1	0	0
309	B21	T.115	0	0	0	0	0	0	0	0	0	3	0	0
466	B12	T.169	0	0	0	0	0	0	0	0	1	0	0	0
469	B12	T.171	0	0	0	0	0	0	0	0	1	0	0	0
154	B12	T.31	0	0	0	0	0	0	2	0	0	0	0	0

APPENDIX G

MACROBOTANICAL REMAINS FROM GAVÁN-COMPLEX SITES

Renée M. Bonzani

This report is the first of two that will discuss the macrobotanical remains recovered during the archaeological project carried out by Spencer and Redmond in the high llanos and Andean piedmont of the Distrito Pedraza, Barinas, Venezuela, from 1983 to 1988. Collaborations with the Departamento de Antropología at the Instituto Venezolano de Investigaciones Científicas (IVIC) consisted of access to flotation material and hand-collected carbon samples with the assistance of Rafael Gassón. Investigations of the Barinas Project centered on a 450 km^2 study region in the Canaguá River valley. The project surveyed a total of 103 sites and carried out excavations at 10 of them. Sites of the Curbatí complex (A.D. 300–1000) and the Caño Seco complex (A.D. 1000–1500) were found mainly in the piedmont zone, occasionally associated with boulders with petroglyphs. The second report of this series will discuss the macrobotanical remains from Fundo San Francisco (B40), a Curbatí-complex site located on a terrace on the western bank of the Upper Canaguá River near the Caño San Francisco, and the site of La Piedra Herrada (B20), a Caño Seco-complex site in the Curbatí River valley (Redmond and Spencer, 2007: 157–162, 222–223). This first report discusses macrobotanical remains from three Gaván-complex sites: B12, B27, and B17.

Sites of the Gaván complex dated to A.D. 300–1000 and were mainly found on the high llanos. The largest of these is El Gaván (B12), a 33 ha site with an elongated plaza or avenue, earthen mounds, house mounds, and associated earthworks and causeways or *calzada*-like earthworks. This site has been identified as the center of a paramount chiefdom that was abandoned several centuries prior to European incursions into the area in the 16th century (Redmond and Spencer, 2007: 10–11, 126–136). A 35 ha drained-field site known as El Recostón de La Tigra (B27) was identified southeast of the regional center of El Gaván. B27 is dated to the Late Gaván phase (A.D. 550–1000) and is located within 200 m south of a causeway that approached the regional center of B12 from a southeasterly direction (Redmond and Spencer, 2007: 183–192, 239–241). Flor Amarilla (B17) is the third Gaván-complex site whose macrobotanical remains are discussed in this report. Flor Amarilla has two visible mounds and is located in the high llanos west of the Curbatí River (Redmond and Spencer, 2007: 151–156).

This appendix utilizes macrobotanical remains to help to determine the subsistence strategies and the role that these Gaván-complex sites may have served in the regional political economy. Macrobotanical remains include mainly carbonized remains of seeds, fruits, tubers, and wood. However, wood identifications were not conducted for this report and no tuber remains were identified in the samples, most likely due to preservation factors. The specific research questions that the analysis aimed to address included the following: What types of plants were utilized at the regional center of El Graván (B12)? Are these indicative of possible house gardens and/or *conucos* (swidden plots) at or near the site? What types of plants were grown on the drained-field site of El Recostón de La Tigra (B27)? Do the recovered macrobotanical remains at B27 indicate a diverse pattern of subsistence use as was previously indicated through studies of pollen samples from El Recostón de La Tigra (B27) and the nearby village site of Potrero Urpianero (B26) (Spencer et al., 1994)?

METHODOLOGY OF THE RECOVERY AND ANALYSIS OF MACROBOTANICAL REMAINS

Paleoethnobotanical investigations involving the analysis of macrobotanical remains, pollen, phytoliths and starch grains have become a growing and indispensable part of archaeological investigations in the United States and elsewhere (Bruno, 2008; Dillehay et al., 2007a; Dillehay et al., 2010; Hastorf, 1999; Hastorf and Wright, 1998; Hunter and Gassner, 1998; Minnis, 2003; Newsom and Wing, 2004; Oyuela-Caycedo and Bonzani, 2005; Pearsall, 2000, 2003; Pickersgill, 1969; Piperno and Pearsall, 1998; Pozorski, 1983; Rossen, 1999; Rossen et al., 2010; Wagner, 1986). In view of this increasing interest, the importance of incorporating techniques for the recovery of such remains is obvious. However, the recovery of macrobotanical remains (seeds, tubers, fruits, wood, etc., in a carbonized state) can be difficult during the excavation of sites due to such factors as preservation conditions, time constraints, and limited identification and recognition techniques by excavating field crews. One of the methodologies used increasingly for the recovery of macrobotanical remains is the flotation system.

The current analysis reports on botanical materials recovered from the light fractions referred to as "flotation" in tables G.1–G.3, as well as on in situ hand-collected carbonized material referred to as "carbon" in the tables. Soil samples were floated in the field by members of the project. Each soil sample was poured into a 55 gal drum filled with water (fig. G.1). The water surface was gently stirred and allowed to rest for several minutes, after which the light particulate matter was collected with a mesh scoop (fig. G.2). Each flotation sample was then dried in the sun (fig. G.3). Once the recovered materials had fully dried, they were bagged up for laboratory analysis. In this report only the light fractions were further analyzed. The light fractions of each sample from sites B12, B17, and B27 underwent complete analysis (41.1 g from site B12, 1.9 g from site B17, and 20.3 g from site B27). Further, a total of 3406.2 g of hand-collected carbon samples were analyzed from site B12. No hand-collected carbon samples were analyzed for B17 or B27.

Prior to sorting, all light fractions of the samples and hand-collected samples were weighed. The light fractions from each sample were then gently sifted through a nested series of geological sieves (mesh sizes > 2 mm, 1 mm, and 500 μm). This procedure facilitated sorting by producing three fragment size classes: > 2 mm, 2–1 mm, and < 1 mm. The hand-collected samples were scanned for carbon and, if necessary, were subjected to the same sorting procedures as the light fractions.

All carbonized material in the > 2 mm screen was sorted by count and weight into constituent material categories (e.g., nutshell, wood charcoal, seeds, fruits). The material was then quantified by family, genus, and species. Carbonized plant materials retained in the 1 mm and 500 μm mesh screens and catch basin were then scanned using an Olympus binocular microscope at a magnification of ×10. Any seeds, fleshy fruits (e.g., *Cucurbita* rind), etc., were removed, counted, and weighed by taxon and type of material. The uncarbonized seeds recovered from prehistoric sites are not expected to be able to survive for extended periods of time except for situations of unusual preservation such as stable cave/rockshelter environments or arid locations. The uncarbonized seeds from the sites, therefore, most likely represent modern-day contamination and did not undergo further analysis (Lopinot and Brussell, 1982).

Identification of plant remains was done by using an Olympus binocular microscope at magnifications of ×7 for materials > 2 mm and at ×10 to ×20 for materials < 2 mm. Tentatively identified specimens are preceded by "cf." (conforms to) followed by the possible family, genus, or species designation. Identifications were substantiated when possible with the author's reference col-

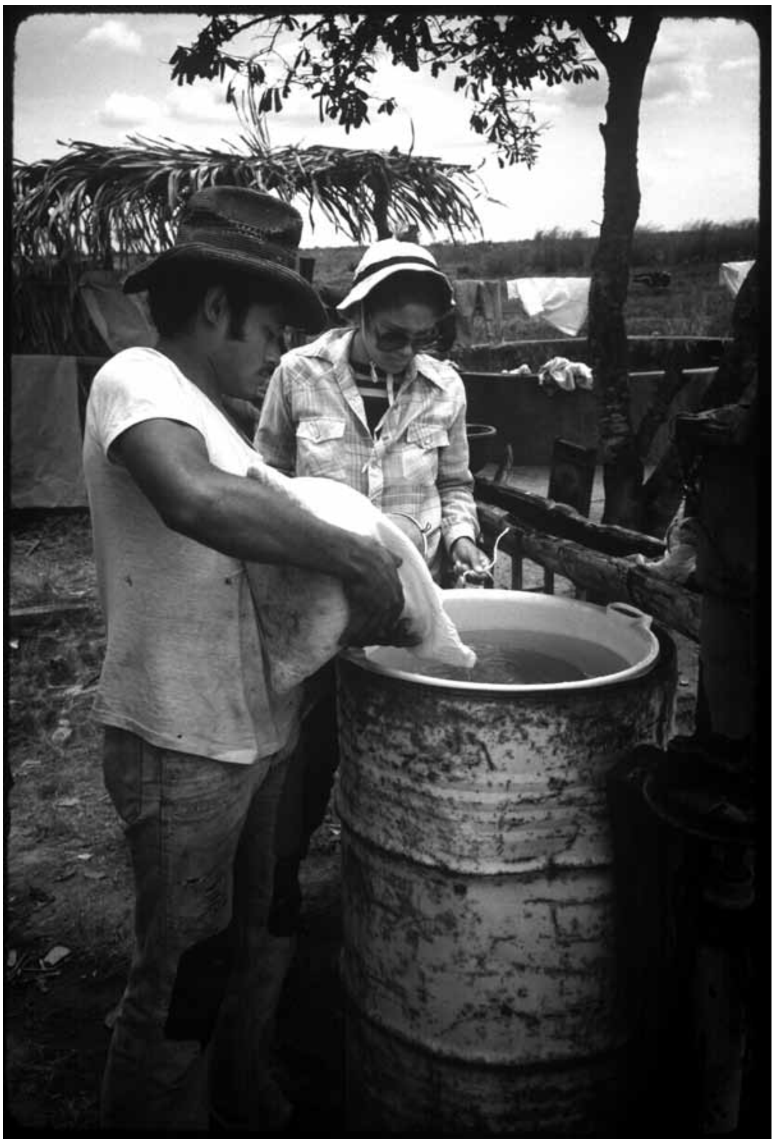

Figure G.1. Soil sample being poured into barrel of water for flotation processing.

lection from the Serranía de San Jacinto of the Sabana de Bolívar (IGAC, 1975), Department of Bolívar, northern Colombia (Bonzani, 1995), collected in 1991–1992. Secondary sources included various identification manuals (Bird and Hyslop, 1985; Castañeda, 1965, 1991; Galeano, 1991; Galeano and Bernal, 1987; Gentry, 1993; Hather, 1993, 2000; Henderson, 1995; Honores and Rodríguez, 2007; Lentz and Dickau, 2005; Martin and Barkley, 2000; Montgomery, 1977;

Figure G.2. Light particulate matter being recovered from the water surface with a mesh scoop.

Morcote Ríos, 2005, 1996; Pérez-Arbeláez, 1978; Rocas, 1989; Smith, 1986; Towle, 1961; Ugent and Ochoa, 2006; Young and Young, 1992). Specimens that could not be identified at this time are listed by type and number.

A number of factors can affect the preservation of plant remains at an archaeological site. These include human cultural factors as well as nonhuman ones such as animal perturbations, soil type, postdepositional geological activities, plant preservation differences, and so on. To adjust for these factors a number of statistical measures are utilized when presenting the results of ecofactual analysis and these help to build the interpretations presented in any report on these types of remains. All of these measures can be used to overcome problems in the quantification of ecofacts (Hastorf and Popper, 1988; Johannessen, 1984; Jones et al., 1986; Lennstrom and Hastorf, 1992, 1995; Lopinot et al., 1991; Pearsall, 1983; Thompson, 1994).

Diversity indexes, which give an idea of the diversity of the types of plants utilized, are included in this report. The diversity index is a measure of two factors. The first factor is the number and diversity of taxa at a site, referred to as richness. The second factor, referred to as evenness, indicates how many individuals of each type occur. A diversity index can be measured by the following equation (see Magurran 1988: 39–40):

$$\text{Simpson's index: L} = \sum \frac{n1(n1-1)}{N(N-1)}; \quad 1 - \text{L}$$

where L = diversity, $n1$ = number of individuals in a particular taxon, N = total number of individuals in a sample, and 1 = most diverse.

The diversity index allows for a determination of the redundancy or similarity of remains (including ecofacts, features, etc.) within a site or of remains between sites (Binford, 1980, 1983; Bonzani, 1997, 1998; Kelly, 1995; Oyuela-Caycedo, 1998). Redundancy or similarity of ecofacts in an assemblage would be indicated by their low diversity index. Low diversity indicates either the use of a few species to the exclusion of others or the greater use of few species with other species occurring in lesser quantities. Redundant sites in terms of ecofacts are usually those where some type of special-purpose activity is carried out, such as logistic special-purpose food-processing sites or sedentary sites where the diet becomes focused on a few domesticated plants (Binford, 1980). Nonredundant ecofactual use is indicated by high species diversity, in that many species are being utilized and in the same proportions. Nonredundant sites would include logistic base camps or locations of a sedentary nature where many plants are grown or the sites are utilized for purposes other than the collection/processing of plant matter for a specific purpose (i.e., food). A high diversity of plants may also occur at sedentary sites when numerous weeds in the vicinity of the location become incorporated into the archaeological record by various means (mixed with agricultural products, found in animal dung, for other purposes besides as a major food source). The following results incorporate these statistical measures in the interpretations of the data obtained.

RESULTS OF THE MACROBOTANICAL STUDY

The analysis of the macrobotanical remains for this report included samples collected at the sites of El Gaván (B12), Flor Amarilla (B17), and El Recostón de La Tigra (B27) (tables G.1–G.3). For the site of El Gaván (B12), 18 flotation samples, 32 hand-collected carbon samples, two hand-collected ceramic sherd samples, and two hand-collected semiburned daub samples were analyzed. These samples are associated with earthen mounds, earthworks, floors on house mounds (Area A and Area D), burials 6 and 7 (Area A), the ramp of Mound A, Burial 8 (Mound A), a midden by Area A (a domestic context), a house floor (Area D), and an area between Mounds D and E (chap. 6). In total, 41.1 g of light fractions

Figure G.3. Flotation samples drying in the sun.

and 3406.2 g of hand-collected samples were analyzed for carbon from B12. The four samples with the ceramic sherds and semiburned daub did not yield botanical remains except for one fragment of carbonized wood. The total numbers of carbonized seeds/fruits recovered from B12 are 249 (7 g); 224 fragments of carbonized wood (31.8 g) were also recovered. Other remains included: > 102 fragments of shell, 346 insect fragments, 22,184 uncarbonized seeds, one carbonized leaf fragment, seven carbonized unidentified seed fragments, and 64 carbonized unidentified fragments. In total from B12, 11 families, 10 possible genera, and three possible species were identified. Remains of two unidentified plant taxa as well as a possible nutshell were also recovered (table G.1).

For the site of Flor Amarilla (B17), five flotation samples were analyzed from five different units at the site. In total, 1.9 g of light fractions were analyzed. The small size of the light fractions analyzed may account for the fact that only four carbonized seeds were recovered. No carbonized fragments of wood were recovered. Other remains included 65 insect fragments, 41 uncarbonized seeds, and four carbonized unidentified fragments. In total from site B17, only one tentatively identified family comprising all four seeds could be ascertained (table G.2).

For the site of El Recostón de La Tigra (B27), seven flotation samples were analyzed. These samples represented one pollen column, two units from Field A, one unit from Field B, and two units from Field C. In total, 20.3 g of light fractions were analyzed. The total numbers of carbonized seeds/fruits recovered from B27 are 35 (0.3 g). Only one fragment of carbonized wood (< 0.1 g) was recovered. Other remains included one fragment of shell, 108 insect fragments, four burned bone remains, 200 uncarbonized seeds, one possible carbonized fruit fragment, and one carbonized unidentified fragment. In total from B27, eight families, seven genera, and three species were identified. Four unidentified plant taxa (types) were also recovered (table G.3).

The macrobotanical remains from the site of El Gaván (B12) indicate a medium diversity of plants being utilized based on those recovered from this analysis (table G.1). The diversity index is 0.48 with 1 indicating the highest diversity. The medium diversity is due to the fact that remains from palm fruits, fruits from various trees, and weeds/herbs were all recovered from the site. This medium diversity is, not surprisingly, indicative of a settlement where various plant products are being utilized, but also where seeds of weeds that grow well in disturbed areas are recovered. What is surprising is that no major crop plants, such as maize (*Zea mays*), squash (*Cucurbita* spp.), beans (*Phaseolus vulgaris*), *quinoa* (*Chenopodium* spp.), or peppers (*Capsicum* spp.) were recovered in spite of this diversity. Yet, such medium diversity is reminiscent of what Spencer et al. (1994) reported from a pollen analysis done by Rinaldi on a third-order village site, Potrero Urpianero (B26), located along the *calzada* that runs from El Gaván and passes by the drained fields of El Recostón de La Tigra (B27). Although maize (*Zea mays*) pollen was recovered at B26 in high frequencies, there was also much evidence of ornamental house plants (*astroloja* [*Aristolochia ringens*]), a plant dye (*añil* [*Indigofera* spp.]), a hallucinogen (*yopo* [*Piptadenia peregrina*]), and fruit tree use (*guayabo* [*Psidium guajava*] and *icaco* or *hicaco* [*Chrysobalanus icaco*]), as well as one tuber (*ocumo* [*Xanthosoma sagittifolium*]) probably grown for food. The authors concluded that the variability of plants noted at this village site is consistent with ethnohistoric and ethnographic data on the use of diversified agricultural subsistence strategies for indigenous llanos groups (Spencer et al., 1994: 132).

The data from the macrobotanical remains at B12 support this conclusion and indicate that households (extrapolating from the case represented by the Area A house mound) utilized various palm and fruit trees to supplement their diets. These results may also indicate that house gardens and/or *conucos* were cultivated in the vicinity of the house mounds that would have contained possible semidomesticated palms and fruit trees (and perhaps other cultigens that were not recovered during this analysis).

From the house mound in Area A, the recovered macrobotanical remains that were probably utilized at B12 for food and other purposes include palms (Arecaceae) (fig. G.4) and the fruit trees of possible *guanábana*; *catoche*; or *catuche* (cf. *Annona muricata* Annonaceae, nomenclature follows Lentz and Dickau, 2005: 77) (fig. G.5); possible breadnut, or *vaco*; *palo de vaca*; or *ramón* (cf. *Brosimum* sp. Moraceae [Urticaceae], nomenclature follows Lentz and Dickau, 2005: 57) (fig. G.6); and *níspero* (*Manilkara* cf. *zapota* Sapotaceae, nomenclature follows Lentz and Dickau, 2005: 191) (fig. G.7).

From the earthworks (T.176; 0–20 cm) at B12, two other palm fruits probably of *moriche* (Venezuela) or *canangucha* (Colombia) (cf. *Mauritia* sp. Arecaceae) (figs. G.8, G.9) were also recovered. However, these remains appear to be in a desiccated or semicarbonized state and it is possible they are of modern origin. Unlike the other palm remains recovered from the site that are highly fragmented and carbonized, these fruits are relatively complete. The identification remains tentative because, similar to modern fruits, they are one seeded and have the typical scales found on *moriche* palm fruits, but they are smaller in size than fruits described typically for *moriche* (*Mauritia flexuosa*) or *caraná* (Venezuela) or *canangucho de sabana* (Colombia) (*Mauritia carana*).

The recovered fruits measure 2.1 × 2.4 cm and 2.3 × 2.0 cm in length and diameter while modern *moriche* fruits measure 3.7–5.3 cm in length and 3–5.2 cm in diameter and *caraná* 4.5–5(–7) cm in diameter (Henderson, 1995: 70–74).

Morichal, or *Mauritia*, swamps of palms are noted as occurring in the eastern llanos and are an important source of various products for indigenous groups in the llanos such as the Guahibo, Karinya, and Warao (Orinoco Delta). These uses include fibers to make items such as hammocks or *chinchorros*, fruits for food and beverages, and the cut, decayed trunks are used to obtain a clear liquid for intoxicating beverages (Denevan and Bergman, 1975; Denevan and Schwerin, 1978; Heinen and Ruddle, 1974; Henderson, 1995: 70–74; Humboldt, 1850, as cited in Henderson, 1995; Morey, 1975: 221; Pittier, 1970: 301). Remains of *moriche* have been previously identified at the archaeological site of Maicure on the lower Purité River dated to ca. A.D. 880–1190 (Morcote Ríos, 2005) as well as along the Caquetá River, Colombian Amazonia. It is possible that these fruits, if they are indeed part of the archaeological record, may be smaller than modern ones because palm and other fruits through selective breeding have increased in size over time; alternatively, they may represent more unusual concentrations of *moriche* palms as for instance found in semiseasonal savannas that are waterlogged for a major part of the year (Gassón, 1998: 12).

The other macrobotanical remains recovered from the site of B12 are probably indicative of weeds growing in the vicinity of the site during its occupation. These include spurge (*Euphorbia* sp. Euphorbiaceae); boneset (*Eupatorium* sp. Asteraceae); possible yarrow (cf. *Achillea* sp. Asteraceae); other members of the aster family (Asteraceae); members of the bean family (Fabaceae); possible members of the poppy family (cf. Papaveraceae) (fig. G.10); bulrush (*Scirpus* sp. Cyperaceae); goosegrass (*Eleusine indica* Poaceae); and purslane, or *verdolaga* (*Portulaca* sp. Portulacaceae) as well as two unidentified seed types (Type

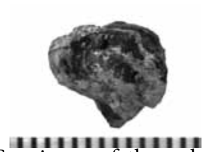

Figure G.4. Specimen of the palm family (Arecaceae) from the El Gaván site (B12) (×8) (scale in mm).

Figure G.5. Specimen tentatively identified as *guanábana* (cf. *Annona muricata* Annonaceae) from the El Gaván site (B12) (×8) (scale in mm).

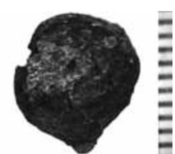

Figure G.6. Specimen tentatively identified as breadnut or *vaco*, *palo de vaca* or *ramón* (cf. *Brosimum* sp. Moraceae [Urticaceae]) from the El Gaván site (B12) (×8) (scale in mm).

Figure G.7. Specimen of *níspero* (*Manilkara* cf. *zapota* Sapotaceae) from the El Gaván site (B12) (×8) (scale in mm).

Figure G.8. Specimens tentatively identified as *moriche* (Venezuela) or *canangucha* (Colombia) (cf. *Mauritia* sp. Arecaceae) from the El Gaván site (B12) (scale in cm below).

6 and Type 18) (fig. G.11). All of these taxa are indicative of open disturbed areas and, particularly in the case of spurge and bulrush, of areas along watercourses or moist fields (Lentz and Dickau, 2005; Muenscher, 1980). However, other uses for some of these plants have been noted including yarrow, which can be used as a dye, for medicine and other purposes, and as a fragrance and plant for smoking (Antúnez de Mayolo, 1989; Moerman, 2000: 42–46); bulrush, whose tubers can be eaten (McClung de Tapia, 1992: 150–151; Moerman, 2000: 190–191); and purslane, which can be used as a potherb/quelite and may even have been cultivated and domesticated (Bye, 1981; McClung de Tapia, 1992: 162). Purslane is also used as forage for various types of animals, including turtles (*maracoya*). Bonzani (1995: 430) and Newsom and Pearsall (2003: 365; see also Newsom and Wing, 2004: 121) note its presence at Archaic sites, e.g., at Krum Bay, St. Thomas, Virgin Islands. Species of *Euphorbia* have also been noted as forage for animals (Bonzani, 1995: 84).

In addition to *moriche*, various genera of palms have been reported in Colombia and Venezuela (Bonzani, 1995: 414–416; Castañeda, 1965; Morcote Ríos et al., 1998; Pérez-Arbeláez, 1978; Pittier, 1970). Some of these extend back several thousand years prior to 9250 B.P. as indicated by the recovery of palm remains (*Astrocaryum* spp., *Attalea* spp., *Mauritia flexuosa*, *Oenocarpus* spp., and *Dieffenbachia* sp.) from the site of Peña Roja, located 50 km downstream from Araracuara in the Colombian Amazon (Mora, 2003: 113–129). Palm remains of *palma milpesso* (*Jessenia polycarpa*) have also been recovered at Araracuara in contexts dated to A.D. 530 (1420 ± 70 B.P.) (Herrera et al., 1992). Palm remains were also recovered in the Hato La Calzada de Paez region between the Ticoporo River and the Canaguá River in the western llanos of Venezuela at the site of Buenos Aires (BA-100) dated to the Caño Caroní complex at A.D. 1200–1400 (Garson, 1980: 286). These included *Aiphanes* sp., *Syagrus* sp., *Jessenia* sp., or *Scheelea* sp. (now recognized as a member of the genus *Attalea*; Henderson, 1995: 137), and *Syagrus sancona* (Garson, 1980: appendix 7, table 53). In the Colombian Amazon, palms flower from August to September and fruits mature from February to August (Henderson, 1995: 74). The palms bear their fruits from December to June (FAO, 1986) and ethnohistoric records indicate that indigenous groups (referred to as the Caquetío) from the sub-Andean valley of Barquisimeto to the llanos of the Orinoco Basin collected the fruits from April to July for food and oil (Rivero, 1956: 4–5, cited in Redmond and Spencer, 2007: 25). It may be that the seasonality of palm fruiting is not as highly defined as is found in some fruit tree families and further information on the season of fruiting for palms in the Colombian and Venezuelan llanos regions is necessary (Bonzani, 1995, 1998).

The fruit trees possibly identified from the remains at B12 also have numerous uses. *Guanábana* is well known for the sweet pulp of its fruit, which surrounds large black seeds and can be eaten and made into sorbet, sweets, and juices (Castañeda, 1965: 57–58, 1991: 39–41; Pittier, 1970: 245). The wood is traditionally used for making pipes for smoking (Pérez-Arbeláez, 1978: 182). Medicinally, the fruit is used to make a sorbefacient to cure renal disease and the leaves in decoction are used to cure chronic dysentery and diarrhea (García Barriga, 1992: 340–341).

The fragmented seed recovered at B12 allowed only a tentative identification, but the seed's width (6.2 mm frag. by 6.7 × 3.6 mm frag., L × W × Th) and lack of margins indicate that it is unlikely to be *chirimoya* (*Annona squamosa*), another fruit of this genus that is commonly eaten in Colombia and Venezuela. Archaeological macrobotanical remains of *guanábana* as well as *chirimoya* occur at sites all along on the coast of Peru from 1200–800 B.C. Its remains are abundant at Chanchan, Caracoles, Cerro la Virgin, and Choroval from A.D. 1000–1500. The lowlands are proposed for the area of origin for *guanábana* while *chirimoya* may have originated in the Ecuadorian/Peruvian

Andes (Pearsall, 1992; Ugent and Ochoa, 2006: 50). *Guanábana* is also indicated more specifically to have its origins in the humid tropics of the Caribbean and northern South America with its distribution accomplished by Amerindians into other tropical lowlands of the Americas (FAO, 1986: 33).

Informants from the Department of Bolívar, Colombia, revealed that the g*uanábana* tree has fruits in May. In Cartagena de Indias, early fruits for the season appeared in the market from Tulua in mid-April and the pulp was used to make a pastry for Easter week (Bonzani, 1995: 346). Data to date indicate that members of the Annonaceae family generally fruit during the shorter wet season at the end of the major dry season in northern Colombia in May (Bonzani, 1995: 119, 1998). Given that the western llanos of Venezuela usually have the same period of wet and dry seasons with a long dry season from December to at least March followed by a wet season of up to eight months, often with severe flooding from September through November (Garson, 1980: 69–70; Morey, 1975; Redmond and Spencer, 2007: 15; Spencer et al., 1994: 130), it may be possible to extrapolate the seasonality for the use of *guanábana* (provided the identification is correct) at the house mound in Area A at B12 to the beginning of the rainy season (i.e., April/May).

Níspero (*Manilkara zapota*; synonym, *Achras zapota*) is a fruit commonly eaten in northern South America. It also has medicinal uses, for instance, to make plasters for the inflammation of the liver; the seeds can be used as a diuretic, though this is not recommended, and the rind (*corteza*) is very astringent and is used for inflammations of the mucous membranes, especially of the nose and throat (Pittier, 1970: 327–328). Members of the genus are used to extract a gum or latex that can be used in chicle or chewing gum. The seeds in *horchata* (a sweet milky drink made with chufa nuts or almonds) are indicated to be the best at eliminating renal or hepatic stones. The fruits are also said to eliminate fats and cholesterol. It is also used in chronic enteritis and dysentery. The wood is noted to be excellent (FAO, 1986: 181; García Barriga, 1992, II: 366–368; Pérez-Arbeláez, 1978: 685–686).

The níspero seed recovered from B12 is smaller in size (9 × 5 × 3.5 mm, L × W × Th) than modern reference specimens, but again this may be due to the processes of carbonization or human selection through time for larger fruits and hence seeds. A close relative to *níspero*, the seed of *caimito* (*Chrysophyllum cainito*) is also commonly eaten in the region but is not represented by the carbonized seed recovered at the site because the hilum of the archaeological specimen is thinner and does not extend as far along the seed's length as would occur on *caimito*.

The area for the origins of *níspero* may be southern Mexico and Central America as the tree is native to the area and frequently found in house gardens (Newsom and Pearsall, 2003: 365; Ugent and Ochoa, 2006: 252–253). Seeds of possible *níspero* (sapodilla, *Manilkara* sp.) have been recovered from Archaic-age Caribbean island sites, although it has been noted that wild species native to Puerto Rico and the Virgin Islands (*Manilkara pleeana* [*acana*, *ausubo*, *zapote de costa*]) do occur on the islands (Newsom and Pearsall, 2003: 365, table 8.5). A necklace of the seeds of the tree was also recovered from the necropolis at Ancón, central Peru dated to the Late Intermediate Period (ca. A.D. 1300) (Ugent and Ochoa, 2006: 253).

Fruits of *níspero* were collected in the Department of Bolívar, Colombia, in early October and the end of December during the rainy season and beginning of the major dry season in this area (Bonzani, 1995: 436–437). Data collected to date indicate that members of the Sapotaceae family fruit generally at the beginning of the major dry season in northern Colombia in December and January (Bonzani 1995: 120, 1998). Given this information and the similarity for the timing of the beginning of the dry season in northern Colombia and Venezuela, it may be possible to extrapolate a time of seasonality for the use of *níspero* at the house mound in Area A at B12 to this time of year.

The tentative identification of breadnut (*vaco, palo de vaca*, or *ramón*) at B12 is based on the fragmented and highly deteriorated nature of the carbonized fruit recovered and, as well, its smaller size (11 × 8.5 × 7 mm, L × W × Th) than modern day samples of members of this genus (i.e., *Brosimum alicastrum*) found in Central America and southern Mexico (Lentz and Dickau, 2005: 57). The tree is found in humid environments on poor soils below 600 m in northern South America from Ecuador to Venezuela and is listed as part of the high, perennial, semideciduous and deciduous forests of the western Venezuelan llanos (Garson, 1980: table 5).

Vaco (or *palo de vaca*) (*Brosimum utile*) has very interesting ethnohistorically recorded uses as a plant whose latex can be drunk for nourishment without worry of poisoning, as noted by Humboldt during his travels in the forests of Bárbula in Venezuela (Humboldt, 1941: 156–166, cited in Castañeda, 1991: 88; Pittier, 1970: 325–326). A similar use is noted in Central America and southern Mexico where the latex is used as a milk replacement; the fruits and boiled seeds are also edible and the wood is used in construction (Lentz and Dickau, 2005: 57). The seeds are also toasted and eaten with salt and the fruits and branches sometimes serve as animal forage. On the Pacific coast of Colombia the latex is also mixed with *Couma macrocarpa* and eaten (Castañeda, 1991: 88). Pittier (1970: 345) noted that drinking the latex of the tree is actually for medicinal purposes to cure asthma and the cortex of the tree is also used to make fibers for basic goods.

From the site of Flor Amarilla (B17) only four mainly fragmented carbonized seeds were recovered. These have been tentatively identified to the mulberry family (cf. Moraceae) (table G.2). At this time little information in terms of the diversity of plant use or seasonality can be obtained for the site from this study.

Although the numbers of carbonized seeds/fruits at the site of El Recostón de La Tigra (B27) were small (N = 35, 0.3 g), eight families, seven genera, and three species were identified (table G.3). The diversity index at 0.94, with 1 indicating the highest diversity, again corroborates the results of the pollen analysis presented in Spencer et al. (1994), which concluded that indigenous peoples utilizing drained fields in Barinas in A.D. 550–1000 had diverse subsistence practices that included the cultivation of numerous crops besides maize. Interestingly, the recovered plant taxa identified at site B27 were very different from those found at the regional center (B12) except for the possible weedy species that normally invade disturbed landscapes. In fact, no fruit-tree remains were recovered from B27 except for the tentative exception of the oak family (cf. Fagaceae, possible remains, areas on the nut where the caps attach) and the types still to be identified. Both the pollen analysis (appendix C; Spencer et al., 1994) and this analysis identified maize (*Zea mays* Poaceae) (fig. G.12), quinoa (*Chenopodium* sp. Chenopodiaceae) (fig. G.13), and *espinaca* or *bleo* (Colombia) (*Talinum triangulare* Portulacaceae), mainly from Field A at B27. One carbonized grape, or *uva*, seed (*Vitis* sp. Vitaceae) (fig. G.14) was also recovered and this vine may have been cultivated in the area, though again the recovery of only one seed may indicate that it was wild and part of the general environmental background of the area, as is the case with spurge, goosegrass, and members of the bean and mint families (Fabaceae and Lamiaceae). Unfortunately, remains of four types or taxa (Types 25 through 28) (figs. G.15–G.18, also see fig. G.19 of remains tentatively identified as cf. Fagaceae) could not be identified at this time, but photos of these remains and measurements in the captions are included to assist with future research in the area.

Three fragments of maize kernels (0.1 g) were recovered from B27. Only two of these gave meaningful measurements though still fragmented (4.1 mm frag. × 5.0 × 2.0 mm frag.; 4.1 mm frag. × 4.3 × 3 mm frag., L × W × Th).

However, the specific variety or race from which these remains came could not be determined with certainty (see Grant et al., 1963, Roberts et al., 1957, for studies on the races of maize grown in Venezuela and Colombia). From the site of La Betania, located in the middle llanos of Barinas, three maize cobs of the Pollo race were recovered in Test Pit 2 (1.50 m DBS) and dated to 1820 ± 130 B.P. or A.D. 130 (Redmond and Spencer, 2007: 28; Wagner and Zucchi, 1966; Zucchi, 1973). A hearth at the Caño Caroní–complex (A.D. 1200–1400) site of Buenos Aires on Hato La Calzada in the lower llanos yielded the carbonized remains of maize (*Zea mays*), based on a preliminary identification (Garson, 1980: 286). The maize pollen obtained from the village of Potrero Urpianero (B26) and the La Tigra fields (B27) is indicated to be from an indigenous Yucatán variety that has pollen grains smaller in diameter than those of modern maize (appendix C). Pollo is a primitive race of maize believed to come from Colombia with kernel characteristics of 8.54 × 7.94 × 4.96 mm (L × W × Th) while the Yucatán race is not listed as a race that occurred in Venezuela in the 1963 study but is identified as a Colombian hybrid race in the 1957 study with kernel characteristics of 12.01 × 11.29 × 4.24 mm (L × W × Th). However, the Yucatán race was grown in the Orinoco Basin by indigenous groups in 1780 along with *amapito*, which is no longer listed either in the 1963 studies in Venezuela or the 1957 studies in Colombia, and with *cariaco*, which is listed and apparently still grown in Venezuela (Gilij, 1780, I: 195–196, cited in Patiño, 1964: 113). Further, both have similar average row numbers (Pollo with 10.0 and Yucatán with 10.8) (Grant, 1963; Roberts et al., 1957).

Maize has a number of growing cycles depending on its location. In the western llanos of Venezuela in areas with drained fields, ethnographic information on the drained fields at the La Tigra site (B27) indicates two crops per year can be grown while in other alluvial soils in the area only one crop per year can be grown (Redmond and Spencer, 2007: 187–190). From ethnobotanical

Figure G.9. Photo of scales on the surface of a specimen tentatively of *moriche* (Venezuela) or *canangucha* (Colombia) (cf. *Mauritia* sp. Arecaceae) from the El Gaván site (B12) (×8).

Figure G.10. Specimen tentatively identified to the poppy family (cf. Papaveraceae) from the El Gaván site (B12) (×12.5) (scale in mm).

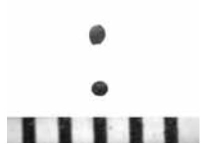

Figure G.11. Unidentified seed Type 18 (0.4 mm in diameter, surface smooth, slightly marginate, similar to seeds of vanilla [*Vanilla planifolia* Orchidaceae]) from the El Gaván site (B12) (×20) (scale in mm).

Figure G.12. Specimen of fragmented maize kernel (*Zea mays* Poaceae) from the drained fields of El Recostón de La Tigra (B27) (×10) (scale in mm).

Figure G.13. Specimen of *quinoa* (*Chenopodium* sp. Chenopodiaceae) from the drained fields of El Recostón de La Tigra (B27) (×16) (scale in mm).

Figure G.14. Specimen of grape or *uva* (*Vitis* sp. Vitaceae) from the drained fields of El Recostón de La Tigra (B27) (×10) (scale in mm).

Figure G.15. Unidentified seed Type 25 (3.5 frag. × 4 × 3.5 mm, L × W × Th, indentation at apex) from the drained fields of El Recostón de La Tigra (B27) (×10) (scale in mm).

Figure G.16. Unidentified Type 26 (probable carbonized fruit capsules, 5.2 × 3.6 × 3.6 mm, L × W × Th) from the drained fields of El Recostón de La Tigra (B27) (×10) (scale in mm).

Figure G.17. Unidentified seed Type 27 (3.3 × 4.3 × 2.2 mm, L × W × Th, surface smooth to slightly rugulose, no hilum scar visible, concave on both sides and slightly smaller at one end) from the drained fields of El Recostón de La Tigra (B27) (×10) (scale in mm).

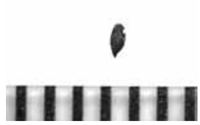

Figure G.18. Unidentified seed Type 28 (1.2 × 0.4 × 0.4 mm, L × W × Th, apiculate, surface verrulose, similar to seeds of trumpet tree or *guarumo* [*Cecropia peltata* Cecropiaceae [Urticaceae] but smaller in size) from the drained fields of El Recostón de La Tigra (B27) (×16) (scale in mm).

Figure G.19. Specimen tentatively identified to the oak or *roble* family (cf. Fagaceae) from the drained fields of El Recostón de La Tigra (B27) (×12.5) (scale in mm).

information from the Department of Bolívar in Colombia, where a bimodal distribution of rainfall occurs, the major crop of maize is planted in September before the heaviest rains begin and then harvested from December to January at the beginning of the dry season, when grasses are drying out. A second crop of maize can also be planted at the end of the dry season from March to May (usually in April) with the harvests occurring in June through August (usually in August) (Bonzani, 1995: 119, table 3.16, 1998). An almost identical planting cycle of maize is noted for indigenous groups near the town of Tenerife on the Magdalena River, Colombia, as recorded in 1580 (Tovar Pinzón, n.d.: 321). Ethnohistoric records indicate that in the llanos of Venezuela and Colombia a variety of maize with a very short growing season of two months (called *amapito*, *amapo*, *onona*, and also maize "*yaruro*") also had been cultivated in the past, possibly along the banks or on the beaches of rivers. The Yaruro are identified as a nomadic to seminomadic group prior to the 19th century who lived in the llanos of Apure and possibly Barraguán in close association with the Otomacos (Morey, 1975: 232, 266, 269). This variety of maize appears to have been utilized by the Otomacos and other groups in areas that were inundated for major parts of the year because it could grow in the short dry season from November to February (Acosta Saignes, 1961: 50, cited in Patiño, 1964: 113–114; Gumilla, 1963: 431; Morey, 1975: 46, 54). Moreover, this variety appears to be adapted to highly seasonal environments such as are found in the savannas/llanos of northern South America.

For information on numerous forms of preparation of maize in South America's equatorial countries including Ecuador, Colombia, and Venezuela, see Patiño (1990, I: appendix 1), Montes Giraldo and Rodriguez de Montes (1975: 109–131), and Cutler and Cárdenas (1981). In the Andes, several methods are utilized by peasants to prepare maize. These include boiling, boiling and drying, parching, soaking and drying, popping, milling, and brewing. Different varieties of maize are also utilized for various purposes including to make *chicha*, a fermented beverage (which can also be made from other products such as palm fruits, pineapple or *piña*, and manioc, or *yuca*) resembling beer or corn liquor in its stronger forms. In the Andes, not all peasant households make *chicha*, but women commonly specialize in brewing and selling *chicha* within the community (Gade, 1975:127–128, 1999).

Maize's origin is known to have occurred in Mesoamerica, most likely in the Balsas River drainage of central Mexico, and may have been selected for special care and development because of the attractive sweetness of the stalk and, later, for production of fermented beverages like *chicha* (Iltis, 2000; Smalley and Blake, 2003; Staller, 2010; also see Newsom, 2006). Evidence from pollen, starch grains, and phytoliths indicate that maize probably spread to northern South America and specifically Ecuador by at least 7000 years ago and possibly moved into the highland Andes regions through northern Colombia (Piperno and Pearsall, 1998: 158–163, 219–227). For further information on the multidisciplinary research on maize and its origins and distribution, see Staller et al. (2006) and Johannessen and Hastorf (1994). For information on macrobotanical remains of maize recovered from archaeological sites in Ecuador, Peru, Bolivia, and Chile in the Andes, see Bonzani and Oyuela-Caycedo (2006), D'Altroy and Hastorf (2001), Dillehay et al. (2007b), Hastorf (1990, 1993), Hastorf et al. (2006), Moore et al. (2007), Pearsall (1980, 2003, 2004, 2008), Planella and Tagle (2004), and Sánchez et al. (2004).

Three *quinoa*-like seeds (*Chenopodium* sp. Chenopodiaceae) were recovered from B27 (table G.3). *Quinoa* (*Chenopodium quinoa*) is a well-known crop currently grown in the Andes from elevations of 2770 to 3800 m. In parts of Peru the crop is sown broadcast in September, October, and November and ready for harvest in 150–180 days. A preference for the ashes of *quinoa* as a lime in coca chewing has been noted (Gade, 1975: 153–156). The use of *quinoa* extends back at least into the Formative period (by 1500 B.C.) in the Andes of Bolivia (Bruno and Whitehead, 2003) with another new morphological type recently identified from an archaeological site, La Barca, located in the Department of Oruro, Bolivia, dating to the Formative time period (1800 B.C.–A.D. 400) (Langlie et al., 2011; also see Bruno, 2005; Smith, 1984, 1992). Seeds of quinoa have been identified at archaeological sites in the Zaña Valley in Peru dated to 6000–4200 B.C. (Rossen et al., 1996), in the Early Horizon at Chiripa (1400–400 B.C.) (Whitehead, 1999), and at Ancón in the Late Intermediate Period (A.D. 900–1450) (Ugent and Ochoa, 2006: 101–105). For further information on archaeological sites with remains of *Chenopodium* see Pearsall (1992, 2008) and Piperno and Pearsall (1998).

CONCLUSION

This appendix has outlined the macrobotanical remains recovered from the sites of El Gaván (B12), Flor Amarilla (B17), and El Recostón de La Tigra (B27) (tables G.1–G.3). For the site of El Gaván (B12), 18 flotation samples, 32 hand-collected carbon samples, two hand-collected ceramic sherd samples, and two hand-collected semiburned daub samples were analyzed. These samples were associated with earthen mounds and other earthworks, living floors on low house mounds (Areas A, D), burials 6 and 7 (Area A), near the ramp of Mound A, Burial 8 (Mound A), a midden near the Area A house, and the area between mounds D and E. The total numbers of carbonized seeds/fruits recovered from B12 are 249 (7 g). In total from B12, 11 families, 10 possible genera, and three possible species were identified. Two unidentified plant taxa (types) as well as possible nutshell were also recovered (table G.1).

For the site of Flor Amarilla (B17), five flotation samples were analyzed from five different units at the site. The small size of the light fractions analyzed may account for the fact that only four carbonized seeds were recovered. No carbonized fragments of wood were recovered. In total from B17, only one tentatively identified family, that of cf. Moraceae, could be ascertained and little information concerning subsistence strategies at the site is available from this analysis (table G.2).

For the site of El Recostón de La Tigra (B27), seven flotation samples were analyzed. These samples represented one pollen column, two units from Field A, one unit from Field B, and two units from Field C. The total numbers of carbonized seeds/fruits recovered from Site B27 are 35 (0.3 g). Only one fragment of carbonized wood (< 0.1 g) was recovered. In total from B27, eight families, seven genera, and three species were identified. Four unidentified plant taxa (types) were also recovered (table G.3).

The macrobotanical remains from the site of El Gaván (B12) indicate a medium diversity of plants being utilized based on those recovered from this analysis. The medium diversity is due to the fact that remains of palm fruits, fruits from various trees, and weeds/herbs were all recovered from the site. No major crop plants were recovered and it appears that house gardens and/or *conucos* may have been utilized at the regional center to grow semidomesticated palms and fruit trees to supplement the inhabitants' diets. These results are very similar to those Spencer et al. (1994) reported for a pollen analysis of samples from El Recostón de La Tigra (B27) and a nearby third-order village site, Potrero Urpianero (B26), that is located along the *calzada* that runs from El Gaván and passes by the drained fields of El Recostón de La Tigra (B27). These results indicate the use of diversified agricultural subsistence strategies for indigenous llanos groups in the past (Spencer et al., 1994: 132).

Most of the macrobotanical remains recovered from B12 were from the house mound in Area A. The recovered macrobotanical remains, which were probably utilized at B12 for food and other purposes, included palms (Arecaceae) and the fruit trees of possible *guanábana* (cf. *Annona muricata* Annonaceae), possible breadnut, *vaco*, *palo de vaca*, or *ramón* (cf. *Brosimum* sp. Moraceae [Urticaceae]), and *níspero* (*Manilkara* cf. *zapota* Sapotaceae). Excavation at an elongated earthwork at B12 (T.176 0–20 cm) recovered two other palm fruits probably of *moriche* (Venezuela) or *canangucha* (Colombia) (cf. *Mauritia* sp. Arecaceae), although these may be in a desiccated state and may represent modern inclusions in the archaeological record. The other macrobotanical remains recovered from the site of B12 are probably indicative of weeds/herbs growing in the vicinity of the site during its occupation. These include spurge (*Euphorbia* sp. Euphorbiaceae); boneset (*Eupatorium* sp. Asteraceae); possible yarrow (cf. *Achillea* sp. Asteraceae); other members of the aster family (Asteraceae); members of the bean family (Fabaceae); possible members of the poppy family (cf. Papaveraceae); bulrush (*Scirpus* sp. Cyperaceae); goosegrass (*Eleusine indica* Poaceae); and purslane, or *verdolaga* (*Portulaca* sp. Portulacaceae). Ethnobotanical uses for these plants have been noted and these taxa are often indicative of open disturbed areas and areas near water (Lentz and Dickau, 2005; Muenscher, 1980; Pittier, 1970).

From the site of El Recostón de La Tigra (B27), a very high diversity of plants was recovered, which supports the findings of the pollen analysis (appendix C; Spencer et al., 1994) that concluded that indigenous peoples utilizing the drained fields from A.D. 550–1000 had diverse subsistence practices that included the cultivation of numerous crops besides maize. Both Rinaldi's pollen analysis and the present macrobotanical analysis identified maize (*Zea mays* Poaceae); quinoa (*Chenopodium* sp. Chenopodiaceae); and *espinaca*, or *bleo* (Colombia) (*Talinum triangulare* Portulacaceae), mainly from Field A at the site. One carbonized grape seed (*Vitis* sp. Vitaceae) was also recovered. Grapes may have been cultivated, but the specimen may also represent a wild plant, part of the general environmental background of the area, as was the case with spurge, goosegrass, and members of the bean and mint families (Fabaceae and Lamiaceae), also recovered from the site.

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TABLE G.1
Macrobotanical Remains from El Gaván (B12).

	Site						
	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván
Sample	318				314	319	375
Provenience	B12-531 T.181 Earthwork	B12-531 T.181 Earthwork	B12-486 T.176 Earthwork	B12-486 T.176 Earthwork	B12-572 Area B Oval earthwork	B12-601 Area B Oval earthwork	B12-643 Area A Burials 6–7
Location	N2007–2008/ E1824	N2007–2008/ E1824	N1844–1845/ E1944	N1844–1845/ E1944	C23	C26	N1966–1967.5/ E2010
Level	1	1	1	1	2		5
Depth	0.30–0.40 m DBS	0.30–0.40 m DBS	0–0.20 m DBS	0–0.20 m DBS	96.26–96.16 m	0–0.40 m DBS	97.27–97.17 m
Sample Type	Flotation	Carbon	Carbon	Carbon	Flotation	Flotation	Flotation
Total Light Fraction wt. (g)	3.9				3.6	5.7	0.7
Total Sample wt. (g)		59.8	5.4	0.1			
Wood > 2 mm no.	0	12	0	0	0	0	0
Wood > 2 mm wt. (g)	0	0.6	0	0	0	0	0
Annonaceae cf. *Annona muricata* Type 10							
Arecaceae Type 8							
Arecaceae							
Arecaceae cf. *Mauritia* sp. Type 15			2 (5.4)[5]				
Asteraceae Type 5	1						
Asteraceae cf. *Achillea* sp. Type 4	1					1	1
Asteraceae: *Eupatorium* sp. Type 13							
Cyperaceae: *Scirpus* sp. Type 3	1						
Euphorbiaceae: *Euphorbia* sp. Type 1	28				34	23	

Fabaceae (Leguminosae) Type 14							
Moraceae (Urticaceae) cf. *Brosimum* sp. Type 11							
cf. Papaveraceae Type 17							
cf. Poaceae Type 16							
Poaceae: *Eleusine indica* Type 2	2				1	2	
Portulacaceae: *Portulaca* sp. Type 12							
Sapotaceae: *Manilkara* cf. *zapota* Type 9							
Type 6	1						
Type 18							
Possible carbonized nutshell							
Totals	34	0	2 (5.4 g)	0	35	26	1
Shell				> 100[6]		1	
Insect > 1 mm	20				23	33	
Uncarbonized seeds > 1 mm	7800[1]				7200[1]	5700[1]	43
Carbonized leaf fragment						1	
Unidentified carbonized seed fragments							
Unidentified carbonized fragments		1					

TABLE G.1
Macrobotanical Remains from El Gaván (B12).
(Continued)

	Site						
	B12 Gaván	B12 Gaván	B12 Gaván[3]	B12 Gaván[3]	B12 Gaván	B12 Gaván	B12 Gaván
Sample						461	
Provenience	B12-644 Area A Burials 6–7	B12-492 T.173, Area A Burial 6	B12-493 T.173, Area A Burial 6	B12-493 T.173, Area A Burial 6	B12-493 T.173, Area A Burial 6	B12-768 Area A Burial 7	B12-491 T.173, Area A House mound
Location	N1966–1967.5/ E2010	N1966–1967/ E2011	N1966–1967/ E2011	N1966–1967/ E2011	N1966–1967/ E2011	N1966–1967/ E2011	N1966–1967/ E2011
Level	6	6	7	7	7		5
Depth	97.20–97.14 m	1.10–1.20 m DBS	1.20–1.40 m DBS	1.20–1.40 m DBS	1.20–1.40 m DBS	1.58 m DBS	0.80–1.00 m DBS
Sample Type	Carbon	Carbon	Carbon	Carbon	Carbon	Flotation	carbon
Total Light Fraction wt. (g)						2.2	
Total Sample wt. (g)	6.8	60.6	4.2	108	46.8		168.1
Wood > 2 mm no.	0	5	0	0	10	0	25
Wood > 2 mm wt. (g)	0	0.4	0	0	0.4	0	1.1
Annonaceae cf. *Annona muricata* Type 10							1 (0.1 g)
Arecaceae Type 8							3 (0.6 g)
Arecaceae							17 (0.5 g)
Arecaceae cf. *Mauritia* sp. Type 15							
Asteraceae Type 5							
Asteraceae cf. *Achillea* sp. Type 4							
Asteraceae: *Eupatorium* sp. Type 13							
Cyperaceae: *Scirpus* sp. Type 3							
Euphorbiaceae: *Euphorbia* sp. Type 1							

Fabaceae (Leguminosae) Type 14							
Moraceae (Urticaceae) cf. *Brosimum* sp. Type 11							
cf. Papaveraceae Type 17							
cf. Poaceae Type 16							
Poaceae: *Eleusine indica* Type 2							
Portulacaceae: *Portulaca* sp. Type 12							
Sapotaceae: *Manilkara* cf. *zapota* Type 9							2 (0.1 g)
Type 6							
Type 18							
Possible carbonized nutshell					2 (< 0.1 g)		
Totals	0	0	0	0	2 (< 0.1 g)	0	23 (1.3 g)
Shell							
Insect > 1 mm						12	
Uncarbonized seeds > 1 mm						73	
Carbonized leaf fragment							
Unidentified carbonized seed fragments							
Unidentified carbonized fragments							

TABLE G.1
Macrobotanical Remains from El Gaván (B12).
(Continued)

	Site						
	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván
Sample				299	288	464	464
Provenience	B12-491 T.173, Area A House mound	B12-491 T.173, Area A House mound	B12-491 T.173, Area A House mound	B12-499 T.177	B12-485 T.174 By ramp of Mound A	B12-753 T.183 Mound A, Burial 8	B12-753 T.183 Mound A, Burial 8
Location	N1966–1967/ E2011	N1966–1967/ E2011	N1966–1967/ E2011	N1975–1975/ E2020	N1858–1859/ E2011	N1774–1775/ E2161	N1774–1775/ E2161
Level	5	5	5	3	3	5	5
Depth	0.80–1.00 m DBS	0.80–1.00 m DBS	0.80–1.00 m DBS	0.40–0.60 m DBS	0.40–0.60 m DBS	0.90–1.00 m DBS	0.80–0.85 m DBS
Sample Type	Carbon	Carbon	Carbon	Carbon	Carbon	Flotation	Carbon
Total Light Fraction wt. (g)						0.9	
Total Sample wt. (g)	175.5	128.7	6.8	0.3	0.2		32.3
Wood > 2 mm no.	1	3	0	2	1	0	0
Wood > 2 mm wt. (g)	0.3	0.3	0	0.3	0.2	0	0
Annonaceae cf. *Annona muricata* Type 10							
Arecaceae Type 8							
Arecaceae							
Arecaceae cf. *Mauritia* sp. Type 15							
Asteraceae Type 5							
Asteraceae cf. *Achillea* sp. Type 4							
Asteraceae: *Eupatorium* sp. Type 13						1	
Cyperaceae: *Scirpus* sp. Type 3							
Euphorbiaceae: *Euphorbia* sp. Type 1						2	

Fabaceae (Leguminosae) Type 14							
Moraceae (Urticaceae) cf. *Brosimum* sp. Type 11		1 (0.2 g)					
cf. Papaveraceae Type 17							
cf. Poaceae Type 16							
Poaceae: *Eleusine indica* Type 2							
Portulacaceae: *Portulaca* sp. Type 12						1	
Sapotaceae: *Manilkara* cf. *zapota* Type 9							
Type 6							
Type 18							
Possible carbonized nutshell							
Totals	0	1 (0.2 g)	0	0	0	4	0
Shell							
Insect > 1 mm						12	
Uncarbonized seeds > 1 mm						113	
Carbonized leaf fragment							
Unidentified carbonized seed fragments							
Unidentified carbonized fragments							

TABLE G.1
Macrobotanical Remains from El Gaván (B12).
(Continued)

	Site						
	B12 Gaván	B12 Gaván[2]	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván
Sample	462	345		338	338	338	339
Provenience	B12-752 T.183 Burial 8	B12-540 Area A House floor, hearth	B12-540 Area A House floor, hearth	B12-536 Area A House floor	B12-536 Area A House floor	B12-536 Area A House floor	B12-537 Area A House floor
Location	N1774–1775/ E2161	N1966/E2012	N1966/E2012	N1965/E2010	N1965/E2010	N1965/E2010	N1965/E2012
Level	4	2	2	2	2	2	2
Depth	0.80–0.85 m DBS	97.52–97.42 m	97.52–97.42 m	97.51–97.41 m	97.51–97.41 m	97.51–97.41 m	97.52–97.43 m
Sample Type	Flotation	Flotation	Carbon	Flotation	Carbon	Carbon	Flotation
Total Light Fraction wt. (g)	1.8	1.5		1.1			2.3
Total Sample wt. (g)			1.1		251.6	139.9	
Wood > 2 mm no.	0	0	0	0	6	0	1
Wood > 2 mm wt. (g)	0	0	0	0	0.5	0	< 0.1
Annonaceae cf. *Annona muricata* Type 10							
Arecaceae Type 8							
Arecaceae							
Arecaceae cf. *Mauritia* sp. Type 15							
Asteraceae Type 5		4					
Asteraceae cf. *Achillea* sp. Type 4				1			1
Asteraceae: *Eupatorium* sp. Type 13							
Cyperaceae: *Scirpus* sp. Type 3							
Euphorbiaceae: *Euphorbia* sp. Type 1		5		1			17

Fabaceae (Leguminosae) Type 14							
Moraceae (Urticaceae) cf. *Brosimum* sp. Type 11							
cf. Papaveraceae Type 17							
cf. Poaceae Type 16							
Poaceae: *Eleusine indica* Type 2		1		1			3
Portulacaceae: *Portulaca* sp. Type 12							
Sapotaceae: *Manilkara* cf. *zapota* Type 9							
Type 6							
Type 18							
Possible carbonized nutshell							
Totals	0	10	0	3	0	0	21
Shell							1
Insect > 1 mm	5	29		12	2		7
Uncarbonized seeds > 1 mm	10	184		111			167
Carbonized leaf fragment							
Unidentified carbonized seed fragments							
Unidentified carbonized fragments		1		4[4]		2	42[4]

TABLE G.1
Macrobotanical Remains from El Gaván (B12).
(Continued)

	Site						
	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván
Sample	339	344	344	280	280	360	360
Provenience	B12-537 Area A House floor	B12-504 Area A House floor	B12-504 Area A House floor	B12-479 T.173, Area A House floor	B12-479 T.173, Area A House floor	B12-624 Area A Storage annex?	B12-624 Area A Storage annex?
Location	N1965/E2012	N1967/E2010	N1967/E2010	N1966–1967/ E2011	N1966–1967/ E2011	N1965/E2015	N1965/E2015
Level	2	1	1	2	2	1	1
Depth	97.52–97.43 m	97.63–97.42 m	97.63–97.42 m	0.20–0.40 m DBS	0.20–0.40 m DBS	97.54–97.43 m	97.54–97.43 m
Sample Type	Carbon	Flotation	Carbon	Carbon	Carbon	Flotation	Carbon
Total Light Fraction wt. (g)		3.2				2.2	
Total Sample wt. (g)	0.4		1.9	12.5	64.9		76.6
Wood > 2 mm no.	0	0	5	17	137	4	6
Wood > 2 mm wt. (g)	0	0	0.2	0.7	6.9	< 0.1	0.7
Annonaceae cf. *Annona muricata* Type 10							
Arecaceae Type 8							
Arecaceae							
Arecaceae cf. *Mauritia* sp. Type 15							
Asteraceae Type 5							
Asteraceae cf. *Achillea* sp. Type 4						1	
Asteraceae: *Eupatorium* sp. Type 13							
Cyperaceae: *Scirpus* sp. Type 3						1	
Euphorbiaceae: *Euphorbia* sp. Type 1		3				8	

Fabaceae (Leguminosae) Type 14		1					
Moraceae (Urticaceae) cf. *Brosimum* sp. Type 11							
cf. Papaveraceae Type 17							
cf. Poaceae Type 16							
Poaceae: *Eleusine indica* Type 2		3					
Portulacaceae: *Portulaca* sp. Type 12		1					
Sapotaceae: *Manilkara* cf. *zapota* Type 9							
Type 6							
Type 18							
Possible carbonized nutshell							
Totals	0	8	0	0	0	10	0
Shell							
Insect > 1 mm		24				16	1
Uncarbonized seeds > 1 mm		168				124	1
Carbonized leaf fragment							
Unidentified carbonized seed fragments							
Unidentified carbonized fragments		13					

TABLE G.1
Macrobotanical Remains from El Gaván (B12).
(Continued)

	Site						
	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván
Sample	360	400	403	414	382	333	18
Provenience	B12-624 Area A Storage annex?	B12-701 Area D House floor	B12-702 Area D House floor	B12-703 Area D House floor	B12-699 Area D House floor	B12-535 Area D House floor	B12-112 T.9 Midden by Mound A ramp
Location	N1965/E2015	N1976/E1890	N1975/E1890	N1975/E1889	N1975/E1891	N1973/E1891	N1856–1857/ E2153
Level	1	2	2	2	1	1	1
Depth	97.54–97.43 m	97.17–97.10 m	97.14–97.09 m	97.13–97.02 m	97.21–97.11 m	97.27–97.14 m	0–0.20 m DBS
Sample Type	Carbon	Flotation	Flotation	carbon	Flotation	Flotation	2 sooted sherds
Total Light Fraction wt. (g)		0.7	1		3.8	3.3	
Total Sample wt. (g)	3.8			1.1			16.1
Wood > 2 mm no.	0	0	0	1	0	0	0
Wood > 2 mm wt. (g)	0	0	0	< 0.1	0	0	0
Annonaceae cf. *Annona muricata* Type 10							
Arecaceae Type 8							
Arecaceae							
Arecaceae cf. *Mauritia* sp. Type 15							
Asteraceae Type 5							
Asteraceae cf. *Achillea* sp. Type 4							
Asteraceae: *Eupatorium* sp. Type 13							
Cyperaceae: *Scirpus* sp. Type 3						4	
Euphorbiaceae: *Euphorbia* sp. Type 1			3		33	16	

Fabaceae (Leguminosae) Type 14							
Moraceae (Urticaceae) cf. *Brosimum* sp. Type 11							
cf. Papaveraceae Type 17						1	
cf. Poaceae Type 16						2	
Poaceae: *Eleusine indica* Type 2						1	
Portulacaceae: *Portulaca* sp. Type 12							
Sapotaceae: *Manilkara* cf. *zapota* Type 9							
Type 6							
Type 18						3	
Possible carbonized nutshell							
Totals	0	0	3	0	33	27	0
Shell							
Insect > 1 mm		15	22		70	9	
Uncarbonized seeds > 1 mm		20	112		162	57	
Carbonized leaf fragment							
Unidentified carbonized seed fragments					7		
Unidentified carbonized fragments						1	

TABLE G.1
Macrobotanical Remains from El Gaván (B12).
(Continued)

	Site						
	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván
Sample	36	283	285	437	381	307	463
Provenience	B12-132 T.19 Between Mounds D & E	B12-474 T.171 Midden by Area A	B12-475 T.171 Midden by Area A	B12-721 T.182	B12-694 T.179 By Area D	B12-518 T.178 By Area A	B12-761 T.184 Mound A
Location	N2130–2131/ E1776	N1962–1963/ E1991	N1962–1963/ E1991	N2029–2030/ E1824	N1970–1971/ E1887	N1962–1963/ E2024	N1784–1785/ E2169
Level	3	5	6	1	2	3	2
Depth	0.40–0.60 m DBS	0.80–1.00 m DBS	1.00–1.20 m DBS	0–0.30 m DBS	0.20–0.40 m DBS	0.40–0.60 m DBS	0.20–0.40 m DBS
Sample Type	1 sooted sherd	Carbon	Carbon	Flotation	Flotation	Carbon	Carbon
Total Light Fraction wt. (g)				1.9	1.3		
Total Sample wt. (g)	4.9	157.9	101.2			7.3	68
Wood > 2 mm no.	0	26	7	0	0	16	40
Wood > 2 mm wt. (g)	0	5	1.2	0	0	1.9	2.4
Annonaceae cf. *Annona muricata* Type 10							
Arecaceae Type 8							
Arecaceae							
Arecaceae cf. *Mauritia* sp. Type 15							
Asteraceae Type 5							
Asteraceae cf. *Achillea* sp. Type 4							
Asteraceae: *Eupatorium* sp. Type 13							
Cyperaceae: *Scirpus* sp. Type 3							
Euphorbiaceae: *Euphorbia* sp. Type 1					5		

Fabaceae (Leguminosae) Type 14							
Moraceae (Urticaceae) cf. *Brosimum* sp. Type 11							
cf. Papaveraceae Type 17							
cf. Poaceae Type 16							
Poaceae: *Eleusine indica* Type 2					1		
Portulacaceae: *Portulaca* sp. Type 12							
Sapotaceae: *Manilkara* cf. *zapota* Type 9							
Type 6							
Type 18							
Possible carbonized nutshell							
Totals	0	0	0	0	6	0	0
Shell							
Insect > 1 mm				24	10		
Uncarbonized seeds > 1 mm				61	78		
Carbonized leaf fragment							
Unidentified carbonized seed fragments							
Unidentified carbonized fragments							

TABLE G.1
Macrobotanical Remains from El Gaván (B12).
(Continued)

	Site					
	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván	B12 Gaván	Totals
Sample	463	463	463			
Provenience	B12-761 T.184 Mound A	B12-761 T.184 Mound A	B12-761 T.184 Mound A	B12-492 T.173, Area A	B12-761 T.184	
Location	N1784–1785/ E2169	N1784–1785/ E2169	N1784–1785/ E2169	N1966–1967/ E2011	N1784–1785/ E2169	
Level	2	2	2	6	2	
Depth	0.20–0.40 m DBS	0.20–0.40 m DBS	0.20–0.40 m DBS	1.00–1.20 m DBS	0.20–0.40 m DBS	
Sample Type	Carbon	Carbon	Carbon	Semiburned daub	Semiburned daub	
Total Light Fraction wt. (g)						41.1
Total Sample wt. (g)	29.3	18.4	2.7	313	1330	3406.2
Wood > 2 mm no.	11	3	8	0	1	224
Wood > 2 mm wt. (g)	7.7	0.4	0.2	0	< 0.1	31.8
Annonaceae cf. *Annona muricata* Type 10						1 (0.1 g)
Arecaceae Type 8						3 (0.6 g)
Arecaceae						17 (0.5 g)
Arecaceae cf. *Mauritia* sp. Type 15						2 (5.4)
Asteraceae Type 5						5
Asteraceae cf. *Achillea* sp. Type 4						6
Asteraceae: *Eupatorium* sp. Type 13						1
Cyperaceae: *Scirpus* sp. Type 3						6
Euphorbiaceae: *Euphorbia* sp. Type 1						178
Fabaceae (Leguminosae) Type 14						1

Moraceae (Urticaceae) cf. *Brosimum* sp. Type 11							1 (0.2 g)
cf. Papaveraceae Type 17							1
cf. Poaceae Type 16							2
Poaceae: *Eleusine indica* Type 2							15
Portulacaceae: *Portulaca* sp. Type 12							2
Sapotaceae: *Manilkara* cf. *zapota* Type 9							2 (0.1 g)
Type 6							1
Type 18							3
Possible carbonized nutshell							2 (< 0.1)
Totals	0	0	0	0	0		249 (7 g)
Shell							> 102
Insect > 1 mm							346
Uncarbonized seeds > 1 mm							22,184
Carbonized leaf fragment							1
Unidentified carbonized seed fragments							7
Unidentified carbonized fragments							64

[1] Calculated with the formula 200 seeds/ 200 seed weight = *x*/total sample weight.
[2] Possible mixed sample with flot 375. Both bags marked flot 345.
[3] Contained material probably of some type of laminated limestone plaster.
[4] Possible small animal feces.
[5] Fruits appear to be in a semi-carbonized or dessicated state.
[6] Numerous shell fragments present.
[7] Tentative identification.
[8] Burnt bone fragments.

TABLE G.2
Macrobotanical Remains from Flor Amarilla (B17).

	Site					Totals
	B17 Flor Amarilla	B17 Flor Amarilla	B17 Flor Amarilla	B17 Flor Amarilla	B17 Flor Amarilla	
Sample	598	596	601	605	607	
Provenience	B17-874 T.204	B17-877 T.205 Nearly black deposit	B17-921 T.206	B17-888 T.207 Black clay-sand deposit	B17-879 T.208	
Location	N2260–2261/E1934	N2191–2192/E1972	N2140–2141/E1959	N2071–2072/E1995	N1960–1961/E1945	
Level	2	2	1	2	2	
Depth	0.20–0.40 m DBS	0.20–0.40 m DBS	0–0.20 m DBS	0.20–0.40 m DBS	0.20–0.40 m DBS	
Sample Type	Flotation	Flotation	Flotation	Flotation	Flotation	
Total Light Fraction wt. (g)	0.5	0.4	0.3	0.5	0.2	1.9
Total Sample wt. (g)						
Wood > 2 mm no.	0	0	0	0	0	0
Wood > 2 mm wt. (g)	0	0	0	0	0	0
cf. Moraceae (Urticaceae) Type 7	4					4
Totals	4	0	0	0	0	4
Insect > 1 mm	8	41	4	3	9	65
Uncarbonized seeds > 1 mm	6	3	18	8	6	41
Unidentified carbonized fragments	1		1			2

TABLE G.3
Macrobotanical Remains from El Recostón de La Tigra (B27).

	Site							
	B27 El Recostón de La Tigra	B27 El Recostón de La Tigra	B27 El Recostón de La Tigra	B27 El Recostón de La Tigra	B27 El Recostón de La Tigra	B27 El Recostón de La Tigra	B27 El Recostón de La Tigra	Totals
Sample	478	479	481	489	484	480	493	
Provenience	B27-770 T.186 Field C	B27-772 T.185 Field A	B27-774 T.185 Field A	B27-803 T.188 Field B	B27-800 T.187 Field C	B27-773 T.186 Field C	B27-787 T.193, Area F Field A	
Square	N2088–2089/ E2054	N2027–2028/ E2013	N2027–2028/ E2013	N1944–1945/ E2037	N1966–1967/ E2137	N2088–2089/ E2054		
Level	2	3	4	3	2	3	1	
Depth	0.20–0.40 m DBS	0.40–0.60 m DBS	0.60–0.80 m DBS	0.40–0.60 m DBS	0.20–0.40 m DBS	0.40–0.60 m DBS	0–0.20 m DBS	
Sample Type	Flotation	Flotation	Flotation	Flotation	Flotation	Flotation	Flotation	
Total Light Fraction wt. (g)	2.1	2.1	6.4	2.3	5.5	0.3	1.6	20.3
Total Sample wt. (g)								
Wood > 2 mm no.	0	0	0	0	1	0	0	1
Wood > 2 mm wt. (g)	0	0	0	0	0.1	0	0	0.1
Chenopodiaceae: *Chenopodium* sp. Type 19	3							3
Euphorbiaceae: *Euphorbia* sp. Type 1	2[1]							2
Fabaceae (Leguminosae) Type 14			2					2
cf. Fagaceae Type 24			2					2
Lamiaceae (Labiatae) Type 23			2					2
Poaceae: *Eleusine indica* Type 2	2						2	4
Poaceae: *Zea mays* Type 20			3 (0.1 g)					3 (0.1 g)

TABLE G.3
Macrobotanical Remains from El Recostón de La Tigra (B27).
(Continued)

	Site							
	B27 El Recostón de La Tigra	B27 El Recostón de La Tigra	B27 El Recostón de La Tigra	B27 El Recostón de La Tigra	B27 El Recostón de La Tigra	B27 El Recostón de La Tigra	B27 El Recostón de La Tigra	Totals
Sample	478	479	481	489	484	480	493	
Portulacaceae: *Portulaca* sp. Type 12	1							1
Portulacaceae: *Talinum triangulare* Type 22			1					1
Vitaceae: *Vitis* sp. Type 21			1					1
Type 25			3 (0.1 g)					3 (0.1 g)
Type 26			3 (0.1 g)					3 (0.1 g)
Type 27			5					5
Type 28					2		1	3
Totals	8	0	22 (0.3 g)	0	2	0	3	35 (0.3 g)
Shell					1			1
Insect > 1 mm	9	23	26	4	13	4	19	108
Bone		4[2]						4
Uncarbonized seeds > 1 mm	56	20	9	27	50	10	28	200
Possible carbonized fruit fragment			1					1
Unidentified carbonized fragments			1					1

Diversity Index is 0.94, with 1 being the highest diversity.
[1] Tentative identification.
[2] Burnt bone fragments.

A Pre-Hispanic Chiefdom in Barinas, Venezuela: Excavations at Gaván-Complex Sites (2 vols.)
Charles S. Spencer and Elsa M. Redmond
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On the cover: Aerial view of the Late Gaván phase (A.D. 550–1000) regional center of El Gaván (B12), looking northwest. The occupation is circumscribed by an oval-shaped earthen causeway (*calzada*) measuring 950 m by 470 m, the northern half of which is especially visible due to travel by contemporary inhabitants of the area. Also visible is the largest mound (Mound A) at the site's southeastern end, and the intersite calzada that approaches the site from the southeast.

“the volume serves as a model of what archaeologists should be doing in the way of data presentation and analysis, and in the documentation of major field programs”

—David G. Anderson, University of Tennessee

“Spencer and Redmond have carried out a wonderful analysis of a chiefdom, excavating not only the dominant large village that housed the chief and his supporters but also a sample of subordinate sites”

—Joyce Marcus, University of Michigan

Between 1983 and 1992, the authors conducted an archaeological project that aimed to investigate the emergence of prehistoric chiefdoms in the llanos (savanna grasslands) of Barinas, Venezuela. This monograph presents the full results of excavations at six sites of the Gaván complex, divided into the Early Gaván phase (A.D. 300-550) and the Late Gaván phase (A.D. 550-1000). During the Late Gaván phase, the region exhibited several characteristics of a chiefdom: a three-tier regional settlement hierarchy, at the apex of which was B12, the region’s largest site (at 33 ha), with the most massive earthen mounds; regional integration (manifested by a network of earthen causeways that connected B12 to subsidiary villages); pervasive social inequality (evidenced by marked differences between individual burials, between households, and between residential sectors of sites); prestige-good exchange (shown by the distribution of imported goods); and evidence of warfare, especially at the regional center of B12. Comparing the Early Gaván phase to the Late Gaván phase, the authors assess several explanatory models of chiefdom formation. The empirical results support those models that highlight local resource control, population growth, and warfare, all of which figured importantly in the initial appearance of chiefdom organization in this region around A.D. 550.

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