

UPLAND LAMAR, VINING, AND CARTERSVILLE: AN INTERIM REPORT FROM RACCOON RIDGE

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More than three years ago the new Fernbank Museum of Natural History in Atlanta initiated a long-term public archaeology program of field research at what is now known as Raccoon Ridge in eastern Georgia. Raccoon Ridge is a large, multicomponent site in the inter-riverine piedmont uplands several miles west of the Oconee River. The site, covering in excess of 2 ha (more than five acres), displays sporadic evidence for human occupation extending from the Early Archaic period to the nineteenth century. At first glance, this seemed largely undistinguishable from the many thousands of documented and projected small upland habitation sites dating to the late prehistoric-early historic Lamar period in this portion of the Georgia piedmont (Kowalewski and Hatch 1991; Hatch 1995). Since then, however, continuing archaeological research has revealed that Raccoon Ridge is substantially larger than most upland sites in this area; in fact it is a remarkable storehouse of archaeological information regarding not one but several prehistoric cultures. One of these—the Early Mississippian period Vining phase—has only recently been explored in depth by archaeologists, and has until quite recently remained poorly understood and somewhat controversial in its chronology and cultural affiliations (Elliott and Wynn 1991). The initiation of a public archaeology program of research, education, and exhibition has made possible not only the scientific investigation of this site as an example of prehistoric upland settlement in the Oconee River valley, but also education and participatory training about Georgia archaeology and prehistory for many interested members of the general public.

As a project incorporating both research and public education,

Raccoon Ridge

Fernbank investigations at Raccoon Ridge have no predetermined timetable with respect to report production or project completion. The publication of a “final” report compiling all data and conclusions may not occur for many years, resulting in the year-to-year accumulation of unpublished data that would remain largely inaccessible to other researchers. Consequently, a series of occasional interim reports will serve to provide updates on current progress and provisional interpretations and conclusions. Some of these tentative conclusions will undoubtedly be modified or rejected with further work in the field and lab. But the timely publication of research data from Raccoon Ridge should foster discussion and comparison among researchers.

My intention in this first interim report is threefold: first, to provide a brief summary of Fernbank's archaeological research and education programs at Raccoon Ridge; second, to present preliminary data and findings resulting from field and lab work conducted to date; and third, to outline questions guiding current research at Raccoon Ridge in anticipation of future reports.

The site was first discovered by the landowner in 1992 following bulldozer operations preliminary to planting pines, when pottery and projectile points were found scattered across the exposed surface. Following an examination of these finds at Fernbank Museum, a preliminary visit in 1993 confirmed the expected (and locally typical) diagnostic Lamar ceramics and Middle Archaic spear points, and also a substantial Vining phase component extending for several hundred meters across the terrace comprising the site. Subsequent agreements resulted in the initiation of long-term research and education using the privately-owned site as a focus of directed study.

Investigations between 1993 and 1995 have involved topographic mapping, limited surface survey, test and block excavation, and small-scale mechanical stripping using a tractor with a road-scraping blade. All activities have been carried out under the supervision of a professional staff archaeologist (the author), and the regular participation of students, interns, and registered volunteers of all ages in virtually every phase of the project (Figure 1). Formal adult short-courses, involving classroom sessions and weekend fieldwork, have been supplemented by week-long summer programs for Middle and High School students. To date (the end of 1995), more than 150 students, from fifth-graders to retirees, have participated in structured public

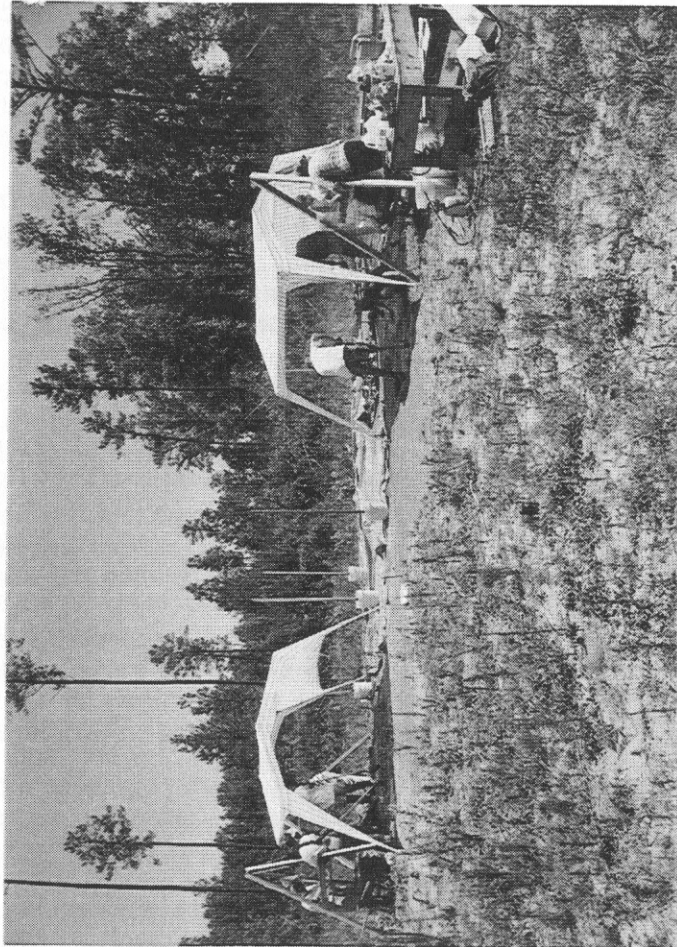


Figure 1. Students and volunteers performing test excavations at Raccoon Ridge.

programs at Fernbank Museum, and have taken part in archaeological field and lab investigations at Raccoon Ridge. Many students have subsequently registered as archaeology volunteers, and regularly participate in research and public education programs. One particularly successful dimension of the Fernbank program has involved Sunday afternoon informal open-houses in archaeology for Museum visitors, during which children and parents wash pottery and view displays and videos from the site. At Raccoon Ridge, students and volunteers have been involved in transit work, controlled surface-survey, test excavation and sifting, water screening, profile and plan view mapping, and, depending on experience and skill, posthole and small feature excavation. Laboratory work, including artifact washing, sorting, labeling, and analysis, has been carried out by high-school, undergraduate, and graduate interns and temporary staff. Several volunteers have gone on to pursue undergraduate and graduate-level study in archaeology and anthropology, and a few have also subsequently worked in local cultural resource management firms.

Three years of public archaeology at Fernbank have demonstrated that the combination of research and public education requires considerable logistical support and a markedly slower pace for field and lab investigations. Yet the benefits far outweigh any limitations. Non-professional students are capable of carrying out a wide range of archaeological field techniques with supervision. Scientific rigor need not be sacrificed in public archaeology. Ultimately, public participation builds a constituency for archaeology as a discipline, and it brings the results of archaeology home to the broader audience for whom archaeology ought more commonly to be directed.

PHYSICAL SETTING AND NATURAL RESOURCES

The Raccoon Ridge site (9MG271) is located on a broad, level terrace along an upland ridge roughly 10 km in straight-line distance from the Oconee River. It is more than 500 m from the nearest substantial creek-bottom floodplain. Though not situated precisely at the ridge crest between major tributaries of the Oconee River, Raccoon Ridge is midway along a ridge formed by two small, un-named streams in the watershed of a tributary of the nearest major creek. The position of the site within this minor watershed reflects a balance between topographic and hydrologic

factors, or more specifically between level land and the availability of fresh water. Raccoon Ridge was the largest contiguous area of level land in this minor watershed with a reliable and nearby source of running water (50-100 meters away). Other factors presumably figured in the attractiveness of Raccoon Ridge, including soil characteristics (influencing forest cover and food resources, as well as agricultural productivity), and locally-available lithic resources.

Raccoon Ridge is underlain by a typical piedmont bedrock consisting of several varieties of gneiss (Watson 1984). The saprolitic clay deposits overlying this deeper bedrock contain the weathered remnants of quartz, feldspar, and other resistant minerals originally within the gneiss matrix. These materials increase in abundance and size with depth below the modern ground surface and proximity to bedrock. Soil Conservation Service maps indicate that Raccoon Ridge surface soils fall within the Lloyd series designation: "deep, well-drained soils that have a brown or reddish-brown sandy loam surface layer and red to dark-red clay and clay loam subsoil" (Payne 1965:15). The Lloyd clay loam soils at the site have a reddish-brown to weak-red clay loam plow zone some 4 to 7 inches (10-18 cm) thick depending on slopes, which range from 2% to as much as 10%. Underlying soils are, broadly, red to dark-red clay to clay loam between 17 and 60 inches (43-152 cm) thick. Lloyd soils are moderately permeable and have medium available moisture capacity, with a severe risk of erosion from rapid surface runoff, particularly in areas lacking ground cover. With pH levels of 5.1 to 5.5, Lloyd soils are medium or strongly acid. Soil samples analyzed for Oxidizable Carbon Ratio (OCR) dating confirm that Raccoon Ridge soils are indeed acidic, with pH levels ranging between 4.8 and 5.6, though most commonly around 4.8 or 4.9 in subsurface features (Douglas Frink, personal communication, 1995). The acidity incidentally accounts for the extremely poor preservation of un-charred faunal materials, and the virtual lack of food bone. Even in the twentieth century, however, these upland piedmont soils are apparently capable of producing just as much corn per acre as floodplain soils, although upland soils are replenished only by nutrients from tree vegetation, resulting in more rapid soil exhaustion, and the need for long-fallow shifting cultivation (see Kowalewski and Hatch 1991:12-13).

The present-day soils at Raccoon Ridge reflect more than 150 years of intensive agricultural activity, the almost complete loss of original topsoil layers due to late nineteenth- and early twentieth-

century erosion, and the near-total exhaustion of the soil's presumed natural fertility of prehistoric times (e.g. Trimble 1974; Kowalewski and Hatch 1991:12-13). Beginning after the 1807 Georgia land lottery, when this land was granted for private ownership, the previously intact prehistoric deposits blanketing the site were dissected and churned by mule-drawn plows, truncating a significant proportion of the horizontal cultural deposits, including the upper fill of most subsurface pits extending down into the sterile clay subsoil. Periodic sheet erosion across the exposed site resulted in the loss of organic humus and topsoil. The gradual mechanical erosion of clays in active agricultural fields presumably led to decreases in the surface elevation (and thus deeper cuts for plows). By the time the site was left fallow during the twentieth century, permitting forest growth, only a small part of the archaeological deposits remained untouched. Although the sandy plow zone blanketing virtually all of the site contains many prehistoric artifacts, all hope of recovering evidence for their vertical stratigraphic context has been lost.

The saprolitic clays underlying Raccoon Ridge were presumably unsuitable for pottery manufacture. Architectural daub was probably mined directly at the site. Minor alluvial deposits immediately downstream include layers of fine-grained, gray-blue clay that would have been ideal for potters. Lithic resources at the site itself include naturally-occurring vein quartz, which seems to have been exploited at various times in prehistory for tool manufacture, and granitic gneiss, which in at least one case was used for the base of a grinder. The occasional intact quartz crystals and crystalline quartz flakes may suggest a natural presence at the site, although these items may have been brought in by people. Crystal cubes of limonite (chemically-weathered from pyrite) are also found occasionally, but it is unclear whether these formations occur naturally in this area or whether the material was imported.

A diabase dike crops out along the ridge crest above the site. Rounded nodules and boulders of this metavolcanic material litter the surface of the ground on the hilltop less than 500 meters from the site. Waste material in the form of diabase flakes, spalls, and shatter is scattered across the site, and two broken diabase celts have been recovered from the surface. The general lack of other raw materials, such as greenstone, for ground stone tools, suggests that the local diabase outcrop was the primary source of fine-grained metavolcanic stone. The aboriginal export or trade of this local diabase is a possibility, as noted below.

STATUS OF INVESTIGATIONS

This interim report is based on a necessarily limited and incomplete data base, since the Raccoon Ridge project is a long-term, ongoing program. As of 1995, topographic mapping has only covered the primary sections of the exposed area (i.e. those areas under direct investigation). The map shown in Figure 2 will eventually be expanded along the margins as the project continues. Furthermore, less than half of the site's projected 2 ha has been subjected to controlled surface collection, since limitations on time and labor in the spring and summer of 1993 did not permit placing stakes and grid strings in all areas. Soon, rapid vegetative growth obscured visibility in the clearcut, making further controlled surface collections impossible. Nevertheless, important information has been learned from the horizontal distribution of ceramic types in the areas indicated in the ceramic density map (Figure 2, see below). Less than 5% of the entire site has been tested through excavation or mechanical stripping. Many small subsurface features (postholes and occasional tree-root stains) still await excavation (see Figure 3). Despite these limitations, a great deal has been learned about the prehistoric human occupation. A preliminary overview of these current results reveals not only the tremendous amount of information already learned, but also the remarkable potential for further discoveries with future work. Though the site has been subjected to some of the most intensive modern agricultural activities and consequent erosion in Georgia's piedmont uplands, Raccoon Ridge, like other upland sites in the Oconee River valley, promises to make a considerable contribution to the regional archaeological record.

The master grid for the site is laid out along the cardinal directions. Iron re-bars have been placed at 10 m intervals across the mapped area. Elevations have been taken at 5 m intervals. These 5 x 5 m squares served as units for controlled surface collection, within which all artifacts visible on the surface were collected and bagged. Since the experience of collectors and surface visibility varied, and since collection was not timed, artifact recovery in these surface collections must be considered an unsystematic measure of the artifact density of subsurface deposits. Artifact weight and count comparisons (particularly with easily-visible potsherds) are a rough measure of the horizontal distribution of artifacts (Figure 2). Presence/absence measures for diagnostic artifacts

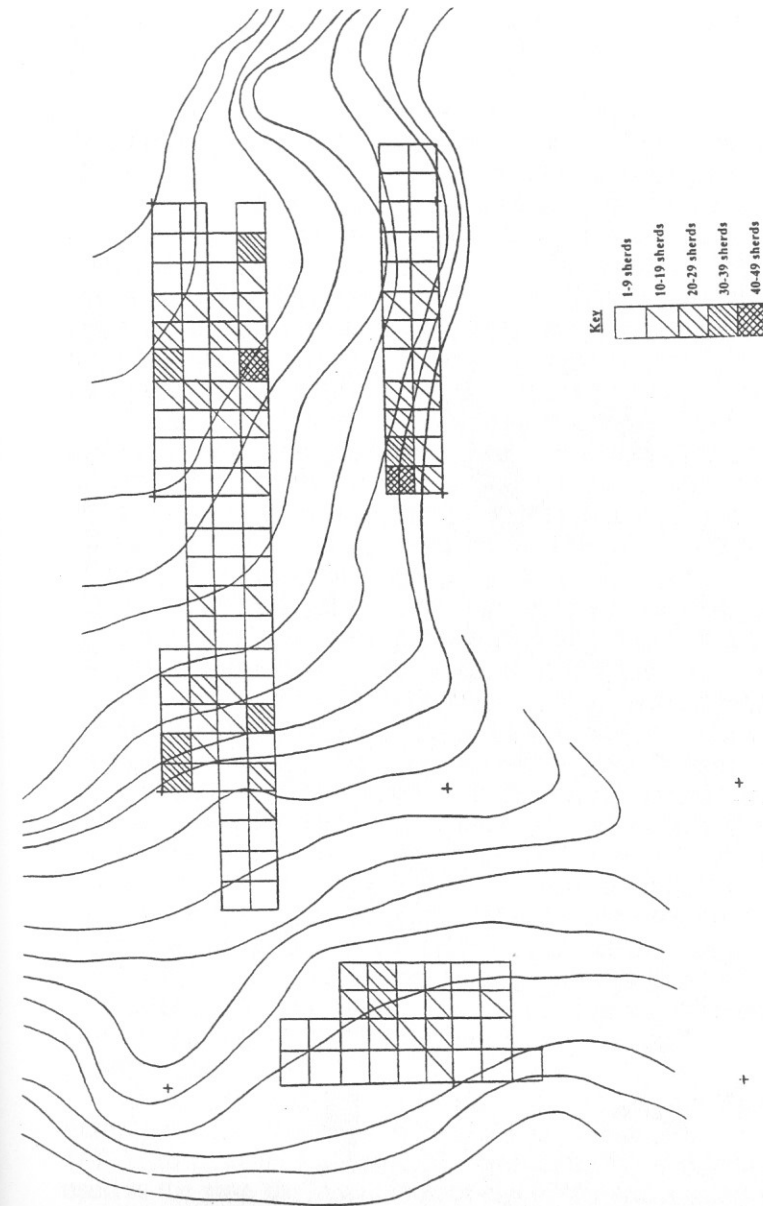


Figure 2. Surface collection units at Raccoon Ridge, 1993 season.

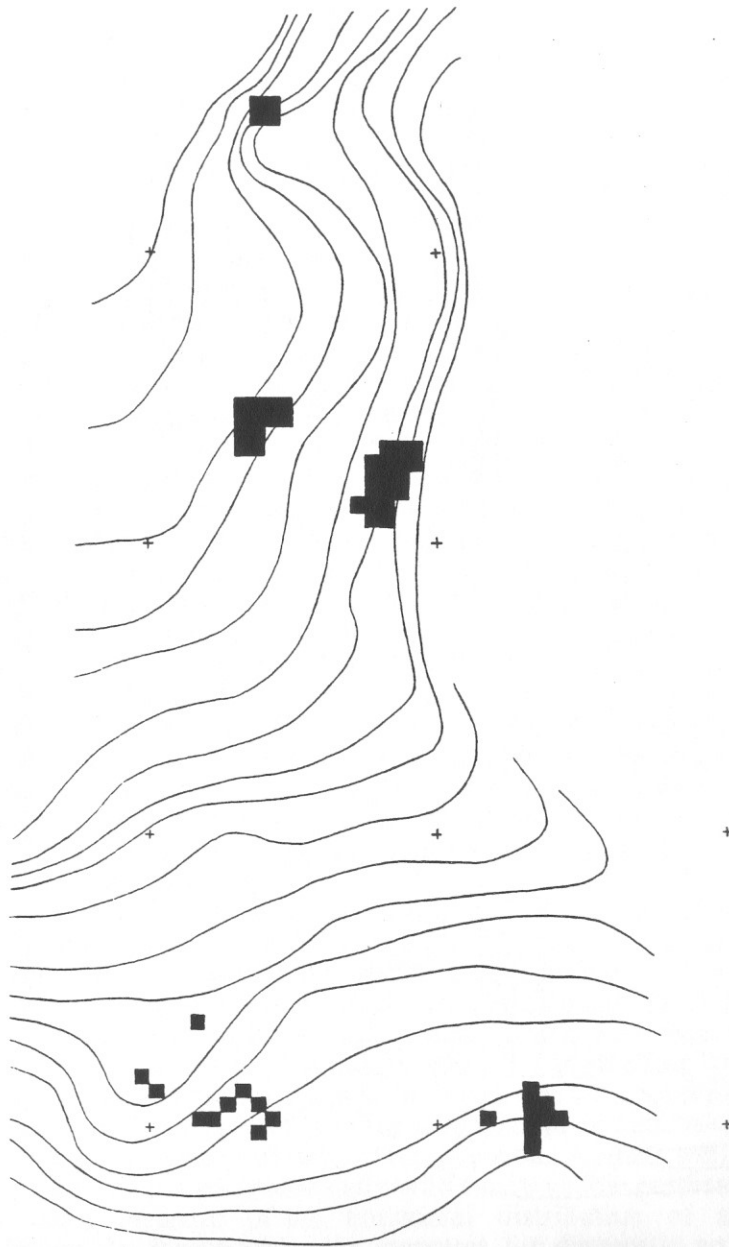


Figure 3. Excavated areas at Raccoon Ridge, 1993-1995.

are excellent indicators of the location and size of smaller Lamar components within the broader Vining phase ceramic scatter (see below).

Subsurface investigations have taken two forms: test and block excavations using quarter-sections of the 5 meter squares indicated above for surface collections (each excavation thus measures 2.5 by 2.5 m), and mechanical stripping across severely eroded sections of the site. Initial excavations using student and volunteer labor in 1993 and 1994 were exclusively of the former variety, and revealed that subsurface deposits vary in depth and preservation quality. Exposed summit and slope-edge areas in the generally level part of the site normally display extremely thin plow zone layers directly overlying sterile saprolitic clay. In these areas not only are there no midden deposits, but the upper margins of all sub-midden features (postholes and other pits) have also been truncated to some extent. In such areas stripping with a large blade almost immediately reveals sterile clay and scattered features. Excavation of individual 2.5 x 2.5 m test units in these areas has been abandoned in favor of broad-scale mechanical stripping.

Other, more level and even low-lying areas appear to have had colluvial buildup in the prehistoric/early historic and modern periods. In these areas (predominantly along the lower west end of the site), prehistoric midden deposits were in some cases quite thick (more than 40-50 cm) and are at least partially stratified, though perhaps not enough for easy archaeological separation. In such areas, plow disturbance never fully penetrated the midden deposits to sterile clay. The sandy plow zone overlies dark, clayey midden layers that gradually grade to a lighter gray to orange loam (probably colluvial) with feature stains, and finally to sterile red clay (see Figure 4). Because of the delicate nature of remnant midden deposits, manual excavation is proceeding cautiously using the 2.5 m units noted above. The far western margin of the site, including some areas with intact Vining phase midden, appears never to have been plowed (presumably it was an old field-margin or fence-line).

Unit excavation generally proceeds using existing natural/cultural stratigraphy, and all sediments are screened with 1/4" hardware cloth (Figure 5). Although dry-screening has been used in the past, the installation of electricity and a water pump will permit more efficient water screening in the future. Once subsurface features are encountered, they are mapped and photographed.



Figure 4. Sub-plowzone midden deposit in Vining area (SW).

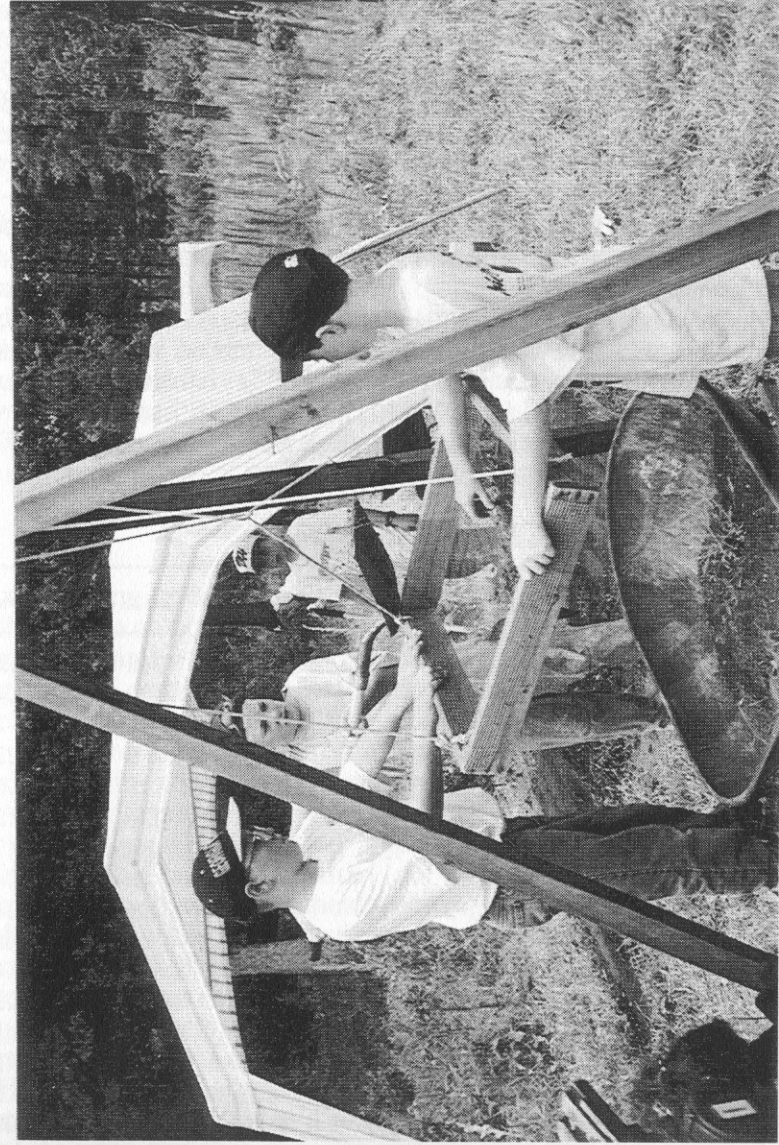


Figure 5. Middle school students hand-screening excavated plowzone.

Since this phase of excavation is carried out in the context of educational programs, feature-mapping is the final stage at which students or volunteers with as-yet limited training directly participate in fieldwork. The excavation of postholes and other small pit features is carried out by more intensively-trained volunteers or interns under the direct supervision of the principal investigator. Soil contents of all postholes and small features are bagged for future flotation. Substantial flotation samples are taken from more voluminous features, with the remainder being fine-screened through window-screen mesh. Potential radiocarbon and OCR soil samples are also taken from appropriate contexts.

Lab work is ongoing, and all field specimen bags in the master catalog have been washed and their contents labeled by volunteers, interns, and museum visitors (most of the general washing was carried out by youngsters of all ages on Sunday afternoons at the Museum). All ceramics from 1993, 1994, and 1995 seasons have recently been sorted by a trained student intern, and preliminary figures are presented in Table 1.

Table 1. Ceramics from Raccoon Ridge (1993-1995).

Type	Surface	Vining	V/EL	C/V/LL	Total	%
Rect. CS	17	73	40	138	268	6.3
Curv. CS	19	20	30	31	100	2.4
UID CS	4	36	2		41	1
Check				9	9	0.2
Linear Ch.				25	25	0.6
Simple St.	119	283	105	131	638	15.2
Cross SS	88	399	134	207	828	19.7
SS/Incised	10	9	1	4	24	0.6
UID St.	29	15	13	46	103	2.4
Bold Inc.	24	5	12	24	65	1.5
Med. Inc.	17	3	1	82	103	2.4
Fine Inc.	7	6		36	49	1.2
Punctate	1		2		3	0.1
UID Dec.	56	51	61	91	259	6.2
Plain	738	339	271	346	1694	40.2
Total	1129	1238	672	1170	4209	100
UID	196	212	160	148	718	

The ceramic categories employed for this table are broad categories of surface treatment and decoration, many of which will be subdivided into specific named types in subsequent examination. Curvilinear complicated stamped pottery, for example, includes Woodstock, Savannah, and Lamar types. Although the frequency of these types within the broader categories in Table 1 has not yet been quantified, the discussion below should provide a sense of the types present and their chronological and cultural affiliations.

This is a work-in-progress. Further fieldwork and laboratory analysis will occur in almost all cases discussed below. Flotation samples await processing, and detailed ceramic and lithic studies are still ongoing. Unit maps for some areas have yet to be re-drafted, and some must await further fieldwork before final versions can be completed. The information presented below represents a status report, to be supplemented in subsequent reports by further analyses and data. Nevertheless, as will be seen in the final section, data presently in-hand provide enough information to narrow the scope of research for future work at Raccoon Ridge.

THE ARCHAIC PERIOD

Beginning in the Early Archaic period, and continuing through the Middle and perhaps Late Archaic, the ridge crest along the site's eastern flank was occasionally visited by small groups of hunter-gatherers, presumably using the site as an upland resource extraction camp. Bolen, Kirk, LeCroy, and Morrow Mountain points have been recovered in surface and plow zone contexts, although in small numbers and sparse concentrations (Figure 6). Although Raccoon Ridge is well north of the Fall Line, all Early Archaic spear points found at the site are made from formerly-translucent Coastal Plain chert (not thermally-altered), suggesting broad-range band movements corresponding to low population densities. Middle Archaic spear points and associated tools are, in contrast, crafted exclusively from local vein quartz, corresponding to the decreases in group territorial range associated with growing population levels. In these respects, Raccoon Ridge fits typical regional patterns for lithic procurement and use during the Archaic. However, only a single Archaic spear point has been recovered in excavated context (from a sub-plow zone layer in the western end of the site), and thus virtually nothing is known about the precise nature of the Archaic use of Raccoon Ridge.

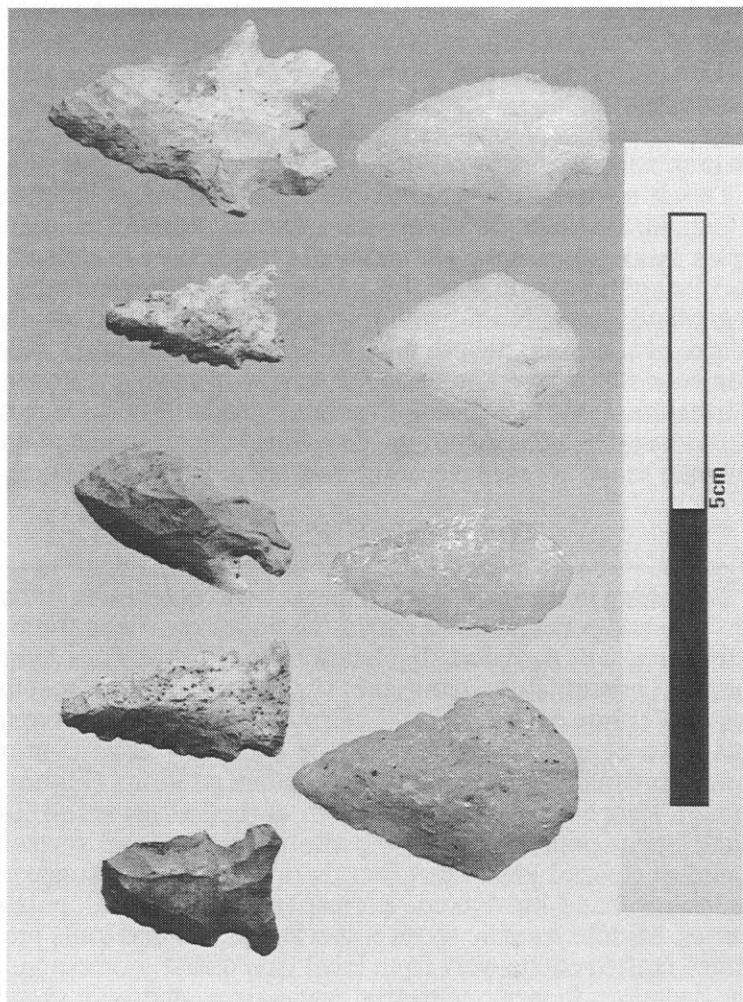


Figure 6. Archaic projectile points and tools.

THE MIDDLE WOODLAND PERIOD

A recent discovery in the northwestern part of the site has important implications for the clarification of Early Mississippi period Vining culture as distinct from Middle Woodland Cartersville. In both phases people produced simple stamped ceramics that are easily confounded in mixed surface collections (Elliott and Wynn 1991). During student excavations in the summer of 1995, a buried midden containing Cartersville ceramics was discovered beneath the plow zone. Analysis of the artifacts in this unit (Figure 7) indicates that this deep layer is an undisturbed, single-component deposit dating to the Middle Woodland. It underlies Vining and Lamar occupations dating to the Mississippi period. A single Oxidizable Carbon Ratio (OCR) date from the first century B.C. on soil from the midden confirmed this conclusion (see dating section below). The small collection of linear check, check, and simple stamped pottery, along with several tetrapods, is easily distinguishable from the abundant Vining Simple Stamped pottery from other areas of the site on the basis of surface decoration and style, and also clay paste and temper (Table 2). Initial examination suggests that Cartersville Simple Stamped pottery generally has wider grooves, thinner walls, and a finer paste than Vining Simple Stamped pottery. Detailed ceramic analysis and further test units in this Cartersville area may go a long way toward defining clear-cut criteria for distinguishing Cartersville and Vining simple stamped pottery.

Table 2. Distinguishing Cartersville and Vining.

Attributes	Cartersville	Vining
Simple Stamped	wide	narrow
Check Stamped	present	absent
Linear Check St.	present	absent
Tetrapods	present	absent(?)
Ceramic Temper	fine	coarse
Projectile Points	large, triangular spear points (?)	small, triangular arrow points

THE EARLY MISSISSIPPI PERIOD

Most surface and subsurface artifactual debris at Raccoon Ridge dates to the Mississippi period. The most substantial and extensive component dates to the Early Mississippi Vining phase, representing what appears to have been a large village with permanent houses. Since this component may be the most significant contribution of Raccoon Ridge to regional archaeology, the Vining phase occupation will be explored in greater depth here. The large size of the site is in fact due to the Vining phase component; typical Vining ceramics and associated chert lithics are found across the entire ca. 2 ha area of the site. Although Archaic, Cartersville, and Lamar components are all restricted to specific areas of the site, the Vining component is more or less uniformly distributed across the entire terrace of Raccoon Ridge. Surface collections and excavated plow zone and midden contexts generally contain either pure or mixed Vining artifactual debris, as can be seen by the consistent presence of simple stamped and cross-simple stamped pottery in Table 1. Block excavations were begun in early 1994 in the southwestern section of the site (Figure 3) to sample deposits in a relatively pure Vining area.

The Vining phase, recently defined by Dan Elliott and Jack Wynn (1991), is a geographically restricted coincidence of simple stamped ceramics and small triangular arrow points. This pattern, as well as the late persistence of simple stamping as a decorative technique in several other areas of the Southeast (e.g. Anderson et al. 1982; Anderson 1985, 1989), suggested a "guess date" for the Vining phase of between A.D. 800–1200 on the outside, and probably closer to A.D. 950–1150 (Elliott and Wynn 1991:12). This would make Vining essentially an Early Mississippi culture with virtually none of the "classic" Mississippian characteristics (apart from small triangular arrow points). The known distribution of Vining sites covers a large area of the lower piedmont of the Oconee and Ocmulgee River watersheds in east-central Georgia. Upland locales may have been preferred for the larger Vining occupations. Though consistent in that respect, Raccoon Ridge is located somewhat farther to the north than most other Vining sites; it is one of the northernmost large Vining phase sites currently known in the Oconee valley. This fact alone makes Raccoon Ridge an important site, particularly so considering its location near the Early and Middle Mississippi mound centers on the Oconee River.

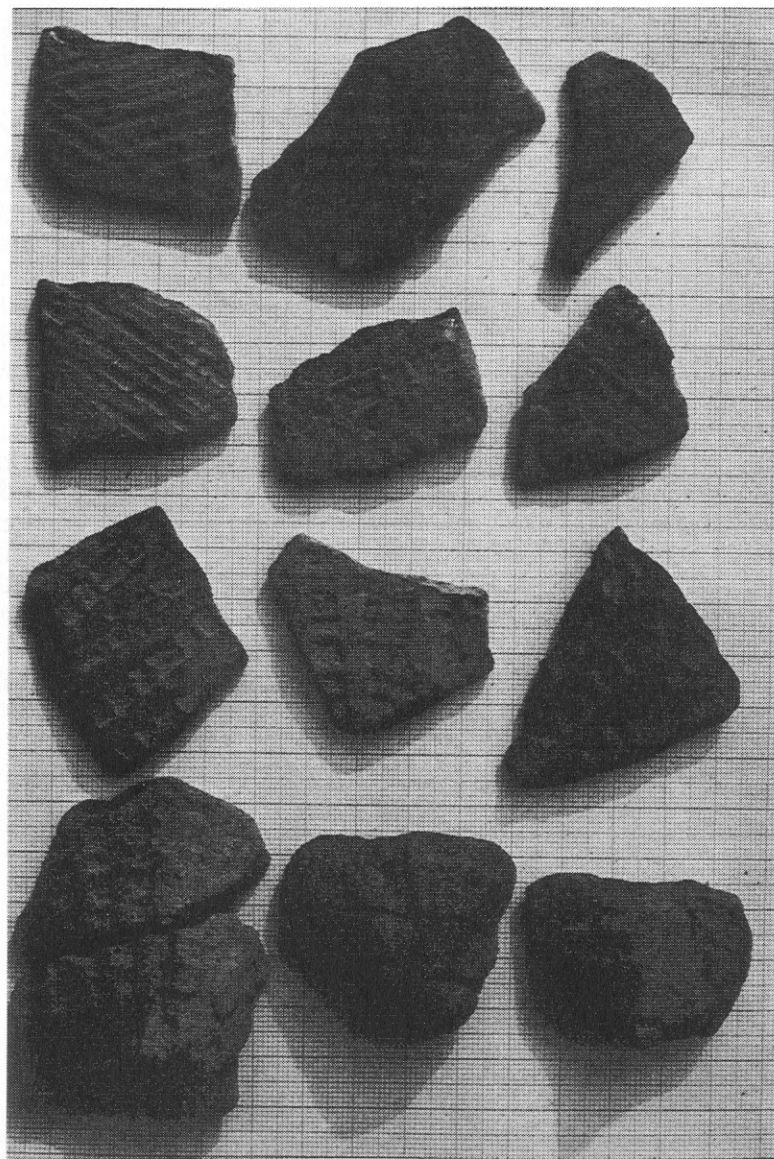


Figure 7. Cartersville ceramics from buried midden horizon.

Opportunistic surface survey in the immediate vicinity of Raccoon Ridge, much of which has either been recently clearcut or is in active cultivation, has revealed other upland archaeological sites in a roughly 2 km radius. Most of these sites are on small knolls or high spots along sloping ridge lines, and all are considerably smaller in area than Raccoon Ridge. Virtually all of the nearly 20 sites discovered in this area have evidence for preceramic occupation, dating predominantly to the Middle Archaic, based on diagnostic spear points and large amounts of quartz debitage. Only six of these sites also possess ceramics, including Raccoon Ridge itself. Four of the remaining five date to the Lamar period (mostly Bell phase), probably representing dispersed upland farmsteads like those at Raccoon Ridge. The other site, situated on a steep hilltop overlooking the confluence of two major creeks, has a minimal Cartersville component, probably contemporaneous with that of Raccoon Ridge. To date, not a single other Vining site has been found in the vicinity.

While this may be an artificial result of spotty survey coverage, available evidence suggests that the Vining phase village at Raccoon Ridge was not accompanied by nearby satellite communities or farmsteads. In marked contrast to the dispersed pattern of the later Lamar phases, Vining occupation seems to have been characterized by nucleated settlement in which a substantial number of people lived in a village of roughly two hectares in area, hypothetically surrounded by an uninhabited zone at least a few kilometers in extent. Other researchers have noted that upland Vining sites are typically larger than floodplain sites, in many cases exceeding a hectare in area (Elliott and Wynn 1991; Kowalewski and Hatch 1991:6). As discussed below, several lines of evidence suggest that inter-group warfare might have played a role in this nucleated settlement pattern.

What makes the Vining phase somewhat controversial is that its primary diagnostic ceramic type is simple stamped pottery, once known as Mossy Oak Simple Stamped and renamed Vining Simple Stamped by Elliott and Wynn (1991). Archaeologists have long equated simple stamped pottery in Georgia with Middle Woodland Cartersville and Deptford times, and indeed simple stamping is frequently seen as an early step in the evolution of pottery styles toward check and complicated stamped wares. Nevertheless, recent work in the Russell reservoir of the Upper Savannah River (Anderson and Joseph 1988: 246-47), along the Flint River in

west-central Georgia (Worth and Duke 1991), and at the Fall Line of the Oconee River (Williams 1990:85-92) has suggested that simple stamped pottery was used in the Early Mississippi period. Prior to excavations at Raccoon Ridge, however, the best evidence for the Early Mississippi date of Vining was the co-occurrence of Vining Simple Stamped pottery with small triangular arrow points, and the apparent lack of Middle Woodland-style tetrapods in the Vining complex (Elliott and Wynn 1991). The preliminary results from Raccoon Ridge serve to confirm and expand these prior conclusions.

Simple stamped pottery comprises more than 50% of the assemblage from essentially single-component Vining excavation units in the southern section of the site (Tables 1 and 3, Figure 8).

Table 3. Vining Phase Ceramics from the Raccoon Ridge Site.

Primary Decoreated Type

Vining Simple Stamped

Minority Decoreated Types

Woodstock Complicated Stamped
Etowah Complicated Stamped
Savannah Complicated Stamped
Early Mississippian Incised (?)

While this proportion exceeds the percentages for sites to the south (22-43%) (Elliott and Wynn 1991), this may be due to regional or chronological variations, or possibly differences in the sorting procedure (we classified any minute trace of parallel-line simple stamped decoration as simple simple stamped). As in other sites, simple stamped decoration is frequently over-stamped (cross simple stamped), and incised lines are occasionally evident as over-treatments below simple stamped vessel rims. Of chronological import, roughly 10% of the Vining assemblage consists of rectilinear and curvilinear complicated stamped wares, including the Early Mississippi types Woodstock, Etowah, and Savannah Complicated Stamped (Tables 1 and 3, Figure 9). Rare examples of

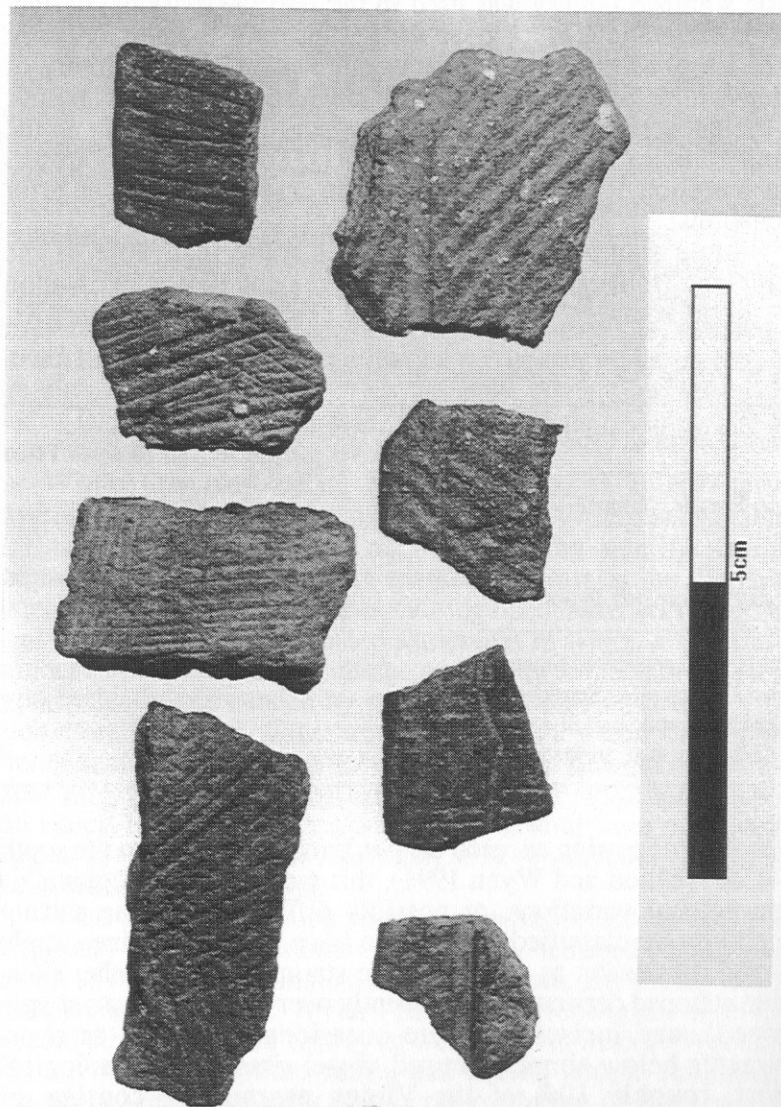


Figure 8. Vining simple stamped and incised ceramics.

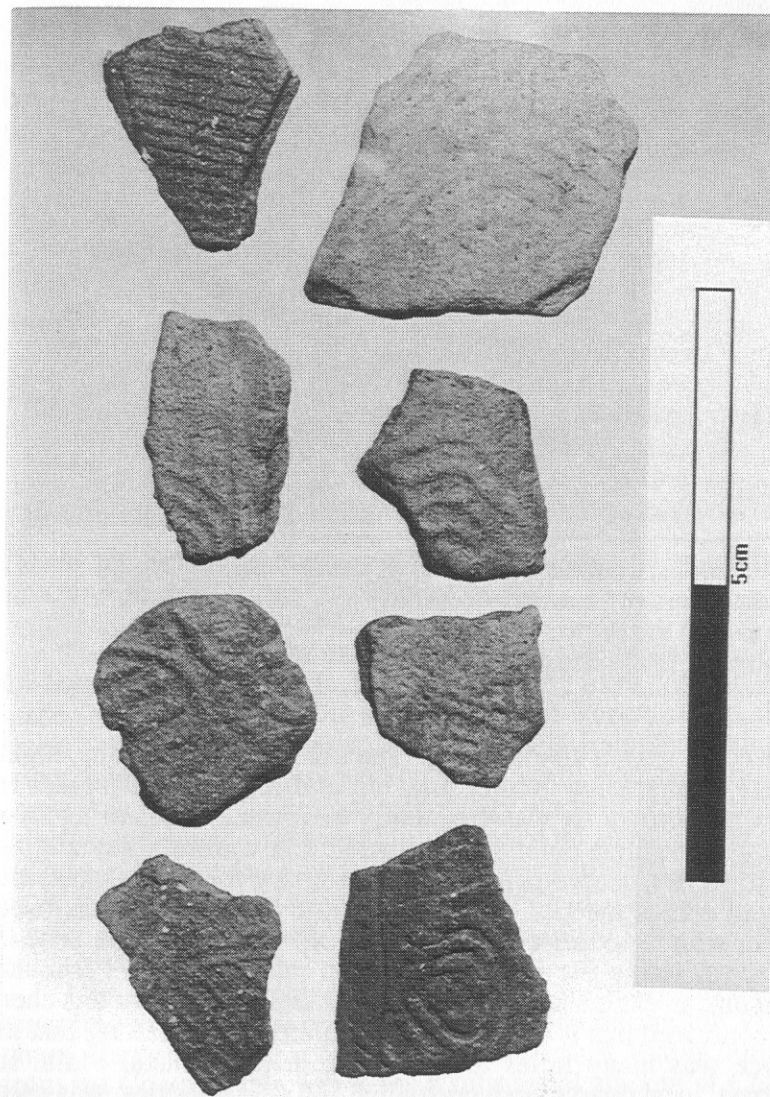


Figure 9. Woodstock, Etowah, and Savannah ceramics with the Vining occupation.

incised lines on plain pots are also known. Interestingly, nearly 70% of the identifiable Vining ceramic assemblage has some form of stamped decoration, with plain wares comprising only 30% of the assemblage.

The Vining lithics at Raccoon Ridge are notable for the predominant raw material used for flaked tools—Coastal Plain chert, which appears to have been transported in bulk to the site and reduced there (Table 4). Virtually all tools and debitage appear to

Table 4. Vining Phase Lithics from the Raccoon Ridge Site.

Raw Materials

extra-local coastal plain chert (abundant)
diabase/metavolcanics (common)
local quartz (occasional)
extra-local ridge-and-valley chert (rare)

Tool Types

small to medium triangular arrow points (abundant)
unifacially retouched flakes/blades (common)
small rounded bifaces (rare)
ground stone diabase celts (rare)

have come from a single source. The material is an opaque, high-quality chert grading in color from mustard yellow to olive green to chocolate brown. It was frequently heat-treated, resulting in a brick-red to purple color. Large quantities of waste flakes, ranging from primary decortication flakes to tertiary thinning flakes, are present across the site. At least one raw chert nodule has been found, with its exterior cortex ground off, presumably for ease in transport. Using the scanning electron microscope at Fernbank Museum, an examination of cortex remnants on flakes of this chert has confirmed that it is fossiliferous (Figure 10), indicating that its source was many miles to the south, in the Coastal Plain. In contrast, local quartz, both crystalline and vein varieties, was used only infrequently, and no quartz arrow points or tools have been found in Vining association at Raccoon Ridge.

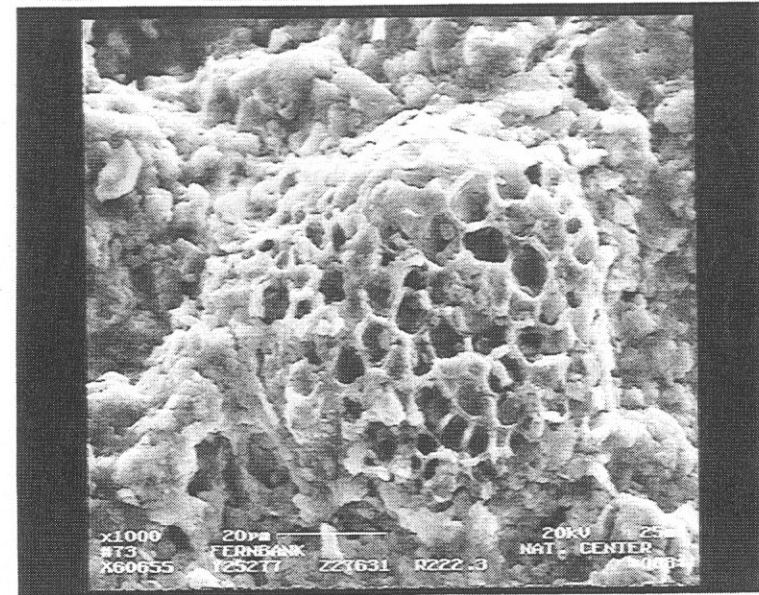


Figure 10. Scanning electron microscope image showing fossil structures in chert cortex (ca. 60 microns).

Tools made from the extralocal chert include many small- and medium-sized triangular arrow points, ranging from crude to well-made (Figure 11). Based on shape, size, and workmanship, these arrow points are consistent with standard Mississippian triangular points found at sites across the Southeast. Apart from these bifacial arrow points, the Vining tool technology was primarily based on informal retouched flakes and blades created on an as-needed basis (Figure 12). Rounded bifacial tools or blades are rare. Other stone tools include occasional ground stone celts of diabase obtained locally and worked on-site. Both examples found were in Vining-only areas of the site.

This lithic assemblage may lead to significant discoveries regarding raw material procurement and trade during the Vining phase. Raccoon Ridge is one of the northernmost Vining outposts from the Coastal Plain, yet it has a substantial amount of Coastal Plain chert in comparison with other known Vining sites (Elliott and Wynn 1991:12-13).

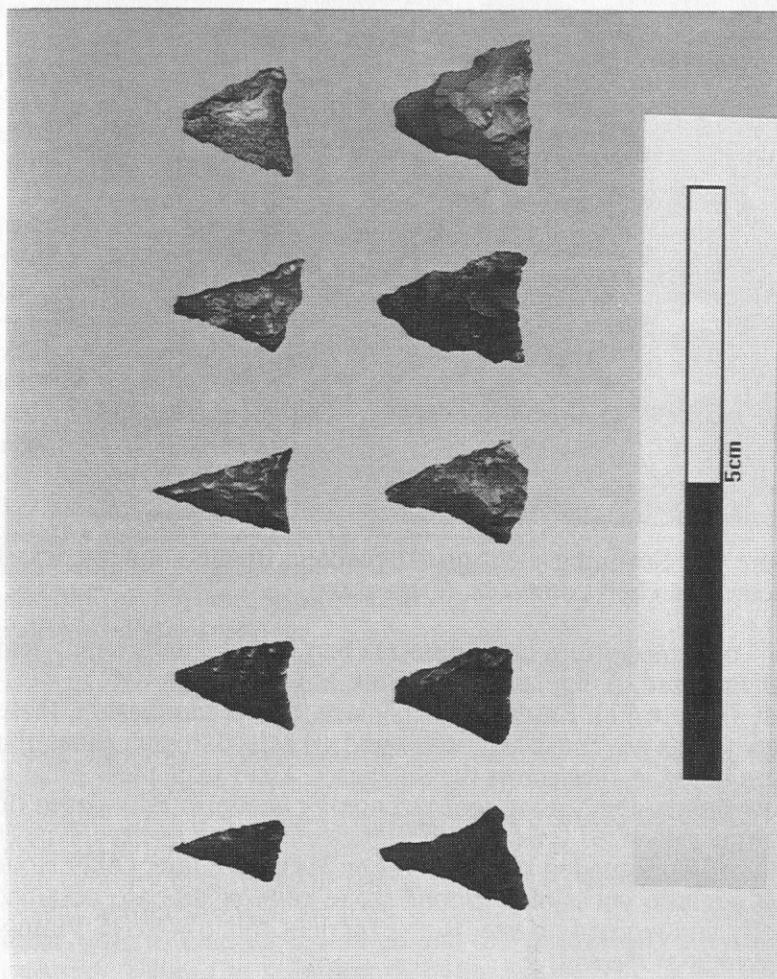


Figure 11. Mississippian triangular arrowpoints and fragments.

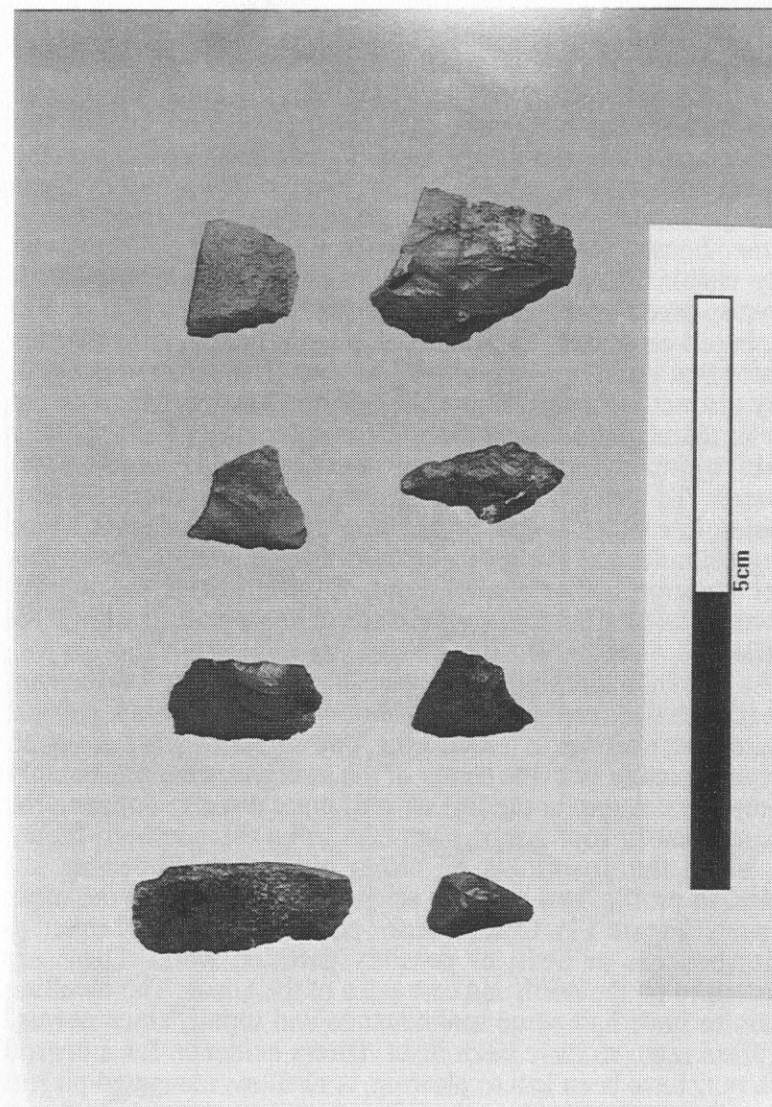


Figure 12. Informal flake tools and small bifaces.

One of the most promising avenues for further research is the recent discovery of a small residential structure of apparent Vining date. Mechanical stripping around a large Lamar pit in the northeastern section of the site (described below) revealed many postholes and other subsurface features extending down into the sterile clay subsoil (Figure 13). While many of the larger of these date to the Lamar period, and probably relate to an overlapping "summer-house" shed associated with the Lamar trash pit, the clearly visible circular posthole pattern on the right of Figure 13 apparently predates the Lamar occupation by perhaps 350 to 500 years, based on several OCR dates described below. All evidence indicates that Lamar postmolds at Raccoon Ridge are, in general, visibly distinct from earlier (probable Vining) postmolds: they are larger in diameter and depth below ground surface, and typically contain more abundant charcoal flecking and chunks, and potsherds. To date, no Vining pottery has been found in any postholes; in contrast Lamar posts commonly include sherds. Since Vining ceramics are the only sherds in the plow zone above this earlier structure other than Lamar, Structure 1 is tentatively interpreted as the first clearly-defined Vining phase dwelling yet identified.

As shown in the preliminary plan views in Figure 14, the ring of nearly two dozen postmold stains in the red clay subsoil measures just over 4.5 m in diameter. Three interior posts arranged in a square pattern near the center of the structure were presumably roof supports. A gap in the line of wall posts directly opposite the "missing" fourth roof support appears to be the southern-facing door, since the postmolds on either side of this opening are identical in profile, and both are shaped differently from the other wall posts (Figure 17). Other interior postmolds probably relate to interior benches or beds, or possibly partition walls. These are concentrated on the north and east sides of the house. The dwelling appears to have had some maintenance and repair, since several wall posts seem to have been reset. Direct evidence for a central hearth may have been lost to plowing. A shallow, elongated pit just outside the northeastern wall of Structure 1 contained abundant burned clay fragments, perhaps resulting from the pit's use in cooking, although perhaps these are evidence of Vining phase wattle and daub architecture. Analysis of flotation samples from the structure's postmolds may provide a more definitive answer. Given that Structure 1 is but a single dwelling in what may prove to be a

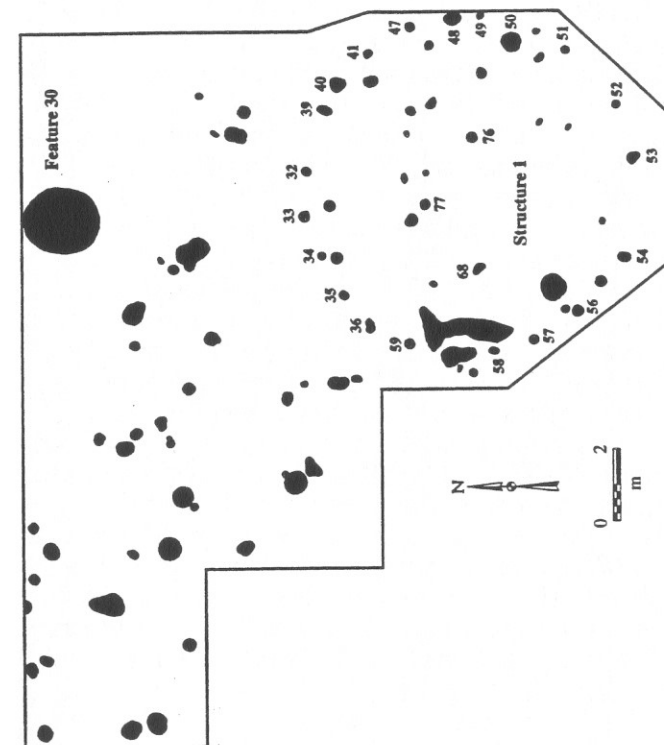


Figure 13. Field map showing mapped postholes and other features associated with Feature 30 and Structure 1.

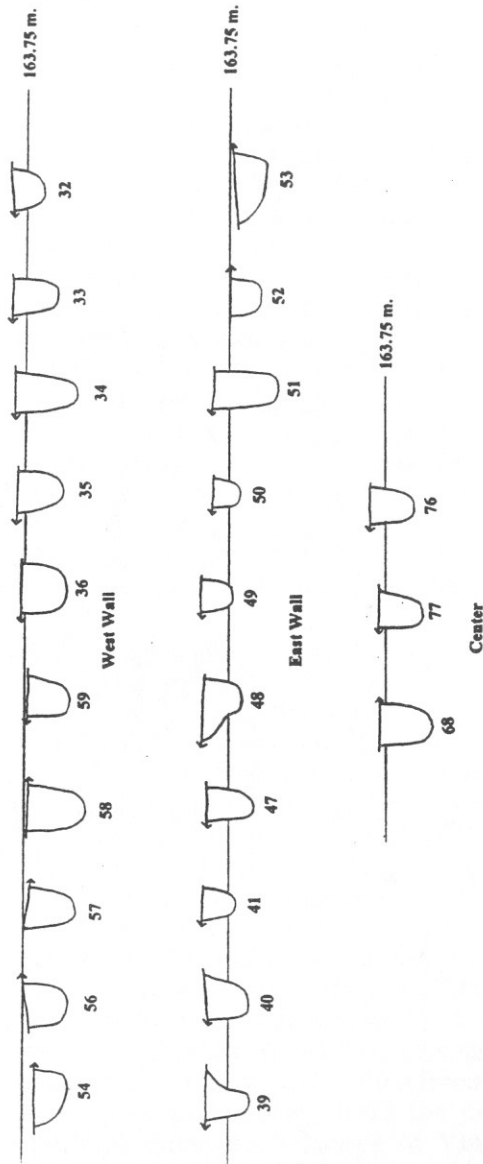


Figure 14. Selected posthole profiles from wall and center portions of Structure 1 (Feature numbers indicated). The arrows point to the interior of the structure.

five-acre village, generalizations regarding Vining phase domestic architecture are difficult to make. Nevertheless, the circular, single-post construction clearly contrasts with the larger and more substantial rectangular wall-trench structures at many contemporaneous Etowah and Savannah sites, suggesting the possibility of affinities with earlier Woodland-style architecture. Further mechanical stripping just south of Structure 1 should reveal something about the spacing of houses and other structures, and outside activity areas or out-buildings. Localized clusters of postholes of similar size and coloration have also been identified in the excavation block to the south, and in the "pure" Vining area to the southwest, so other structures may eventually be found.

The size of the Vining component, its topographic situation, the abundant postmolds, and the well-defined circular dwelling in the only area yet stripped, suggests that it was a village with a comparatively large population. If true, the apparent lack of contemporaneous occupation in the immediate area, as well as the situation of this village somewhat farther to the north of other Vining villages, might suggest that Raccoon Ridge was at a cultural or sociopolitical boundary. This occupation was apparently contemporaneous with the emergent Mississippian Woodstock culture of north Georgia (see Stanyard and Baker 1992), the eastern distribution of which includes the upper Oconee drainage north of Raccoon Ridge (Pluckhahn 1994:18-21). The palisades, ditches, and other military fortifications in settlements of this Early Mississippi period provide clear evidence for warfare (e.g. Caldwell 1957; Stanyard and Baker 1992). The contemporaneous development of a more heterogeneous cultural landscape characterized by several more or less clearly defined ceramic style zones each of more limited regional extent than either before or after this period, has been interpreted as evidence of bounded, autonomous social networks, accounting for a rise in inter-group competition and conflict (Pluckhahn 1994:19-21). Raccoon Ridge appears to have been situated along the northern Vining frontier, fronting the north Georgia Woodstock, which on the basis of archaeological evidence was involved in chronic warfare. This, combined with the large and nucleated Vining village on its elevated upland terrace at Raccoon Ridge, might explain the high incidence of arrow points crafted from high-quality extralocal chert. The people of Raccoon Ridge might have been involved in warfare with Woodstock communities to the north, while simultaneously

exploiting upland resources (deer, mast crops, diabase, etc.) along the southern edge of an unoccupied buffer zone between the Vining and Woodstock cultural zones. This speculation might be empirically supported if defensive fortifications are found.

The apparent persistence of this Vining village into Etowah times (locally the Armor and Stillhouse phases, ca. A.D. 950-1250) may be significant, particularly with regard to chiefdom-emergence. That Vining occupation at Raccoon Ridge extended until as late as 1150 or 1200 is indicated by three OCR dates from unmixed contexts minimally ranging between A.D. 1015 and 1185. Also, rectilinear Etowah and curvilinear Savannah Complicated Stamped ceramics appear as minority types (ca. 10%) in association with Vining assemblages across the entire site (Tables 1 and 3). Given the proximity of Raccoon Ridge to the Dyar mound, evidently inhabited after A.D. 1100 (Smith 1994:127-28,173), discriminating between gradual on-site ceramic transformation (i.e. the addition of Etowah/Savannah ceramics to a predominantly Vining assemblage) or abrupt replacement of Vining assemblages by fully Etowah/Savannah assemblages will be an important goal of ongoing research.

THE LATE MISSISSIPPI PERIOD

Diagnostic Lamar artifacts appear only in two sections of the Raccoon Ridge site, apparently corresponding to two distinct single-family farmsteads. Ceramic types include Lamar Incised and Lamar Complicated Stamped, as well as abundant examples of folded Lamar rims with pinching or cane punctation. Artifacts include Dyar and Bell phase potsherds, and abundant pipe fragments (Figures 15-17).

Archaeologists have recognized a pattern of dispersed settlement during the sixteenth and seventeenth centuries in the piedmont Oconee valley (Kowalewski and Hatch 1991). Several small upland farmsteads have been fully excavated during the past decade by Pennsylvania State University teams under the direction of James Hatch (1995). The two Lamar concentrations at Raccoon Ridge probably correspond to the residential pattern established for other nearby sites, namely a circular wattle and daub "winter-house" with one or more rectangular sheds and open trash pits.

Preliminary examination of the surface collections and test excavations has shown that the two Lamar components were

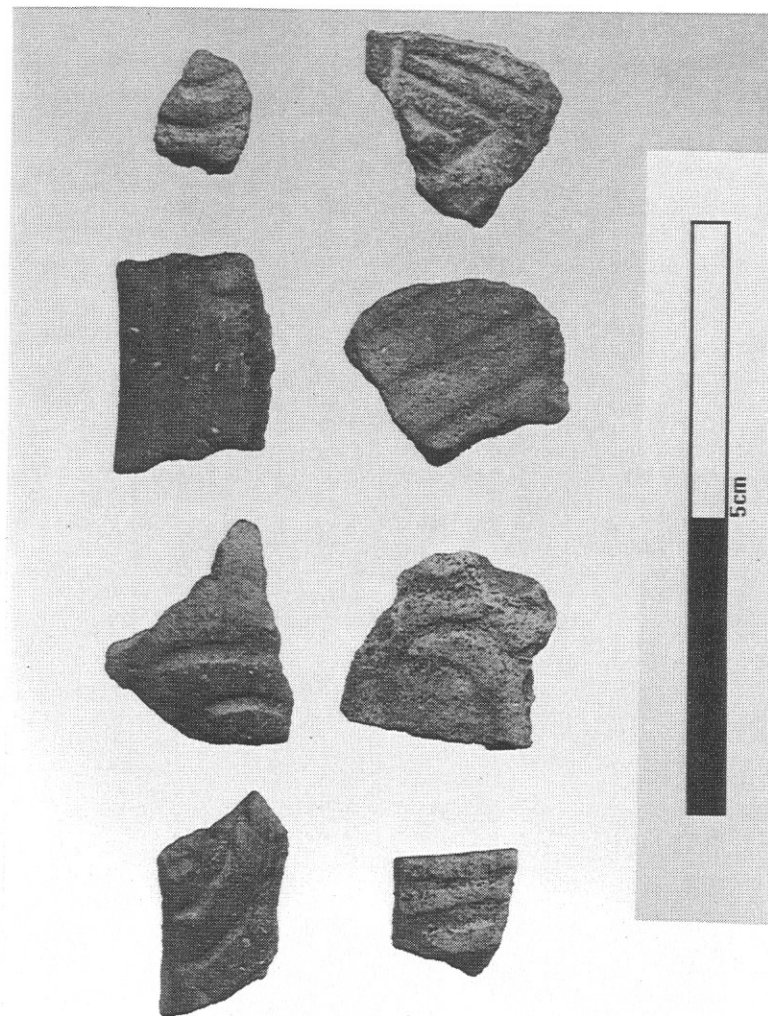


Figure 15. Earlier Lamar ceramics from northeast section.

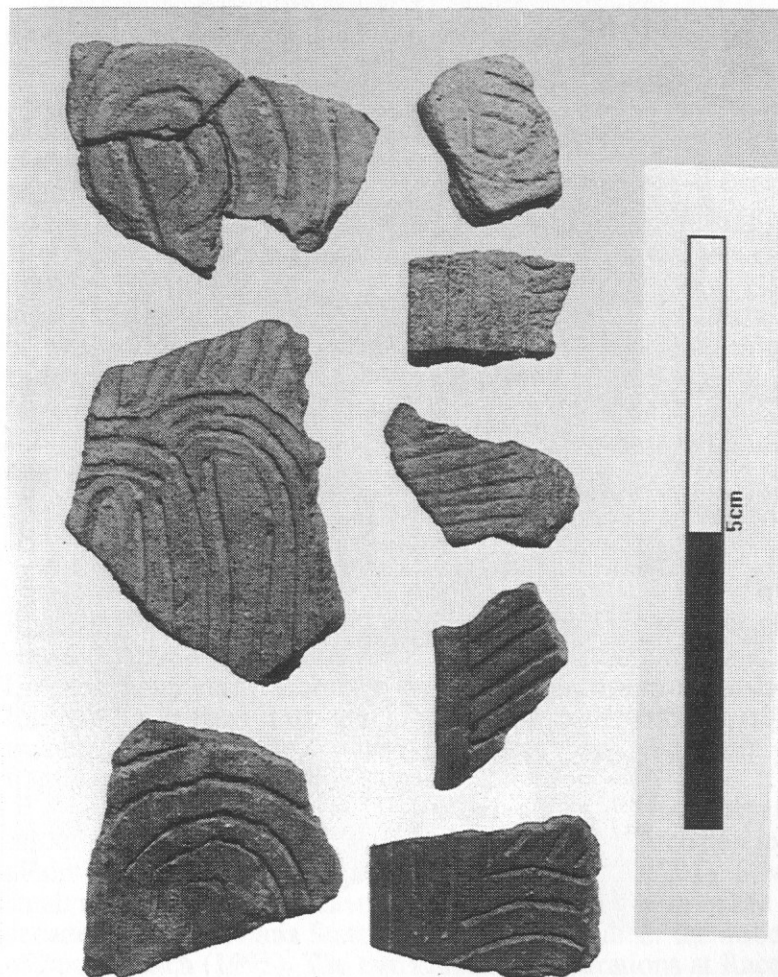


Figure 16. Later Lamar ceramics from northwest section.

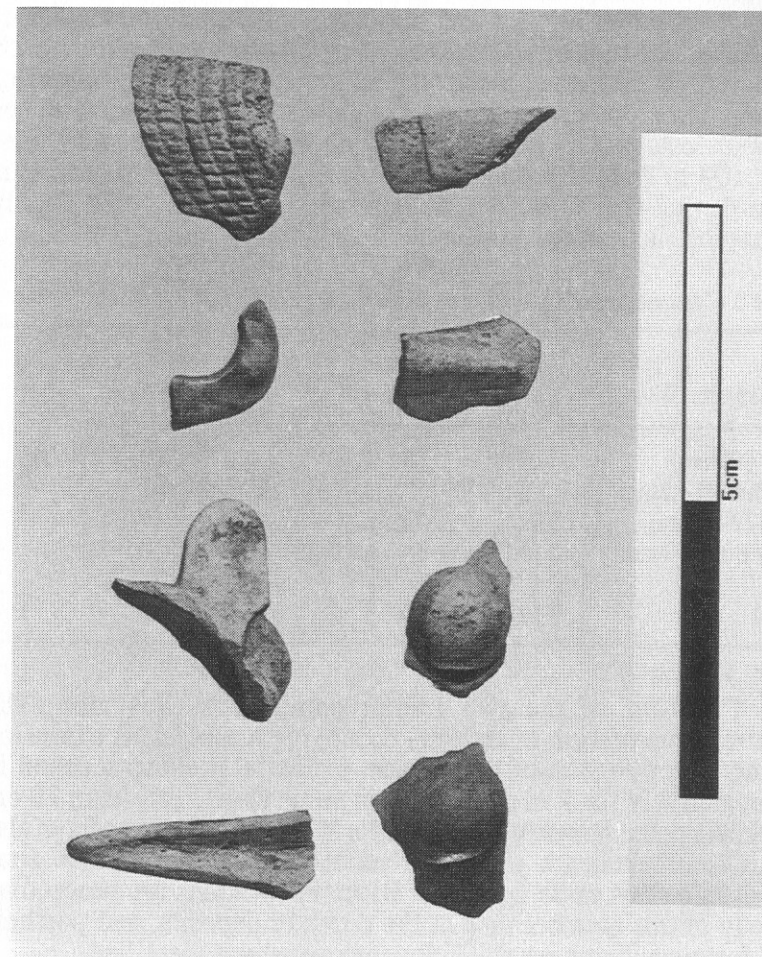


Figure 17. Lamar tobacco pipe fragments.

probably not contemporaneous, but instead successive, dating to the Iron Horse/early Dyar and Dyar/Bell phases respectively (see Williams and Shapiro 1990:60-63; Kowalewski and Hatch 1991:3; Smith 1994:125-133). Table 5 displays the relative frequencies of four sub-categories of Lamar Incised pottery in samples from each section, demonstrating clear differences in the average width of incised lines, corresponding to known chronological differences between established phases. Based on the close proximity (just over 100 m from the rough center of each ceramic cluster), it is possible that they represent the habitation sites of a single family occupying successive locations.

Table 5. Comparison of Incised Line Widths for Each Farmstead Area.

Incised Line Width	Northeast Cluster		Northwest Cluster	
	No.	%	No.	%
Fine (<1mm)	0	0	8	19
Medium (1-<2mm)	3	8	27	63
Bold (2-<3mm)	22	58	8	19
Very Bold (>3mm)	13	34	0	0
Total	38	100	43	100

The later of the two Lamar components lies along the northwestern margin of the site, occupying a peninsular extension of the lower portion of the terrace. Colluvial buildup resulted in comparatively thick midden here, in some cases more than 20 cm thick. As noted above, deeper Middle Woodland deposits have also been found beneath the more recent midden and plow zone deposits on this same landform. Block excavations are proceeding slowly in this area because of the depth of deposits, and posthole and feature patterns are still being uncovered and identified.

The earlier Lamar component is situated in an area of comparatively heavy sheet-erosion. Here, mechanical stripping proved useful in removing plow zone overburden. On the first day this technique was employed in the early spring of 1995, stripping quickly uncovered a large circular feature (Feature 30). Subsequent excavation revealed this to be a large, refuse-filled pit that had been backfilled during the Lamar occupation (Figures 18, 19).

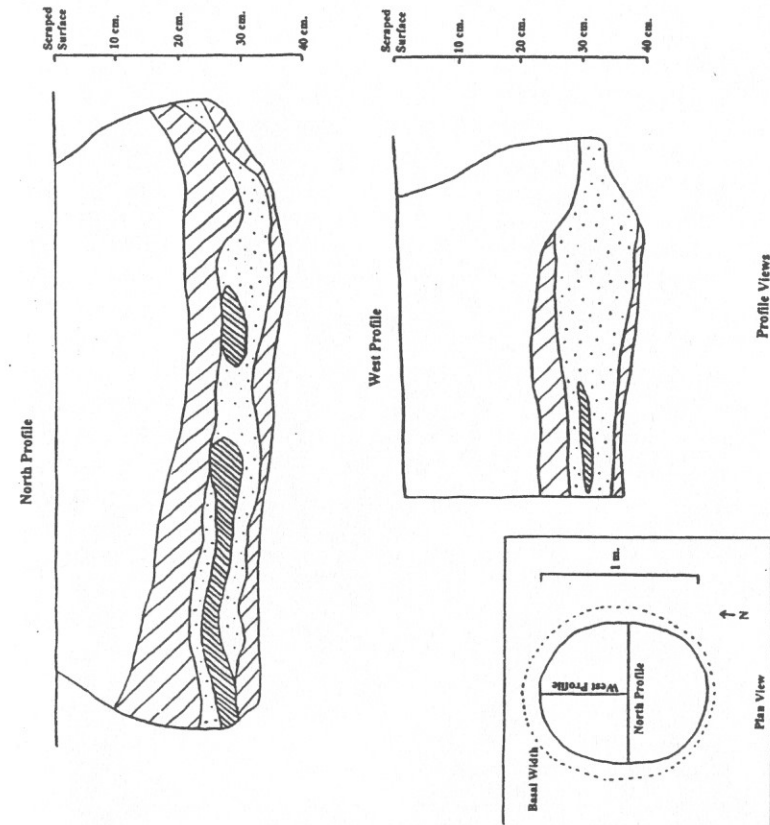


Figure 18. Profile and plan views of Feature 30, the Lamar trash pit.

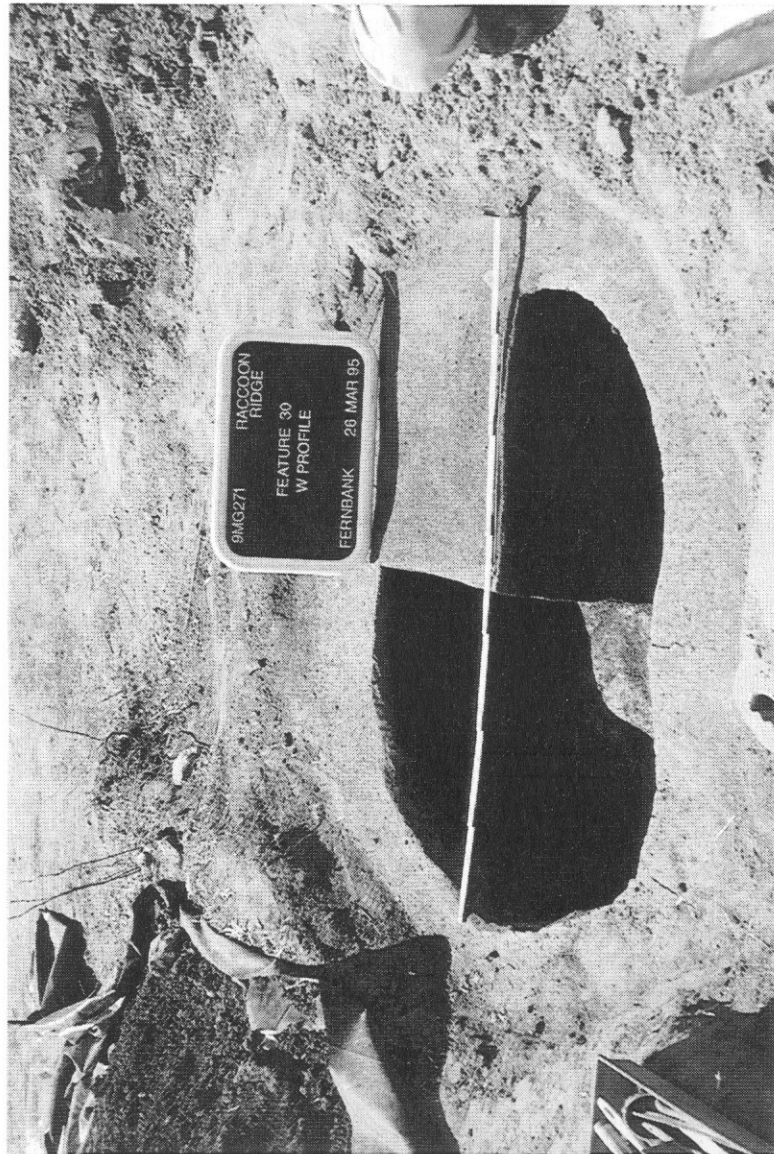


Figure 19. Excavation of Feature 30.

Feature 30 was bisected, revealing that it was a roughly circular, flat-bottomed pit with in-sloping walls. The orifice diameter averaged roughly 1 m, and the basal depth below the current ground surface is roughly 55 cm. Large, bell-shaped features such as this are generally presumed to be subsurface storage pits, or caches, which were backfilled after use. Such features are almost unknown for the Lamar in Georgia. Other Lamar sites just south of Raccoon Ridge have one or more large, basin-shaped pits averaging 1.7 m in diameter and only 20 cm deep. While the contents of these Lamar pits appear to be quite similar to that of Feature 30, their shape and depth suggest they were clay borrow pits (for daub) that were gradually backfilled with layers of refuse. Feature 30 is considerably deeper, and displays sharply in-sloping walls near the orifice, suggesting it was dug with the goal of maximizing underground space while minimizing orifice diameter. The feature does not seem to have been used in cooking, since its walls and base showed no evidence of heat-alteration.

Whatever its original function, the pit was eventually used for a single event of refuse disposal. The apparent contents of a domestic hearth dating to the Iron Horse phase (ca. A.D. 1450-1520) were dumped inside the pit in a single episode (creating only a few internal layers), followed by a cap layer of midden dirt that completely filled the open upper half of the pit. None of the overhanging sterile clay lip of the pit orifice eroded or fell into the pit while it was open, which certainly would have occurred had the pit been exposed to rain.

Overlapping radiocarbon and OCR dates from the basal deposits in Feature 30 support a late fifteenth- or early sixteenth-century date for the filling of this pit. The midden comprising the upper fill has a much earlier OCR date, consistent with the earlier Vining component. These data appear to confirm the earlier suspicion that the upper fill dirt was excavated by the site's Lamar inhabitants from older midden deposits nearby. The recent discovery of such remnant deposits within only ten or so meters to the northwest provides one possible source.

Refuse in the basal deposit of Feature 30 included abundant charcoal chunks, ash, burned clay (some from the crumbled surface of a smoothed clay hearth), and several hundred pottery fragments dating to the Iron Horse phase. The nearly-complete remains of a large, well-used Lamar cooking vessel (a plain-surfaced flaring rim jar with a typical pinched rim, Figure 20) were scattered across the

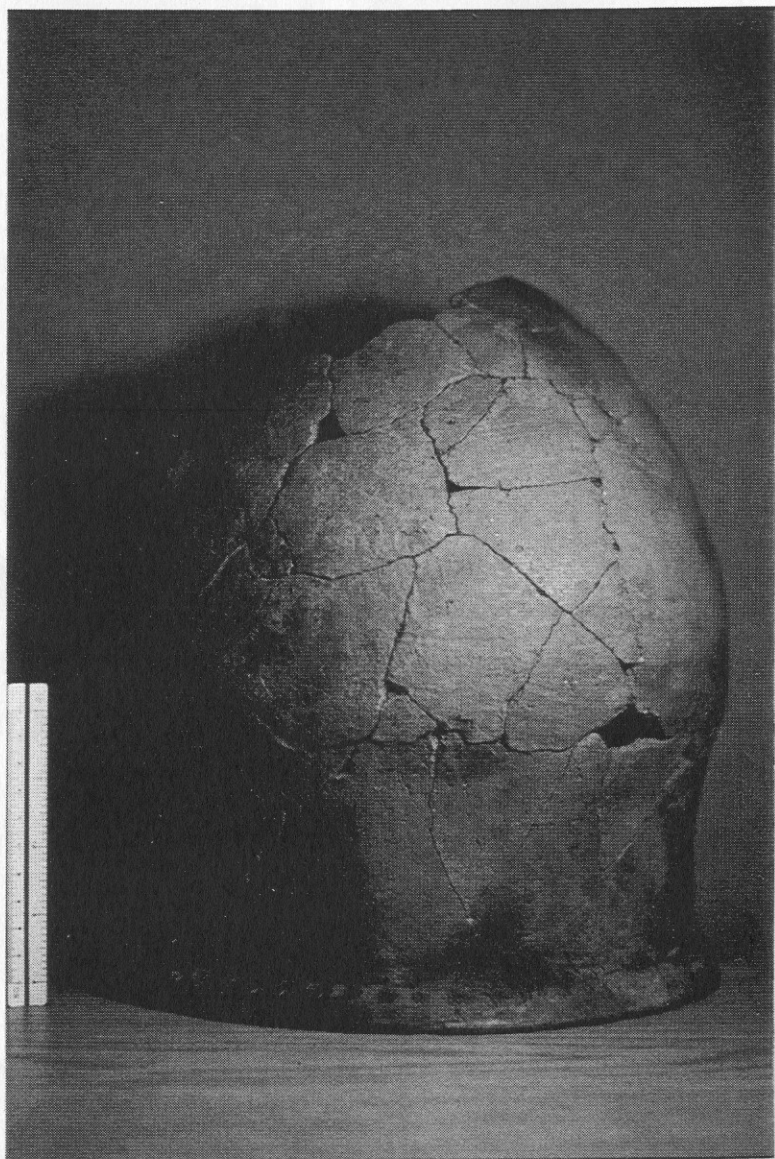


Figure 20. Reconstructed Lamar plain jar with pinched rim. Scale in cm.

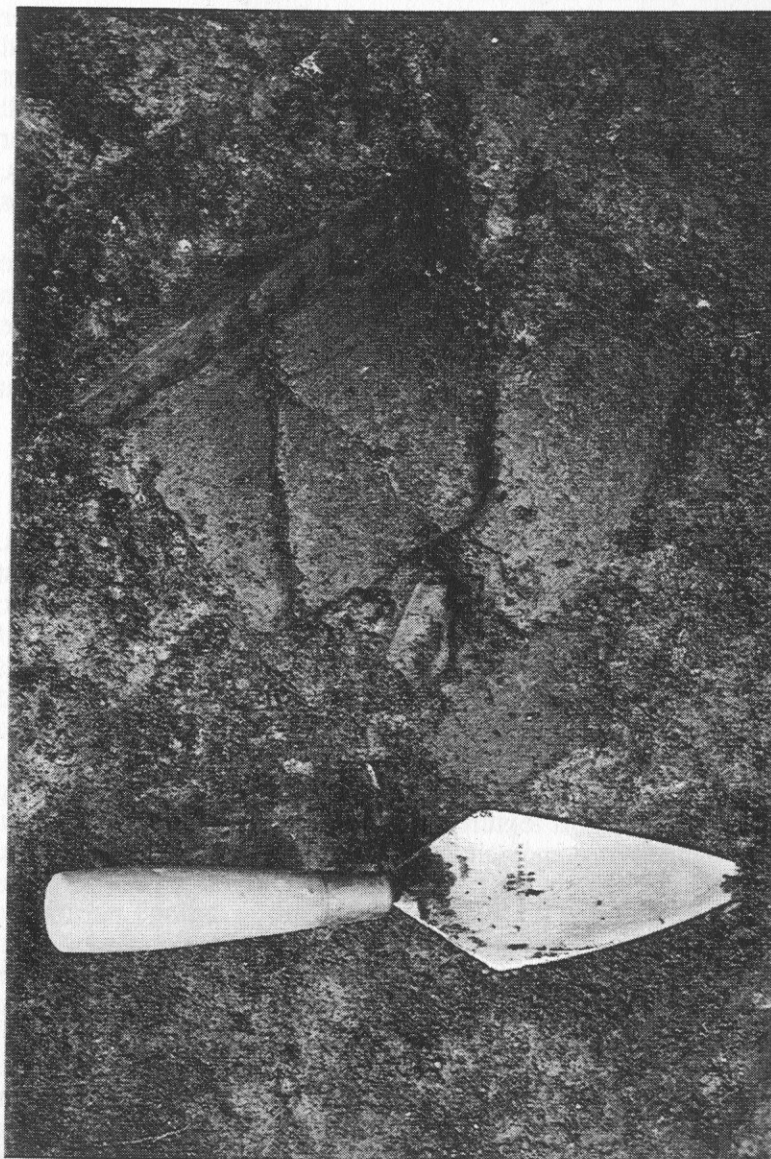


Figure 21. Vessel fragments and charred plant material on the base of Feature 30.

floor of the pit, and large slabs of several other jars and bowls were included in the fill directly above, along with many other unassociated fragments. Well-preserved food remains included charred corncobs and kernels, abundant nutshell fragments, intact persimmon seeds, charred and un-charred deer bone and turtle shell fragments, intact freshwater mussel shells, and many other macroscopic and microscopic charred seeds and plant remains, which await identification (Figure 21). Flotation of large samples preserved from the feature will provide excellent subsistence data.

The information from the two farmsteads at Raccoon Ridge should contribute to a growing data base on upland communities in the late prehistoric-early historic chiefdom known as the Oconee province (Williams 1994), which is certainly identical with the historically documented complex chiefdom of Ocute (e.g. Hudson et al. 1984:70-71; Smith 1987:13-15; Worth 1994:108, 118-20).

DATING

One goal of the Fernbank project is to obtain absolute dates. Three radiocarbon dates from features at Raccoon Ridge have been processed by Beta Analytic (Table 6, Figure 22). We have also used a new dating procedure pioneered by Douglas Frink of Archaeology Consulting Team, and this has provided results remarkably consistent with expectations based on ceramic and radiocarbon data. This technique, called Oxidizable Carbon Ratio (OCR), essentially dates soils based on the linear rate of natural oxidation of organic carbon in the soil, adjusted by factors affecting this rate such as soil texture and depth below the surface, mean annual temperature and rainfall, and soil Ph (Frink 1992, 1994a, 1994b, 1995). No large chunks of carbonized wood or plant material are required (as in normal radiocarbon dating), permitting the dating of thin layers of soil in feature or midden context. Seven OCR dates have been processed from features at Raccoon Ridge, and the results cluster precisely in the date-ranges expected based on the pottery and associated uncorrected C14 dates.

The already well-dated Lamar component has produced dates ranging from A.D. 1400 to 1520, and the similarly well-known Cartersville component has also yielded consistent results. Importantly, we now have four OCR dates (three in excellent context in association with Structure 1) for the Vining phase, marking the first absolute dates yet obtained for Vining.

Table 6. Radiocarbon and OCR Dates, Contexts, and Associated Artifacts

Proc.	Sample #	Date	Context	Associated Artifacts
OCR	ACT #1695	55 B.C. +/- 60	Midden, Unit 500N405E, SE Quad	Cartersville sherds
OCR	ACT #1719	A.D. 1015 +/- 30	Posthole fill, Str. 1 (Feat. 76)	None
OCR	ACT #1718	A.D. 1085 +/- 25	Posthole fill, Str. 1 (Feat. 39)	None
OCR	ACT #1697	A.D. 1160 +/- 25	Posthole fill, Str. 1 (Feat. 32)	None
OCR	ACT #1368	A.D. 1205 +/- 20	Upper fill, Feat. 30	Lamar sherds (mixed?)
C14	Beta 71809	A.D. 1400 +/- 70	Charcoal frags. in pit fill, Feat. 23	Vining sherds (mixed?)
C14	Beta 66619	A.D. 1435 +/- 50	Charred post in posthole	Lamar Incised bowl
C14	Beta 81549	A.D. 1490 +/- 40	Charcoal in lower fill, Feat. 30	Lamar sherds
OCR	ACT #1696	A.D. 1505 +/- 15	Posthole fill (Feat. 44)	Lamar sherds
OCR	ACT #1369	A.D. 1520 +/- 15	Lower fill, Feat. 30	Lamar sherds

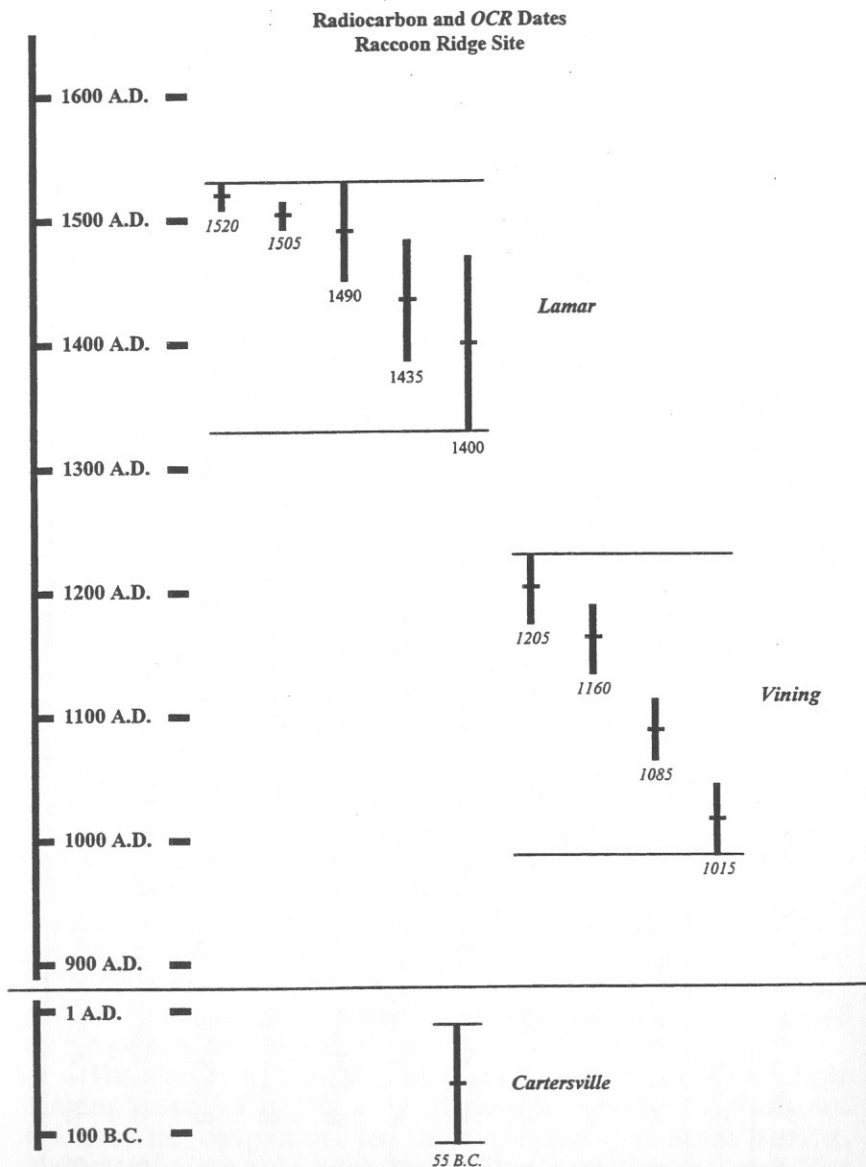


Figure 22. Combined radiocarbon and OCR data for Raccoon Ridge site.

As predicted by archaeologists several years ago, these dates confirm an Early Mississippi period placement for Vining, ranging from A.D. 1015 to 1185 (or perhaps as late as 1205 in a potentially mixed fill context). Further dates will be processed in the near future to refine the ranges for the Vining phase.

The Vining OCR dates seem to be supported by two lines of reasoning. First, the dates are consistent with otherwise well-dated ceramic assemblages and directly associated radiocarbon dates. The Cartersville midden produced a Middle Woodland date of 55 B.C., for example, and the two OCR dates from Lamar features (a trash pit and a post) are consistent with their Iron Horse ceramics and an overlapping C14 date. These two OCR dates are also consistent with each other (only 15 years apart), confirming their presumed contemporaneity. Second, given that the OCR procedure dates the natural deterioration of carbon in soil, which is a linear process, the two acceptable Lamar dates from the sixteenth century and the one acceptable Cartersville date from the first century B.C. bracket the four roughly-clustered OCR dates from Structure 1 and the upper fill of Feature 30. If older and younger dates produced by the OCR procedure are accurate, then the bracketed dates should also be accurate. The fact that these dates (A.D. 1015-1205) fall largely within the previously predicted age-range for Vining (A.D. 800-1200; Elliott and Wynn 1991) is icing on the cake.

ONGOING RESEARCH

Archaeological investigations at Raccoon Ridge have only begun. Much has been learned in three years, but a tremendous amount has yet to be discovered. Field and lab work, analysis, and interpretation will be directed toward filling in the gaps obvious in this presentation. Here is a partial list of actual and possible research questions for future investigation at Raccoon Ridge:

—What was the social and political context of the Vining phase village? Were Vining populations integrated into a broader society or interaction network? Were they organized into chiefdoms? Was social status or rank achieved, or ascribed at birth? Were there public buildings or a plaza in the village?

—Why are there so many Vining arrow points and informal flake tools, and why are they consistently made from extralocal chert? Was Raccoon Ridge simply a hunting station, or a military outpost? Was the village palisaded like those of contemporaneous

Woodstock groups to the north?

—What was the specific source of the chert used during the Vining occupation? How was it transported to the site? If chert was exchanged with Coastal Plain populations, what piedmont resources were Raccoon Ridge people able to provide? Was diabase processed and worked into tools for exchange?

—Where did Raccoon Ridge populations obtain clays for domestic pottery? Did they use the same source during all periods, or did different groups use different sources or mixtures of clays? How did ceramic manufacturing techniques differ between time periods? What can the abundant ceramics reveal about craft production, food preparation and storage, or family size?

—What was the subsistence base of upland populations in all three periods? How were they similar, and how did they differ? Did Vining populations practice corn agriculture? Did Lamar populations grow their corn on-site, or did they exchange with others living along floodplains? Was a higher proportion of upland resources consumed by Raccoon Ridge populations than their riverside counterparts during any period?

—How did domestic architecture vary? How were Cartersville, Vining, and Lamar houses similar and different?

—What was the relationship between the two Lamar farmsteads? Were their occupations overlapping, or consecutive? If the latter, were these loci occupied by the same family living in two successive nearby house sites? What evidence can be marshaled to demonstrate generational continuity between these sites?

—How were the Lamar farmsteads integrated into the broader Mississippian chiefdom of the middle Oconee River valley? Were they low-ranking members of chiefly society? How did farmsteads interact with one another on a local scale?

—Given that the two Lamar farmsteads seem to have been occupied immediately before and immediately after the Hernando de Soto expedition of 1540, is there any evidence for cultural change after Spanish contact, possibly resulting from epidemic disease? Did the northwestern farmstead last through the seventeenth-century Spanish mission period, and is there any evidence for influences from the coastal missions? Was the final abandonment of the site related to the effects of the Spanish colonial period?

While the length of the above list shows that much remains unknown about prehistoric occupation at this site, it should be remembered that few of the more specific questions above were even possible when the project began in 1993. As questions are

answered, new ones are raised in turn, some of which are broader in scope, and many of which are more specific. Ultimately, if even a few of the foregoing questions are answered, Raccoon Ridge will have served a window into the prehistoric past of eastern Georgia. In the meantime, public education programs centered on the Raccoon Ridge project will have provided opportunities and experiences for many Georgians who might otherwise have never have "gotten their hands dirty," building interest and support for the investigation and long-term preservation of Georgia's past.

ACKNOWLEDGEMENTS

Fernbank's public archaeology program would not exist without the interest, support, and participation of all the volunteers, interns, students, and members of the general public, since in this partnership consists the Raccoon Ridge project. The following is an attempt to provide a comprehensive list of all those students, volunteers, interns, visitors, and Fernbank staff who have actually participated directly in the field or lab work of the project during its first three years (1993-1995). The names are in alphabetical order, without regard to age or degree of participation. Some of these individuals have spent only a few hours, others a full week, and a few have even spent more well over a hundred hours contributing to Fernbank's ongoing research. In advance I apologize for the omissions and errors, which have certainly occurred during the construction of this list. My heartfelt thanks are extended to all those below and any others who have been left out. Special credit is particularly due to those volunteers who, though not singled out here (you know who you are), have persisted as our program grew, maintaining consistent interest and support during both active and inactive periods; their constancy is truly the cornerstone of the Fernbank public archaeology program.

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**CONTENTS OF EARLY GEORGIA
VOL. 24, NO. 1**

AN APPRAISAL OF TENANT FARMER HEALTH
AND DIET IN CENTRAL GEORGIA: RESULTS
OF THE REDFIELD CEMETERY STUDY

1

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