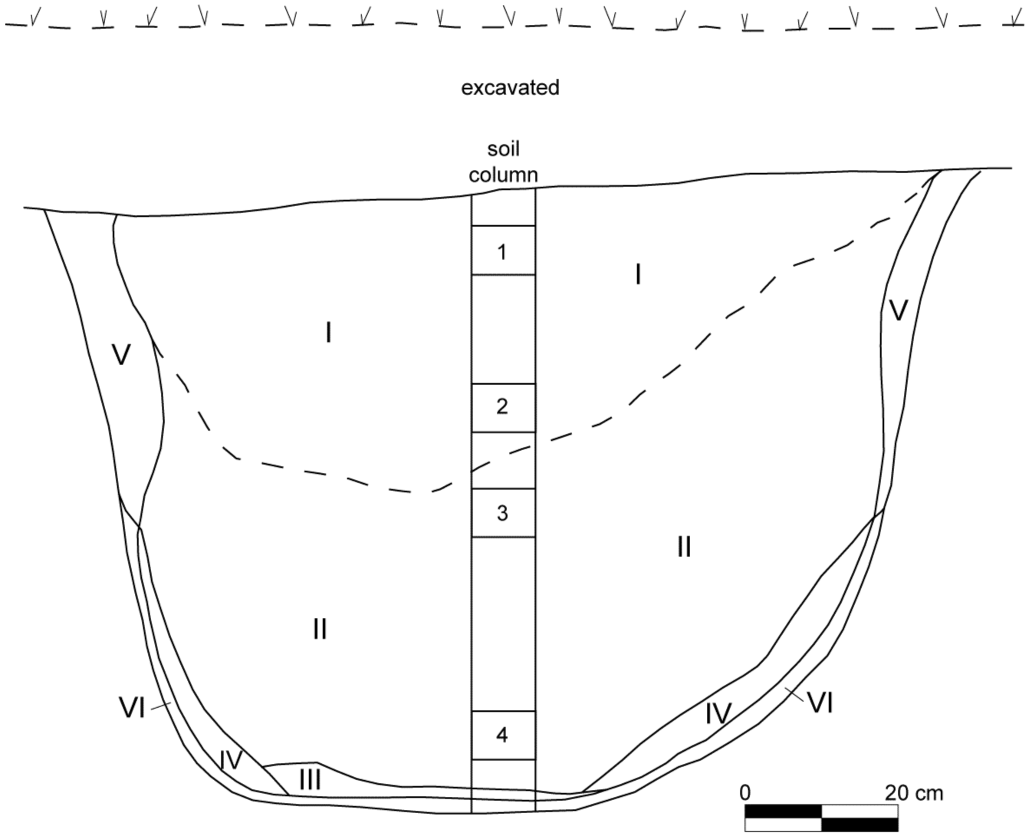
VICTOR MILLS (9CB138): AN EARLY STALLINGS SITE OF MAST PROCESSING AND STORAGE



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Technical Report 26
Laboratory of Southeastern Archaeology
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Cover illustration: Drawing of south profile of Feature 3, Victor Mills (9CB138).

MANAGEMENT SUMMARY

Reported here are the results of archaeological excavations in 1994 at the Victor Mills site (9CB138) in Columbia County, Georgia. Known since the 1920s as a locus of freshwater shellfish deposits of Stallings cultural affiliation, Victor Mills was evaluated in 1992 by Law Environmental, Inc. in advance of a proposed water treatment plant and pipeline. The proposed pipeline was diverted to avoid the site after it was determined significant, but soon afterwards a residential development project, along with looting, challenged preservation in place. Archaeologists from the Savannah River Archaeological Research Program were granted permission to conduct salvage excavations ahead of development. Excavations totaling 63 m^2 consisted of a trench through the shell deposit and continuing upslope, where pits up to one meter wide and nearly as deep were encountered just below a surface stratum of clayey loam. Pit fill, associated near-surface substrate, and especially the shell midden contained assemblages of material culture consistent with the Early Stallings phase of the middle Savannah River valley. Radiometric age estimates for five pit features and the midden span a three-century period, ca. 4350-4050 cal B.P. Aside from one intrusive hearth feature dating to the Woodland period, the feature and artifact assemblages of Victor Mills represent a cohesive pattern of intermittent, arguably specialized activities over this three-century span. Plain fiber-tempered vessels, soapstone cooking slabs, and abundant fire-cracked rock are complemented by an assemblage of quartz bifaces, performs, blanks, and debitage from the reduction of river cobbles. Plant and animal remains include charred hickory nut shell, freshwater shellfish, and the bones of small fish, turtle, and deer. Together the residues of activities at Victor Mills reflect two major tasks: (1) the collection and processing of mast resources, especially hickory nut, presumably in the context of seasonal storage; and (2) the reduction of quartz river cobbles for projectiles, presumably for hunting white-tailed deer. Other aspects of the material culture show that Early Stallings persons visiting Victor Mills spent time in the Coastal Plain, where Early Stallings sites abound. With an emphasis of mast collecting and deer hunting, visits to Victor Mills took place in the fall, but also likely in the winter and early spring, when stores were tapped and nuts processed as visitors provisioned themselves with shellfish and small fish.

ACKNOWLEDGMENTS

Were it not for the vigilance of the late George S. Lewis, the opportunity to conduct salvage excavations at Victor Mills would have been lost. Reaching out to the landowner in 1993, George paved the way for access to the site. After our excavations the following year, George learned that the property was sold to Richmond County. He discussed with County Commissioner Jerry Brigham the possibility of additional testing. At Mr. Brigham's suggestion, the senior author wrote to Richmond County Administrator Linda Beazley, who denied a request for continued access. The small window of opportunity closed, but George made it possible to at least get some information about this important site while still in the hands of Mr. Victor Mills, to whom we owe our gratitude. George's death in 1997 brought an end to an all-too-short life of devoted archaeological stewardship in the middle Savannah River valley. I regret that it has taken so long for this report to be issued; George deserved to see the results of his effort.

We are grateful to Steve Webb, then of Law Environmental, Inc., for sending to us the paper records and artifacts recovered from his reconnaissance effort in 1991, and for the foresight to find significance in a small, unassuming site. Notice to Georgia Department of Natural Resources about plans for testing were reviewed and approved by John R. (Chip) Morgan.

The field crew consisted of archaeologists from the Savannah River Archaeological Research Program (SRARP), members of the Augusta Archaeological Society, and various other volunteers. A core group consisting of George Lewis, Kevin Eberhard, Keith Stephenson, Adrienne DeBiase, Melanie Cabak, Buddy Wingard, Kristin Wilson, and Tammy Forehand, was joined for a day or two by Mark Brooks, Mary Inkrot, Dave Crass, and John Huffman. We were happy to host for a day Cheryl Claassen of Appalachian State University, who helped extract soil samples for micromorphological analysis.

The late Kevin Eberhard took on the unenviable task of sorting fine-screen matrix, and students at the University of Florida (UF)—to which the senior author moved in 1998—helped to catalog and quantify the artifact assemblage under a National Science Foundation grant. Other funds to support analysis of the Victor Mills assemblage were provided by a grant from the Robert L. Stephenson Research Fund of the South Carolina Institute of Archaeology and Anthropology.

Coauthor Emily Bartz spent much of the summer of 2020 putting the Victor Mills assemblage back into order after years of languishing at UF. Other coauthors of this report lent their expertise long ago to specialized analyses, and/or they helped to ensure consistency between earlier and more recent work. Despite all the necessary and proficient help, the senior author is alone responsible for the content and interpretations of this report.

CONTENTS

CHAPTER 1
OVERVIEW AND RESEARCH ORIENTATION

Fieldwork at sites of the Stallings Culture of the middle Savannah River Valley (ca. 4500-3500 cal B.P.) in the 1990s—when the senior author was a staff archaeologist with the Savannah River Archaeological Research Program (SRARP)—was prompted by the impacts of illicit digging and the unmitigated impingements of residential development. One such site was Victor Mills (9CB138) in Columbia County, Georgia.

Located on a ridge overlooking the Savannah River floodplain, Victor Mills is one of several Stallings Culture shell-bearing sites mentioned by William Claflin in his 1931 report on Stallings Island (Figure 1-1). The site was relocated and registered with the state of Georgia as part of a 1991 reconnaissance survey in advance of a proposed raw water intake and pipeline project (Webb 1992). The proposed pipeline was relocated away from the site after survey delineated its boundaries, but shortly thereafter it was again threatened by proposed residential development. The landowner in 1993, Mr. Victor Mills, was not obliged to conduct data recovery in advance of land alteration, but he graciously permitted some limited excavation to salvage information from both development and ongoing looting.

In early 1994, a crew of archaeologists from the Savannah River Archaeological Program, along with dedicated volunteers, excavated a meter-wide trench through what proved to be a relatively small and shallow shell midden on the northwest side slope of the ridge. The midden encased an exclusively Stallings-period assemblage of plain fiber-tempered pottery, perforated soapstone slabs, and a faunal assemblage dominated by deer, fish, and turtle bone. Continuing the trench upslope, to the top of the ridge, the crew encountered a series of pits up to one meter wide and nearly as deep. Those investigated contained organic fill with fire-cracked rock, small pieces of soapstone and fiber-tempered pottery, and scant bone and nutshell.

The crew returned to Victor Mills in May 1994 to document the full extent of the pit assemblage. Trenches dug perpendicular to the original trench exposed many features, including more large pits, smaller pits, and a clay-lined hearth of probable Swift Creek age (ca. 2,000 years ago: the only non-Stallings feature in the assemblage). All told, the crew documented 32 features.

Reported here for the first time are technical details on the methods and results of archaeological testing at Victor Mills (9CB138) in 1994. Provided here as well are descriptions and analyses of the material culture, vertebrate fauna, plant remains, and shell recovered in that effort. An interim letter report of no consequence (Sassaman 1995) was issued in 1995 to satisfy the terms of a small grant. Victor Mills has also been featured in narratives about Stallings Culture (Sassaman 2006, 2016), and data on its pottery factored into recent interpretations of social geography (Gilmore et al. 2018; Sassaman and Gilmore 2021). However, the requisite technical report of 1994 excavations has languished for more than a quarter century. Arguably, the delay in reporting has enabled a more nuanced approach, given the past 25 years of related research. But that does little to satisfy the obligation professional archaeologists have to report their findings in a timely manner. This report is long overdue!

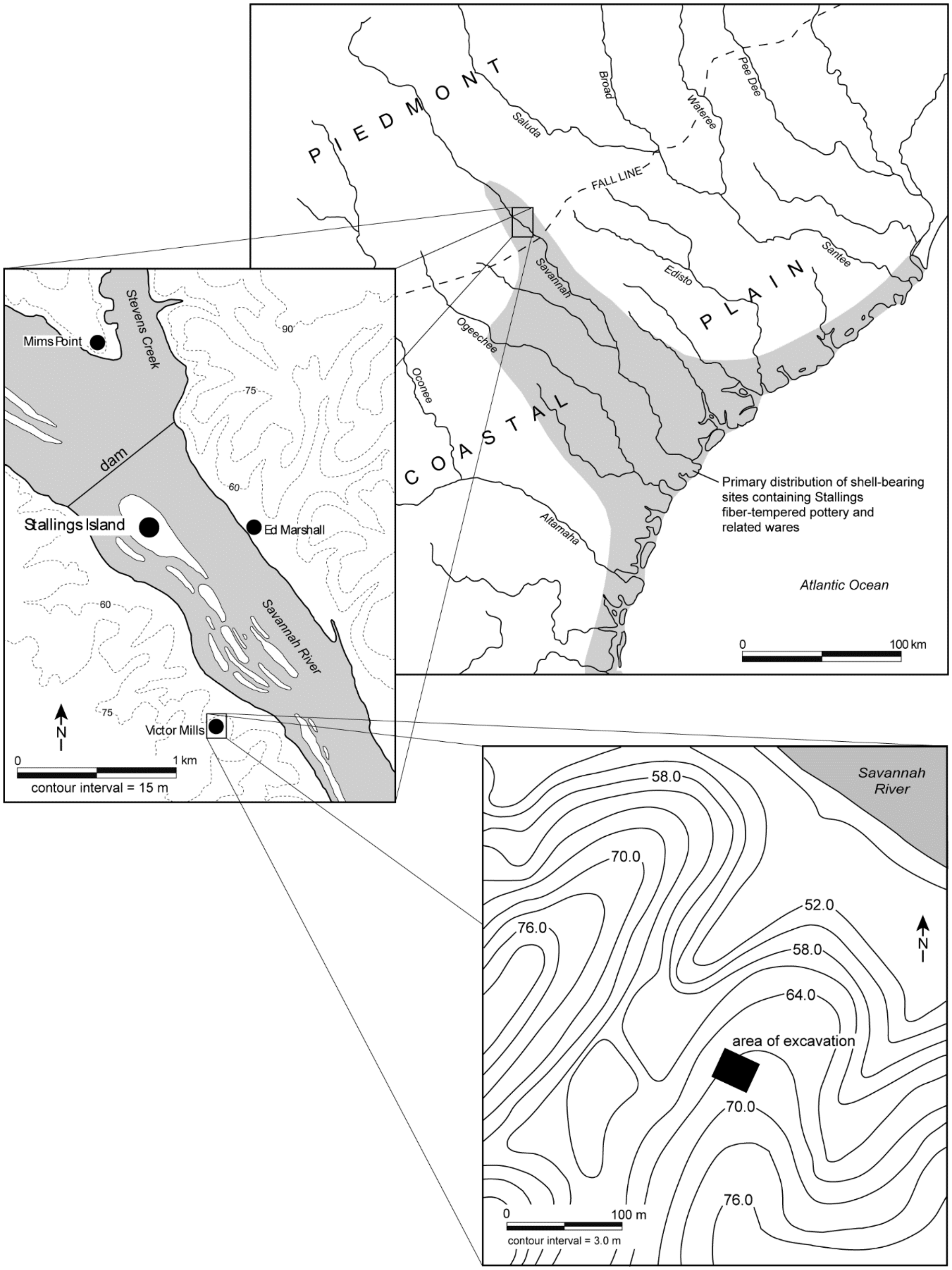


Figure 1-1. Topographic map of the immediate upland area of Victor Mills (bottom right) in the context of Stallings-era sites on and around Stallings Island (left) and the regional distribution of shell-bearing sites with pottery of the Stallings tradition.

Provided in Chapter 2 are the technical details of excavation in 1994, its methods and results. Described are the rationale for sampling the site with trenches; the profiles, plans, and content of test units; the location, size, and shape of all features; and a gross inventory of recovered materials. Also reported in Chapter 2 are the results of seven radiocarbon assays on wood charcoal and charred nutshell. Clustered between 4400 and 4100 cal B.P., the age estimates for Victor Mills coincide with the last few centuries of the Early Stallings phase in the Savannah River Valley (ca. 5000–4100 cal B.P.). As discussed in the concluding chapter of this report, the regional chronology suffers from some pressing problems, notably that the oldest dates for Stallings pottery, acquired in the 1960s, cannot be replicated. Irrespective of the age of the first pottery in the region, the use of Victor Mills by people who made plain fiber-tempered pottery elapsed on the eve of the ensuing Classic Stallings phase of ca. 4100–3750 cal B.P.

Secondary analyses of material culture from Victor Mills are provided in Chapter 3. Pottery, soapstone, flaked stone, polished stone, and cobble tools are all well represented in the assemblage and provide a strong basis for inferring the types of activities that took place at Victor Mills during the Early Stallings phase. The inferential value of artifacts is enhanced by the analysis of animal bone and plant remains in Chapter 4. Together the residues of activities at Victor Mills reflect two major tasks: (1) the collection and processing of mast resources, especially hickory nut, presumably in the context of seasonal storage; and (2) the reduction of quartz river cobbles for projectiles, presumably for hunting white-tailed deer, the bones of which are common in the assemblage. Other aspects of the material culture show that Early Stallings persons visiting Victor Mills spent time in the Coastal Plain, where Early Stallings sites abound. With an emphasis of mast collecting and deer hunting, visits to Victor Mills took place in the fall. Visits at other times of the year to retrieve nuts from stores and process for consumption left its own mark, notably in the material culture of rendering oil with simmering water.

These and other inferences about the Early Stallings occupation of Victor Mills are the subject of the concluding chapter, Chapter 5. Putting it into its appropriate regional context, Victor Mills was on the upriver edge of Early Stallings settlement. Although prolonged settlement of the middle Savannah at this time is known from work elsewhere (e.g., Ed Marshall, 38ED5), Victor Mills was evidently used only seasonally, and possibly for nonresidential purposes. We consider in Chapter 5 whether Victor Mills was attached to places of nearby residence or, as has long been asserted (Sassaman 2006), was a place of resource extraction for settlements of the Coastal Plain, downriver.

The balance of this chapter is given to background on Victor Mills, including prior archaeological investigations, and to a prospectus on research questions that guide analysis of the Victor Mills assemblage. Some discussion of site setting helps to put these topics into spatial and ecological perspective.

SITE SETTING

Victor Mills occupies an upland ridge that overlooks the Savannah River on the Georgia side of the valley. Spring-fed streams have dissected the ridge at irregular intervals, creating nose-like landforms that vary from narrow to broad. The relatively flat portion of the ridge nose on which Victor Mills lies is approximately 50 m wide and roughly 67 m above mean sea level (amsl), or about 18 m above the elevation of the Savannah River floodplain. Dropping away from the flat (top) portion of the landform on three sides are slopes of about 15 percent (Figure 1-2). The ridge nose continues upslope to the southwest to a maximum elevation of 78 m amsl. All side slopes are easily traversed by foot; none of the landform involves escarpments or slopes too steep to walk. Travel down the ridge to the floodplain is afforded by the dissection caused by stream flow.

From the perspective of regional physiography, Victor Mills is located along the northern edge of the Fall Line Sandhills, basically at the interface between the hard-rock geology of the Piedmont and unconsolidated marine deposition of the Coastal Plain. The Fall Line is actually more of a “zone” where two provinces meet along a crenulated border. Specifically, the Victor Mills locality sits at the interface between the Washington Slope District of the lower Piedmont and the Vidalia Upland District of the Coastal Plain (Wharton 1978). At lower elevations of the Fall Zone, crystalline rocks of the Piedmont are overlain by marine sediments dating to the Paleogene period (ca. 66–23 million years ago); along the higher elevations of upland ridges, metamorphic rock of the Lower Piedmont has weathered to clays that form the parent material for surface soils. Groundwater in clay substrate of upland landforms issues as springs in many of the dissected slopes, providing nearby sources of potable water for inhabitants of ridge noses.

Figure 1-2. View facing southeast across the ridge nose from the location of the shell midden on the northwest side slope. The crew in background is close to the highest elevation of the site, ca. 67 m amsl. Photo taken prior to excavation, February 1994.

As might be expected of physiographic interfaces like the Fall Zone, biota is diverse. Arguably, the Fall Zone qualifies as an *ecotone*, meaning it is a transitional area between two biological communities, in this case those of the Lower Piedmont and Upper Coastal Plain. The most obvious measure of an ecotone is the mixed hardwood-pine forests of the Fall Zone. Moving upriver from the pine-dominated landscape of the Coastal Plain, hardwoods like oak and hickory gain prominence, and with them greater densities of white-tailed deer, turkey, and other game important to humans. During their 1991 survey for the water intake and pipeline, Law Environmental archaeologists noted that the dominant tree species of the project area included white oak, black oak, red maple, tulip poplar, and loblolly pine (Webb 1992:17). Understory was dominated by dogwood, blackberry, Japanese honeysuckle, and trillium. The presence of the federally protected Relict trillium (*Trillium reliquum*) at Victor Mills contributed to the decision to relocate the pipeline away from the site (Webb 1992:85).

Although the small spring-fed streams dissecting the upland ridge provided potable water, they were not large or reliable enough to offer much in the way of aquatic resources. Given the proximity of Victor Mills to the Savannah River, the ecological limitations of nearby streams were likely inconsequential. Before the construction of dams in the early twentieth century, the river segment of the Fall Zone was an expansive shoals where the hard rock substrate of the Piedmont was exposed as waterworn boulders and cobbles. Abundant pools and channels provided good habitat for variety of freshwater mollusks and bony fishes, as well as aquatic turtles that basked in the sun on exposed boulders. The shoals would also have been the ideal location to capture anadromous fish like sturgeon and shad, which migrate upstream to spawn during the Spring. Now sandwiched between two dams that regulate water levels, the Fall Zone stretch of the Savannah River would have been shallow enough, especially during droughts, to enable people to positon themselves over channels and pools to spear or net fish, to collect shellfish without diving, and possibly to cross the river by fording.

Damming the river is one of many recent impacts of modernization. Farming and timber harvests wreaked havoc on soils of upland ridges as land was cleared and tilled, causing erosion to both denude upland landforms and clog lowland waterways. Increased flooding of the Savannah River was one major consequence of nineteenth-century land use (Trimble 1974), and one of several reasons for constructing dams. The landform on which Victor Mills sits was apparently never completely cleared and intensively farmed, as its topsoil is more-or-less intact, at least across the central part of the site (Webb 1992:85, 88).

The shells of freshwater clams and bones of various fish species recovered from the Victor Mills midden (see Chapter 4) attest to use of resources collected from the Savannah River and its floodplain. So do the many cobbles at the site, which were carried up from the floodplain to be flaked into a variety of bifacial tools, or otherwise used as hammers, grinding stones, and anvils (see Chapter 3). Quartz was most commonly collected, along with various igneous and metamorphic rocks. Derived from ancient volcanic activity (200–300 million years ago), crystalline rocks of the Lower Piedmont were later metamorphosed along a series of belts running parallel to the Fall Line. Those dominating the middle Savannah River valley consist of gneiss, granite, amphibolite, schist, and quarztite of the Kiokee Belt, and felsic volcanic tuffs that have been metamorphosed into schists in the Belair Belt. Associated with the Augusta Fault, this latter belt is generally buried under Upper Coastal Plains sands with the major exception of the Savannah River valley near Augusta (Bramlett et al. 1982). Farther downriver, in the Coastal Plain, come marine cherts of variable quality, some quite vitreous. Distant as they are from Victor Mills, Coastal Plain cherts were carried to the site as finished or near-finished tools.

Geological sources of soapstone have not been located in the vicinity of Victor Mills, but judging from the abundance of this material for making cooking slabs, it was not likely far away. The nearest documented source is upriver, in the Kiokee Belt, about 14 km from Victor Mills (Elliot 2017:40). Closer sources, including in the Belair Belt, may be currently buried or simply undetected.

Finally, the landform on which Victor Mills sits had intrinsic qualities that are worth enumerating. First, it was composed of clay that was conducive to the excavation of durable pits. Second, it was elevated and thus sufficiently drained to enable pits to penetrate over one meter deep before hitting a perched water table. Third, the elevated position enabled surveillance of the river below, as well as the side slopes of adjacent ridge noses. A straight line of site to Stallings Island may have also been possible, depending on tree cover.

PREVIOUS WORK

As noted earlier, William Claflin mentions Victor Mills in his 1931 report on Stallings Island. He referred to it as “Site 7,” which he described as “a small shell bed less than a tenth of an acre in area” (Claflin 1931:41). This description and a mapped location comport with what we know today as 9CB138, but we do not know how Claflin became aware of its inconspicuous location. Given his considerable experience in the area, Claflin may have actually surveyed the ridge line himself. Alternatively, he may have been alerted to the site by one of his local informants. Either way, the fact that other ridge-nose sites of this age and composition were not reported by Claflin in his Stallings Island report suggests that Victor Mills is relatively rare in the local inventory of Stallings-age sites.

Pursuant to a proposed project to construct a water treatment plant and raw water pipeline through portions of Richmond and Columbia counties, Georgia, the U.S. Army Corps of Engineers required the Richmond County Water and Sewage Department (RCWSD) to survey the affected area for potential impacts to cultural resources. Contracted to conduct the survey was Law Environmental, Inc. of Kennesaw, Georgia, under the direction of Robert S. Webb. The summary of results that follows is from their report to RCWSD (Webb 1992).

In the initial design of the proposed water treatment project, a raw water pipeline was to be constructed through the ridge nose on which Victor Mills lies (Figure 1-2). Four shovel tests along the proposed pipeline produced artifacts, two of which, near the side slope shell midden Claflin noted, produced artifacts to a depth of 43 cm below the surface in relatively undisturbed substrate (Webb 1992:85). The Law Environmental crew observed damage from recent looting in the shell midden, which they estimated to 18 x 28 m in plan, close to Claflin’s estimate of 0.1 acre. Despite the looting, they considered the shell middle “undisturbed” (Webb 1992:88).

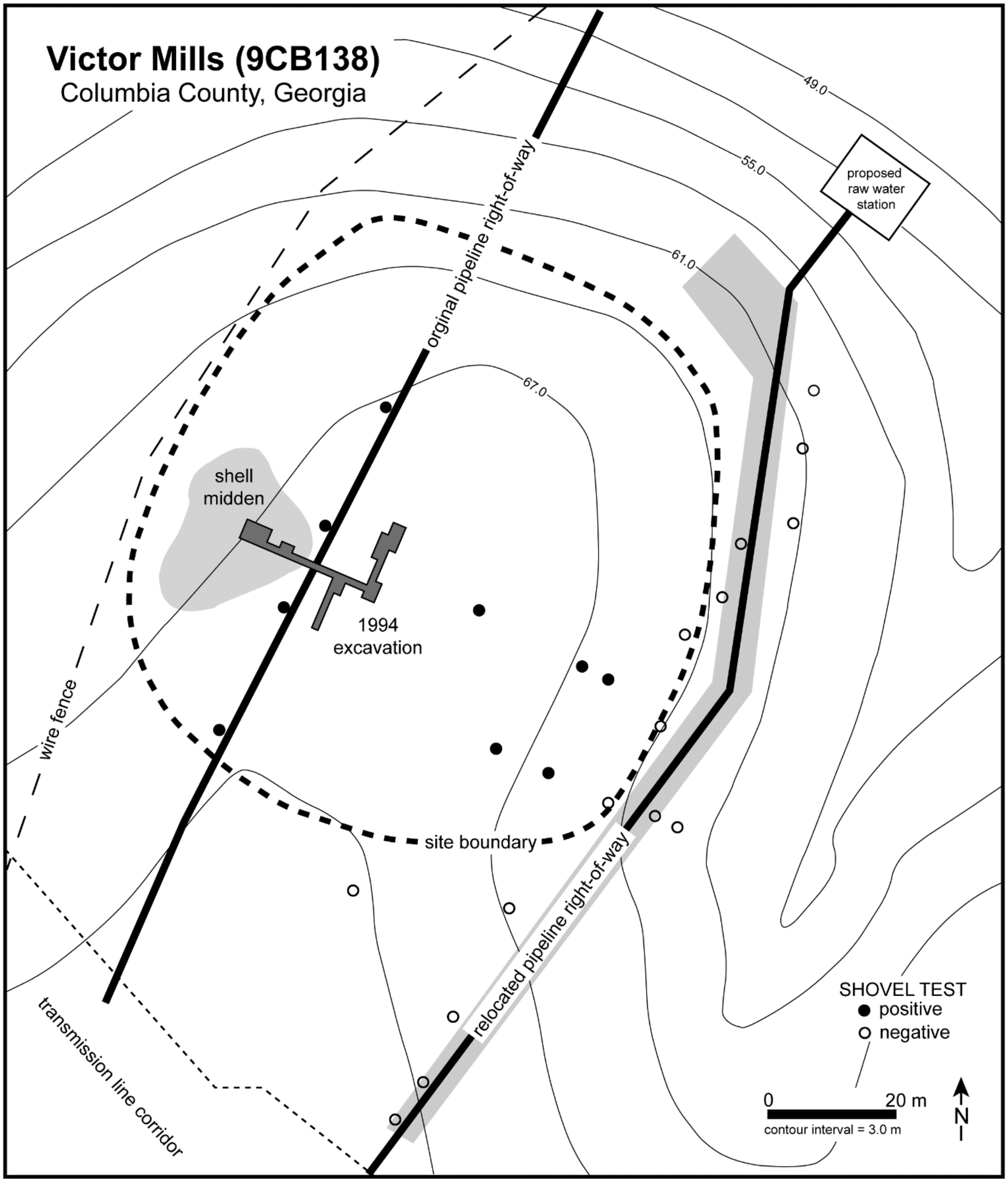


Figure 1-3. Topographic map of Victor Mills (9CB138), showing site boundaries, locations of original and relocated rights-of-way of proposed pipeline, Law Environmental shovel tests, and 1994 excavation block.

Before work continued, the proposed pipeline was relocated to the west side of the ridge nose (Figure 1-2) to avoid the site and to avoid the protected Relict trillium. Additional shovel tests in the relocated right-of-way of the proposed pipeline, and in the area of the ridge nose between the two rights-of-way, enabled the Law Environmental crew to infer site boundaries to what they referred to as RCI 1-6 (now 9CB138), as shown in Figure 1-3. Nine of 27 shovel tests (30 x 30 cm in plan), including the four near the shell midden, yielded artifacts. Pottery sherds were recovered from only the two shovel tests adjacent to the shell midden and from the surface of one of three looters' pits. These same contexts were the only ones to produce soapstone fragments, along with ubiquitous quartz tools and flaking debris (debitage, cores, and biface fragments), other flaked stone, and fire-cracked rock (FCR). All other positive shovel tests produced only flaked stone (mostly quartz) and fire-cracked rock. With one exception, shovel tests along the eastern side of the ridge nose yielded only one or two pieces of flaked stone. The exception (Shovel Test D-2-1) included seven pieces of flaked stone and six pieces of FCR.

In his assessment of the significance of Victor Mills, Webb (1992:90) concluded that "when the concentration of mussel shell is considered with the lithic data, Site RCI 1-6 exhibits the overall assemblage of a short-term special-use site geared toward aggregate shellfish processing and quartz river cobble procurement for tool manufacture." Combined with its research potential, RCI 1-6 was sufficiently intact to warrant its eligibility to the National Register of Historic Places; Webb's recommendation of avoidance was heeded as the pipeline was relocated to an area east of the site.

Among the pottery sherds collected by Law Environmental archaeologists were plain fiber-tempered sherds typical of the Stallings tradition, but also two sand-tempered sherds near the shell midden that Webb (1992:90-91) estimated possibly to be later in age. Although our subsequent excavations elsewhere at the site produced a few complicated-stamped Swift Creek sherds of Early-Middle Woodland vintage (see Chapter 3), the plain sand-tempered sherds found earlier are likely variants of Stallings pottery. Sand, along with fiber, is a common aplastic in Stallings pottery, and some of it is so bereft of fiber as to be easily misclassified.

In sum, the results of survey by Steve Webb and Law Environmental established the significance of Victor Mills as a site with potential to address a variety of questions pertaining to Stallings land-use in the region, and, by extension, provided the grounds for relocating the pipeline away from the site. That Victor Mills would live up to its potential for research was born out in our own testing of the site in 1994, when the discovery of an assemblage of pit features amplified its significance.

RESEARCH ORIENTATION

Given its assemblage of pits, discrete midden, well-preserved organic matter, and associated material culture, the research potential of Victor Mills is considerable. But its significance depends as much on the types of questions asked as it does the potential to answer them. Technical reporting of archaeological investigations is generally descriptive; the details of how investigations were carried out and what was found out are relatively objective and timeless, even as we agree that the language and classifications schemes that we use to describe methods and results change over time. Beyond description, the search for patterned variation among observations made in the field and the lab is driven by questions. Here in this final section, we lay out some of the questions that have shaped the way Victor Mills was excavated and how the results of excavation were analyzed. Many of these questions trace back to the senior author's formative years in Southeastern archaeology, others have arisen recently among other authors of this report whose own research has expanded the project beyond its initial purpose. Each of these research questions is revisited in the final chapter of this report, where we gauge the degree to which each has been adequately answered and what gaps in knowledge persist.

Food Storage, Food Processing, or Other?

The details of this report support the conclusion that Victor Mills was a place of intensive activity involving the digging and use of at least two types of pits, large cylindrical pits and shallower, hemispherical pits. The contents of these pits have no necessary relationship to the purposes for which they were dug, but the inclusion of groundstone, sherds from indirect-heat cooking vessels, soapstone cooking stones, charcoal, and fire-cracked rock gives us a good place to start. These same items were recovered in much larger numbers in the shell midden of the side slope. Radiocarbon dating enables us to suggest that the pits and midden are coeval. Thus, we have an assemblage of features, artifacts, and biotic remains that was evidently deposited over a relatively short period of time by people of presumably close affinity, if not also of lineal descent. What were they doing with these pits and how do the associated materials relate to the purposes for which pits were dug?

When the senior author first put thought into this question, he was preoccupied with the premise that large-scale social formations at places like Stallings Island were predicated on the collection of anadromous fish, like shad. Bones of shad are only rarely found in Stallings-age assemblages, which is unsurprising given how fine and fragile they are. Moreover, shad fisherman working the lower Savannah River in the early 1990s shared with the senior author their preferred cooking method, which involved deep frying an entire gutted fish and consuming it entirely. Evidently, the bones of shad become soft and digestible when subjected to high or prolonged heat. If Stallings people collected these spring migrants in the nearby shoals and used technology like earth ovens to cook them, the only macroscopic evidence of the fish themselves may be confined to paleofeces, of which we collected none.

The assumption that large pits were dug to *process* food was in part supported by evidence for heat alteration along the basal margins of at least some of the pits. Hardened and reddened clay attests to exposure to heat, an expected outcome if pits were used as earth ovens. But if this were the case—that large pits were used to process food, whatever that food may have been—then the scale of consumption is expected to be commensurate with the scale of pits. Not knowing how many pits were in use at any one time over as much as three centuries makes it difficult to know the actual scale of any presumptive pit-cooking event. Because many pits intercepted one another, they could not have been in use simultaneously, and we are perhaps safe in assuming that pits were used repeatedly given the considerable labor costs of digging meter-deep, meter-wide holes into dense clay. It is possible, even likely, that only a few pits were in use at any one time. Nonetheless, the relatively small size of the midden that accumulated over the period of occupation is incommensurate with the totality of pit use. The scales of consumption (midden) and production (pits) appear to be out of sync.

As analysis of the Victor Mills assemblage ensued in years after excavation, the hypothesis that large pits were used for food *storage*, rather than processing, garnered more attention. Resources such as acorn, hickory nuts, and other nuts, for instance, are commonly stored among people with access to abundant mast and a need for stockpiling food for the near-term future, often due to the challenges of winter (e.g., Morgan 2012) but also for the sort of social surpluses involved in the harvest of anadromous fish (e.g., Schalk 1977:232). Ethnographic observations of acorn economies in California provide good insight on how a location of storage is spatially separated from a place of residence during the winter, when stores are tapped (Jackson 1991). Was Victor Mills primarily a place of mast storage?

We will address this question in detail in Chapter 5, and here simply note that the answer to this question, not surprisingly, comes from the totality of things and residues associated with the pits. Enabled by data on artifacts, bones, shell, and plant remains are insights on a range of activities related to the collection and processing of food stores, some of which were incidental to time spent there (e.g., shellfish collection and consumption), others perhaps seasonally complementary (e.g., fall deer hunting). It is worth noting that California cases help to explain why Victor Mills may have been the place to store food. Places where oak was abundant in California are not surprising (e.g., western foothills of Sierra Nevada), but given the technology of processing acorns, access to water and stone was critical too. Storage in California was above-ground, in granaries, so substrate was not an issue. In the case of Victor Mills, where subterranean storage is implied, well-drained clay substrate was an additional asset for storage economies. The combination of clay substrate, proximity to water and stone, and abundant mast may have afforded this particular location superb practical value for storage.

Victor Mills in Regional and Temporal Context

If Victor Mills was a place of only seasonal activity, what was its relationship to other places on the landscape in an annual round, and how did such relationships change over time? Answers to these questions hinge on the availability of data on other Stallings sites in the area. Requisite to any such comparisons is sound chronology. Sites like Victor Mills provide good opportunity to refine chronology in being short-lived but rich in material output. Direct associations between radiometric age estimates and material culture are the basis for comparative analysis, and the discrete midden and pits of Victor Mills are the sorts of contexts that bolster such associations.

Other sites in the vicinity are reasonably well dated; among them are a couple of candidates for contemporaneous settlements. The nearby Ed Marshall site (38ED5), in particular, was possibly a residential locus from which forays to Victor Mills were launched. Although this floodplain site is multicomponent, and thus harder to parse that Victor Mills, fired clay platforms and associated features of Early Stallings age attest to probable residential uses. A second site a few kilometers downriver, Rae’s Creek (9RI137) may be another coeval settlement, but its chronology is a bit ambiguous. In both cases, more than dating bears relevance as we compare in Chapter 5 some of the material traces of affinity, notably the paste and technology of Early Stallings pottery.

Extrapolating to a larger scale, the presence of Coastal Plain chert in the Victor Mills assemblage lends credence to the inference that those spending time at this place also spent time at places tens of kilometers downriver. Under extant chronology, the oldest Stallings sites are indeed downriver, in the middle and lower Coastal Plain, 75 kilometers or more from Victor Mills. However, radiometric assays on charcoal purported to be the oldest in the region, at Rabbit Mount (38AL15; Stoltman 1966), cannot be replicated with charred fibers extracted from its sherds and probably date an underlying preceramic component of the Allendale phase (Sassaman et al. 2002:17-19). Age estimates on charred fibers from Rabbit Mount and a second middle Coastal Plain site, Cox/Fennel Hill (38AL2), are roughly coeval with Victor Mills, opening up the possibility that these sites are all seasonal places of an integrated, province-wide settlement round. Again, pottery provenance and composition data enable us to comment of the likelihood that all such sites were occupied by members of the same, mobile communities who shared practices of making pottery, or were distributed among discrete communities of the Fall Zone and Piedmont practicing local variants of pottery-making traditions.

In assembling the pieces of the Stallings archaeological landscape into something like a settlement system or a seasonal round, we are mindful that things were always in motion such that our temporal resolution is likely to hide short-term change. But while the origins of Stallings Culture evades definition, and the time during which plain fiber-tempered basins were in vogue was not as long as once imagined, the onset of practices glossed as Classic Stallings is well documented at several sites in the vicinity of Victor Mills. At about 4000 cal B.P., pottery became decoratively ornate, villages assumed a formal, circular plan, and the namesake site, Stallings Island, became a place of ritual activity, including feasts. Large cylindrical pits like those at Victor Mills are found at sites with some topographic relief (e.g., Stallings Island and Mims Point), but now associated with households and filled with diverse assemblages of things and substances. Mast resources, deer, fish, and turtle continued to be important resources during Classic Stallings times, but the means by which they were captured, processed, and consumed seem to have changed in ways that reflect changing social premises. Our third research topic takes a look at this social change through the lens of foodways.

Changes in Foodways, Changes in Identity?

Continuity in the types of food resources Stallings people collected and ate over many centuries belies variation in foodways that are encoded in the material culture of subsistence. The subject of ongoing research by co-author Emily Bartz, foodways contribute to the construction and maintenance of social identity. Focusing on the entanglements of food resources, cooking technology, and processing methods, Bartz aims to elucidate changes in foodways attending the shift from Early Stallings to Classic Stallings social arrangements (i.e., seasonal mobile to sedentary communities). Given that the form and surface treatment of Stallings pottery changed appreciably at ca. 4000 cal B.P., it is worth asking, at the start, how these sequent types of vessels were actually used.

Emphasis to date on technofunctional variation of Stallings pottery has lacked any independent means for testing hypotheses about use. Bartz is pursuing data from biomarkers in pottery sherds to infer not only the types of foods processed with vessels, but also the manner in which they were processed, and served. Of particular interest is variation in the lipid profiles of Early Stallings basins and Classic Stallings pots, including the carinated vessels concentrated at Stallings Island. If the residues of basins support the inference that they were used to process mast, for instance, how is this biomarker manifested in later pottery of different form, if at all? We know that people of Classic Stallings identity collected and processed hickory nuts, but lacking the storage economy of their predecessors, was pottery still central to mast processing, and if so, why did form change? As seems to be true for so much of Stallings history, especially the Classic Stallings phase of orate pottery, social identities come to the fore, and foodways offers an insightful perspective on this change.

CONCLUSION

This long-overdue report on 1994 excavations at Victor Mills documents an assemblage of pits, artifacts, and organic remains consistent with a pattern of seasonal use during the Early Stallings phase involving the processing and storage of mast—specifically hickory nuts—and the hunting of white-tailed deer, among other related activities. Nothing in the inventory of features and material remains suggest that Victor Mills was a place of long-term residence. Other sites, both near and far, are good candidates for residential bases associated with this seasonal site.

Being a more-or-less single-component site, Victor Mills has the integrity and clarity to enable relatively detailed reconstructions of the activities that took place there and when those activities occurred. Connecting these activities to the regional landscape of mobile Early Stallings communities requires a great deal of comparative work and reliable chronology. Untapped potential in residues like lipids in pottery bolster the potential to integrate data from multiple sites to propose a model of settlement organization. Although Victor Mills has been known to archaeologists since the 1930s, the efforts of Law Environmental, Inc. in 1991 to establish the integrity and research potential of this site prevented its imminent destruction. Permission to further investigate the site by the subsequent landowner, Mr. Victor Mills, enabled the results reported here; we are confident that these results validate the foresight of all such parties to learn what we can from this remarkable place.

CHAPTER 2
METHOD AND RESULTS OF TEST EXCAVATIONS

Salvage excavations at Victor Mills in 1994 began with controlled tests of the downslope shell midden, followed by upslope trenching in a series of 1 x 2-m units that exposed pit features dug into clay substrate. Additional trenches perpendicular to the first were added to locate and document more features. A total excavation area of 63 m^2 revealed 32 cultural features: ten large cylindrical pits, 2 bell-shaped pits, 10 hemispherical pits, three basin-shaped pits, one hearth, and six unidentifiable pits. Pit fill, associated near-surface substrate, and especially the shell midden contained assemblages of material culture and biotic remains that are the subjects of Chapters 3 and 4, respectively. Here we provide the rationale and methods for sampling Victor Mills; describe midden stratigraphy, the subsurface site plan, and each of the features; and review the results of radiometric dating.

METHODS OF EXCAVATION

Using a mechanical transit, a survey crew established a grid at Victor Mills to facilitate spatial control ahead of excavation. The initial plan for excavation was to start at the shell midden and proceed upslope with a series of contiguous 1 x 2-m test units in trench-like fashion. A grid oriented to cardinal directions would have cut diagonally across the slope, so grid north was set at 23° E/N, roughly parallel with the ridge nose. Orthogonal lines (W-E) off this axis run roughly perpendicular to the contours of side slopes of the ridge nose.

Figure 2-1. View facing grid-east (southeast), upslope from the edge of the shell midden exposed in the foreground, February 1994.

The western anchor of a trench was sited in a recent looter pit at the upslope end of the shell midden. Looters often are drawn to shell middens, knowing they are good contexts for artifacts, including the possibility of preserved organic artifacts (e.g., bone pins). Cleaning out and "profile facing" looters pits is an effective way to get a three-dimensional view of the substrate without excavating more than is needed to achieve proper profiles. Test Unit 1 was placed in one of the larger of several looters pits. Four continuous units (Test Units 2-5) were added in a grid-east direction. The third in the sequence, Test Unit 3, straddled the edge of the shell midden and upslope clay substrate, which appeared to be sterile (Figure 2-1).

Sited five meters farther east on this same line was Test Unit 6. Dark brown stains in the substrate of red loamy clay initially were attributed to decomposed tree roots, but after joining this unit with the downslope trench (Test Units 11-14), it became clear that these stains were the consequence of human activity (Figure 2-2). Slot trenching and profiling of some of these stains substantiated this inference (Figure 2-3).

Figure 2-2. View facing grid-west (northwest) of initial trench, showing several pits features marked by dark brown stains in reddish brown substrate. First thought to be root stains, those profiled in the foreground and farther west, in a slot ternch, proved to be of human agency. March, 1994.

With growing recognition of the prevalence of pit features upslope, the strategy in a second phase of excavation, conducted in May 1994, was to open additional trenches to expose and sample more features. Excavated at the grid-east end of the initial trench was a grid-north-oriented trench consisting of one 1 x 1-m unit (Test Unit 19) and four contiguous 1 x 2- m units (Test Units 20-23). Flanking the north end of this addition were four additional 1 x 2-m units (Test Units 28-30, 32). Added to the grid-south end to enable excavation of a large pit feature (Feature 3) was a single 1 x 2-m unit (Test Unit 33).

A second trench oriented grid-south consisted of four contiguous 1 x 2-m units (Test Units 24-27) with a fifth (Test Unit 31) added to the grid-northeast flank to enable feature excavation.

In total, 63 m^2 was opened at Victor Mills in two phases of excavation. Figure 2-4 shows the full extent of testing, with test units of the first and second phase of work distinquished by shading. Included with this plan are grid coordinates.

Figure 2-3. View facing grid-south of Features 2 (foreground), 3 (background) and 3A (in between) after sampling and profiling, March 1994.

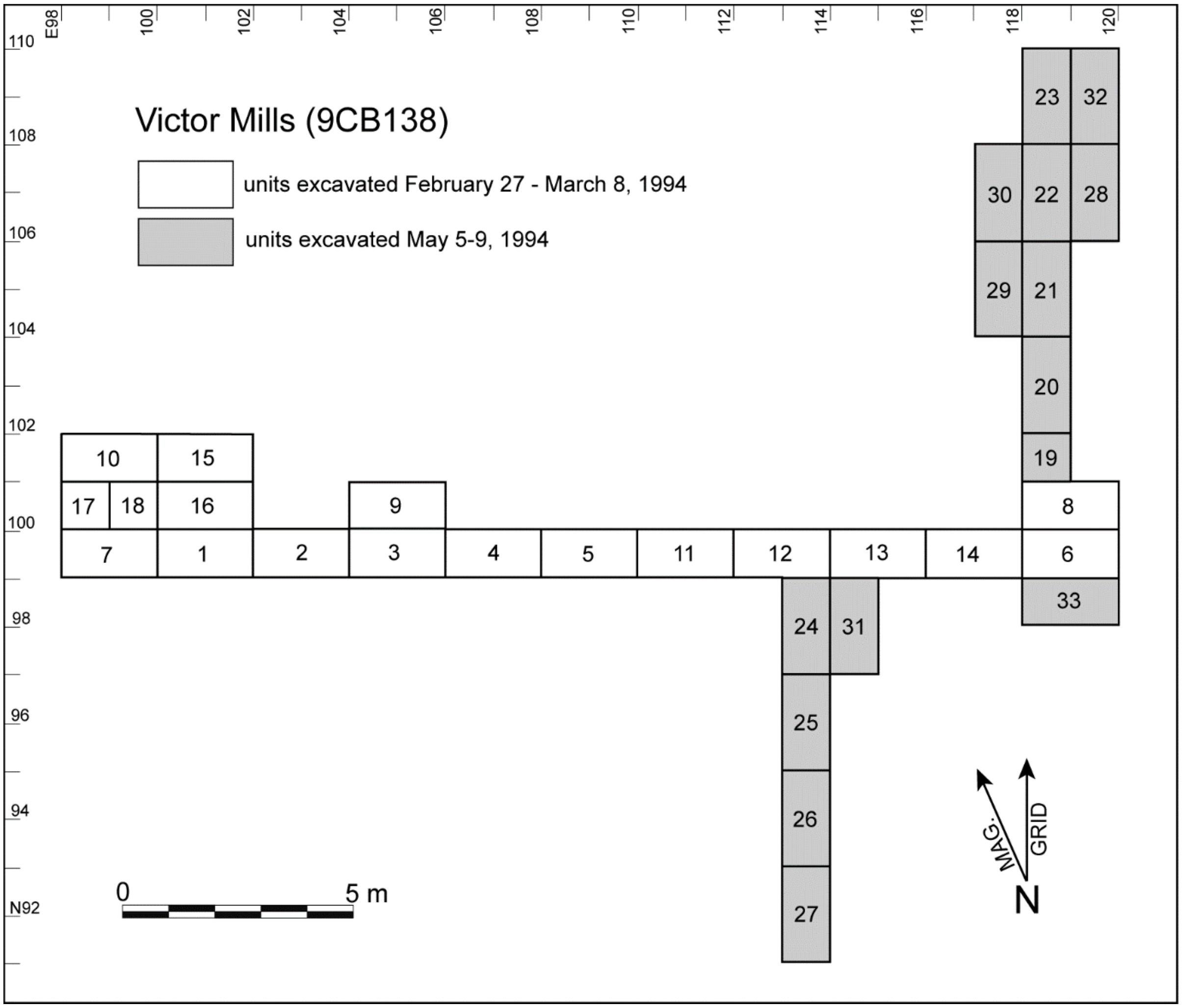


Figure 2-4. Plan of units excavated at Victor Mills over two phases in 1994. Northing and easting grid coordinates are listed along the left and top axes of the plan.

Excavation proceeded by test-unit and level provenience with the southwest corner of each unit established as a local datum. In most cases, the upper 10 cm of each units was removed by flat-nosed shovels and passed through ¼-inch screens. Collected and bagged by level were all artifacts and vertebrate bone, but not shell, which was later sampled in bulk from the midden. Exceptions to the procedure for general level excavation were made for the fill of looters pits, which was passed through ½-inch screen, and of course bulk samples from the midden and pit features, which were processed with combination of 1/8-inch waterscreening and flotation.

In the second phase of excavation, which focused on upslope features, the upper 20 cm was stripped by shovel in one level, some of which was passed through ½-inch screen, some simply "high-graded" for obvious artifacts. As with all units outside of the shell midden, the goal in stripping the upper 20 cm was to locate and document features. Lost in the process were untold numbers of minute artifacts, bone, and plant remains, but given that that ridge nose was an erosional landform and lacked accretional deposits, sacrificing the loss of minute items was offset by gains in feature documentation. It seems likely that anything material in the upper 20 cm of the substrate originated from pits whose point of origins is close to or at the modern surface. Thus, the upper 20 cm or all features was dissociated from underlying pit fill, which is actually desirable given surface disturbances. Although the site was not plowed or otherwise deeply impacted by farming or silviculture, surface disturbances from vegetation and animals compromises near-surface integrity. That aside, features could not be recognized accurately until the upper 20 cm was removed. At that point, careful troweling revealed the outlines of features extending deeper into the substrate.

The other exception to standard excavation procedures involved the shell midden. Given the exceptional preservation of organic matter encased in shell, middens are routinely sampled in bulk to collect small plant and animal remains, as well as artifacts. Because some of this deposit was impacted by looting, it was critical to separate intact midden from disturbed midden. This was accomplished by isolating unexcavated units in the center of a 3 x 4-m block (Figure 2-5) and using the stratigraphic profiles of surrounding units to guide sampling. Ultimately, a single 1 x 1-m unit (Test Unit 18) was targeted for bulk sampling following the strata of exposed profiles. After removing the upper stratum of primarily dark clayey loam, the underlying shell-rich stratum was remove in its entirety for 1/8-inch waterscreening and flotation. Additional bulk samples from the shell stratum were taken from surrounding units, but only Test Unit 18 had sufficient integrity to warrant detailed analysis (See Chapter 4).

Figure 2-5. View facing east across the block of units in the shell midden. The unexcavated units in the center of this block were isolated by surrounding unit to expose stratigraphy that was then sampled in bulk within archeostratigraphic units, most notably the stratum rich in shell.

Features involved a multistep process of defining, profiling, and sampling. All features observed in the plans of excavations units were scraped clean, assigned a number, and then photographed and drawn in plan. Not all features were excavated; only a few were sampled by sectioning in half or one-quarter, which also provided profiles that were photographed and drawn. Feature 3 was also sampled for micromorphological analysis, which entailed the recovery of block samples in a vertical column. Collected from all pits that were excavated were bulk samples for 1/8-inch waterscreening and flotation; remainding fill, if any, was passed through ¼-inch screen.

Two caveats about features bear mentioning. For pits that were not excavated, depth was estimated by augering into the center of pit fill. Contact between pit fill and sterile substrate, however, could not always be ascertained, so some depth estimates are not reliable. Details on the reliability of pit dimensions are provided on a case-by-case basis in the descriptions of features that follow later. The second caveat is that salvage excavations failed to delimit the full extent of pit features at Victor Mills. Certainly the place houses the remains of many more features, but how many is unknown. Simply extrapolating from the density of documented features (n = 32/40 m^2 of excavation) to an area bounded on the maximum grid dimensions of trenches (162 m^2) provides an estimate of about 130 features. The accuracy of this estimate will never be known without further excavation, but it is worth noting that to the extent the shell midden and pits are related functionally in the seasonal use of Victor Mills, which seems likely, features are not expected to occur much farther north and south along the spine of the ridge nose. Based on the testing of Law Environmental summarized in Chapter 1, features are also not likely to occur along the southeast side slope of the landform.

PROFILES AND PLANS

Provided in Figure 2-6 is a composite plan of all archaeological features exposed by 1994 excavations, along with the outlines of shell midden and looters pits. The size and shape of the shell midden shown here deviates from that reported by Webb (1992). Shell is not especially conspicuous on the ground surface, so defining the horizontal extent of the midden requires some subsurface testing, or at least probing. The outline shown in Figure 2-5 was based primarily on subsurface evidence for shell midden observed in looters pits. Excavation established the grid-east margin of shell midden, and one looter pit lacking shell to the north extended that boundary several meters. Although the remaining boundaries of shell midden cannot be mapped as precisely, the Law Environmental map (see Chapter 1) shows it extending several more meters downslope from the western edge of plan in Figure 2-6.

In plan, pit features are clustered on flatter ground above the 68 m contour (Figure 2-6). Inasmuch as the shell midden and pits are coeval, the downslope deposit is likely to be the secondary midden of activities taking place upslope, in and around the pits. These distinct parts of the site are treated separately in the descriptions below; in Chapter 5, the relationship between pit features and shell midden is revisited in the context of situating the results of work at Victor Mills in the regional landscape of mobile groups.

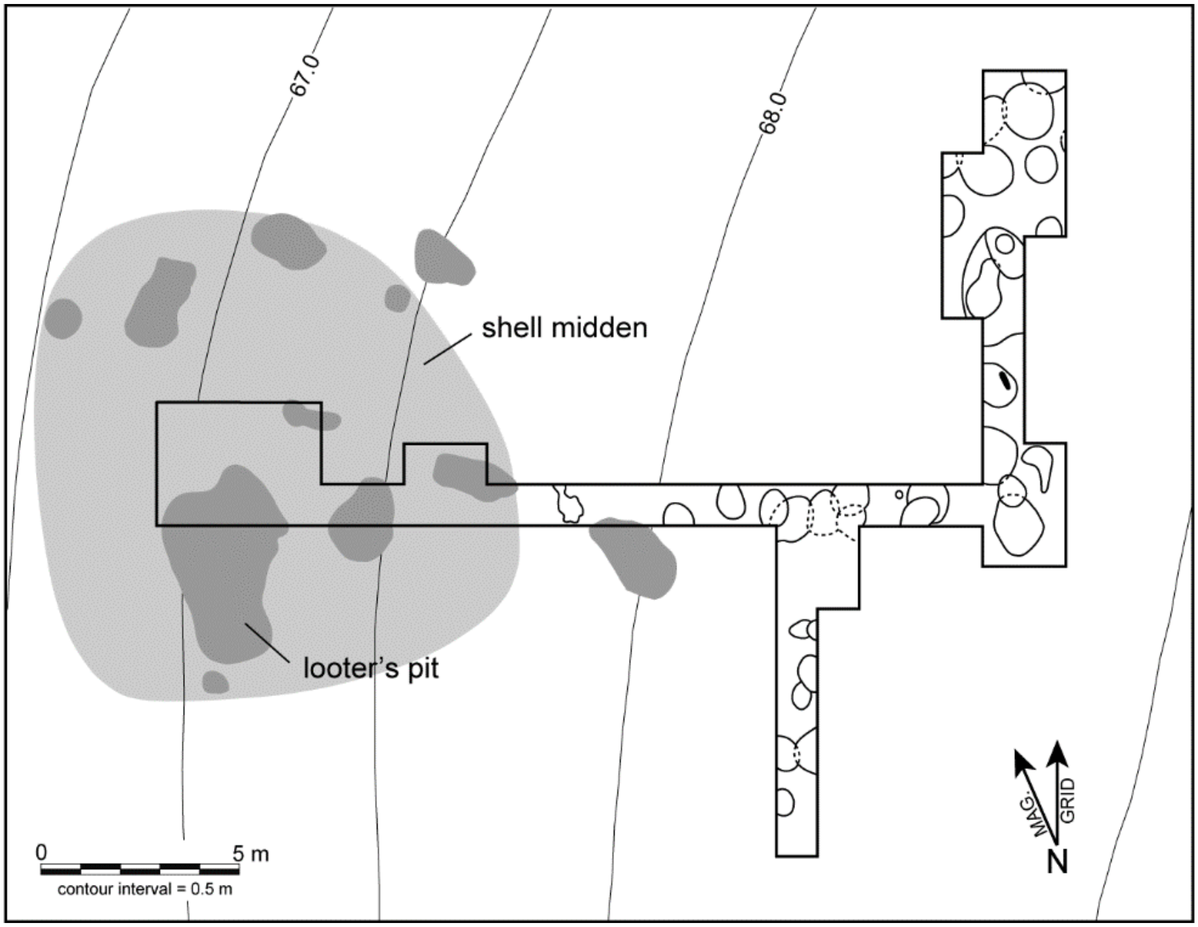


Figure 2-6. Plan map of Victor Mills showing extent of excavation and the pit features encountered, as well as the shell midden and looters pits in and around the she midden.

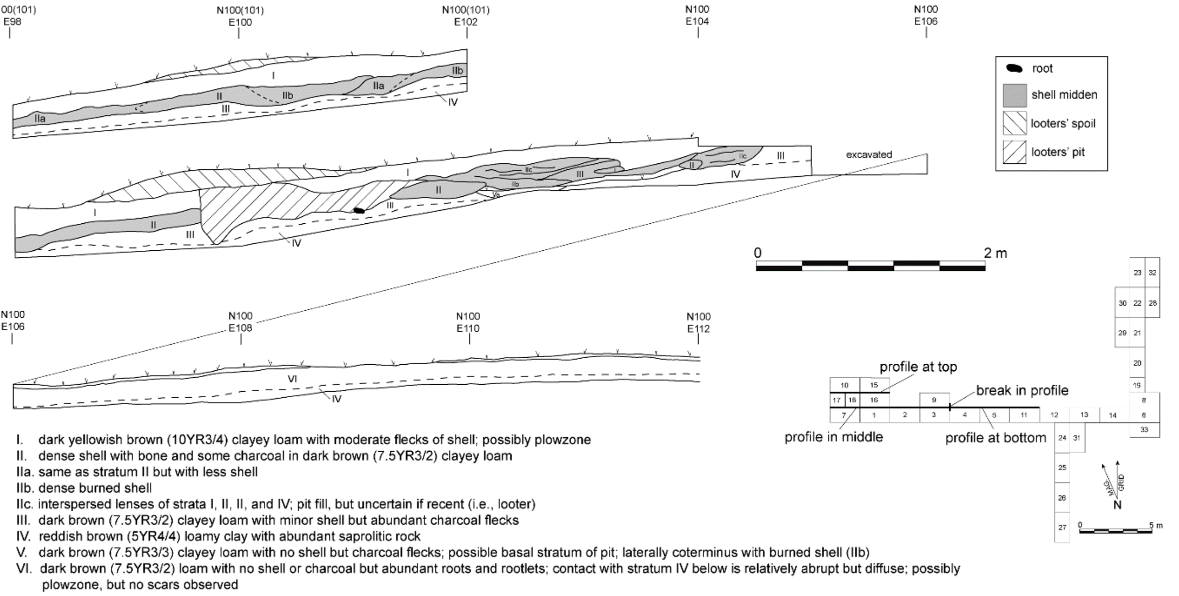
Shell Midden

The shell midden on the northwest side slope of Victor Mills is small, shallow, and inconspicuous were it not for looters pits that pock its surface. As seen in the profile of Test Unit 7 (Figure 2-7), the densest shell is buried beneath a stratum of dark yellowish brown (10YR3/4) clayey loam that contains only sparse shell. This surface stratum is a product of pedogenesis, not human agency. Through root action, animal burrows, worm activity, the work of insects like ants, and perhaps even frost heaving, soil particles have been brought to the surface from beneath, leaving shell mostly behind. Some upslope erosion or soil creep may have contributed to this deposit. What was once a surface midden is now a buried stratum. Bioturbation by plants and animals is not unusual in temperate forest environments, but it does disrupt the stratigraphic relationships among objects and other matter in the deposit. Fortunately, given that the Victor Mills shell midden contains diagnostic artifacts of only Early Stallings age, mixing due to bioturbation has limited impact on its analytical utility.

Figure 2-7. Photograph of the grid-north profile of Test Unit 7, showing buried shell stratum (Stratum II) at the downslope extent of excavation. A backfilled looters pit is evident at the grid-east end (right) of this profile, where the shell stratum is truncated.

The trenching method of excavating Victor Mills provided good opportunities to observe and record shell midden stratigraphy and its relationship to surrounding soil. Provided in Figure 2-8 are two grid-north profiles, one covering the west half of the main trench, and a second through the small block dug into the shell midden. The 14-m-long trench profile cuts through about 6.5 m of shell midden and 7.5 m of contiguous "natural" soil to the east. A looters pit in the middle of the shell midden obscures a pattern of depositional nodes, possibly a consequence of shallow digging and the redeposition of shell. Whether this is original to the deposit or the consequence of recent looting is unknown. The second profile through the shell middle, one meter to the north, is more-or-less intact. It shows a continuous stratum (II) of shell-rich dark brown (7.5YR3/2) clayey loam about 20 cm thick that parallels the surface slope of the landform. One basin-shaped subunit (IIb) of this stratum consists of burned shell. Given the profile of this subunit, it seems likely that some pit digging and use—in this case involving fire—took place in the midden (i.e., de facto deposition). Otherwise, given its position of a slope, the midden likely consists mostly of secondary deposition.

Beneath Stratum II, the shell midden, is the reddish brown (5YR4/4) loamy clay of the "natural" soil. This is a saprolitic soil (IV), rich in the weathered debris of underlying bedrock. This loamy clay formed in place from the degradation of mafic rock whose iron content accounts for its red hue. Some of this residual soil may have eroded from the surface long before Victor Mills was a place of human activity. However, unlike upland landforms that



I. dark yellowish brown (10YR3/4) clayey loam with moderate flecks of shell; possibly plowzone
II. dense shell with bone and some charcoal in dark brown (7.5YR3/2) clayey loam
IIa. same as stratum II but with less shell
IIb. dense burned shell
IIc. interspersed lenses of strata I, II, II, and IV; pit fill, but uncertain if recent (i.e., looter)
III. dark brown (7.5YR3/2) clayey loam with minor shell but abundant charcoal flecks
IV. reddish brown (5YR4/4) loamy clay with abundant saprolitic rock
V. dark brown (7.5YR3/3) clayey loam with no shell but charcoal flecks; possible basal stratum of pit; laterally coterminus with burned shell (IIb)
VI. dark brown (7.5YR3/2) loam with no shell or charcoal but abundant roots and rootlets; contact with stratum IV below is relatively abrupt but diffuse; possibly plowzone, but no scars observed

Figure 2-8. Trench profiles at Victor Mills, with schematic showing locations of sections and descriptions of recorded strata.

were cleared of trees and plowed in recent centuries, the ridge nose of Victor Mills is in good shape. Certainly the shell midden has escaped any surface erosion.

A thin transitional stratum (III) between the shell midden and residual soil formed through leaching of organic matter from the midden. This dark brown (7.5YR3/2) clayey loam contains only a small amount of shell but abundant charcoal flecks.

Finally, the upslope profile of the trench shows a 20-30 cm surface stratum (VI) of dark brown (7.5YR3/2) loam lacking shell and only sparse macroscopic charcoal. Contact with underlying residual soil (IV) is abrupt, but diffuse enough to indicate pedogenic development, a measure of considerable age. If this stratum owes its depth and structure to historic-era plowing, its imprint is faint. None of the ca. 50 m^2 of scraped-clean floors at the base of this stratum revealed obvious examples of plow scars.

Features

Dark brown soil stains of various size and generally oval to circular in plan presented themselves against the reddish brown background of the substrate, about 25 cm below the surface. All but a few proved to be the fill of pits that penetrated the substrate by as much as 90 cm. Certainly the surface of origin for these features is well above the depth at which they were recognized in excavation, but by how much is hard to know. Pit fill in many of the features resembles the loam of the surface stratum, both organically enriched.

As shown in Figure 2-9, most of the features overlap with other features, indicating repeated use of this area of the site for pit digging. It was not usually possibly to define the sequence of overlapping features from the inspection of plan surfaces alone. Slot trenches in places of dense features improved the resolution but did not resolve all such sequences because of similarity of pit fill. Features assigned numbers were in some cases subdivided into subfeatures when distinctions among them were revealed in profiles. All such cases are labeled in Figure 2-9 with alpha suffixes. In one case (Feature 20A), the inclusion of a Woodland-era sherd showed that this later feature was emplaced in the fill of an existing, Stallings-period pit.

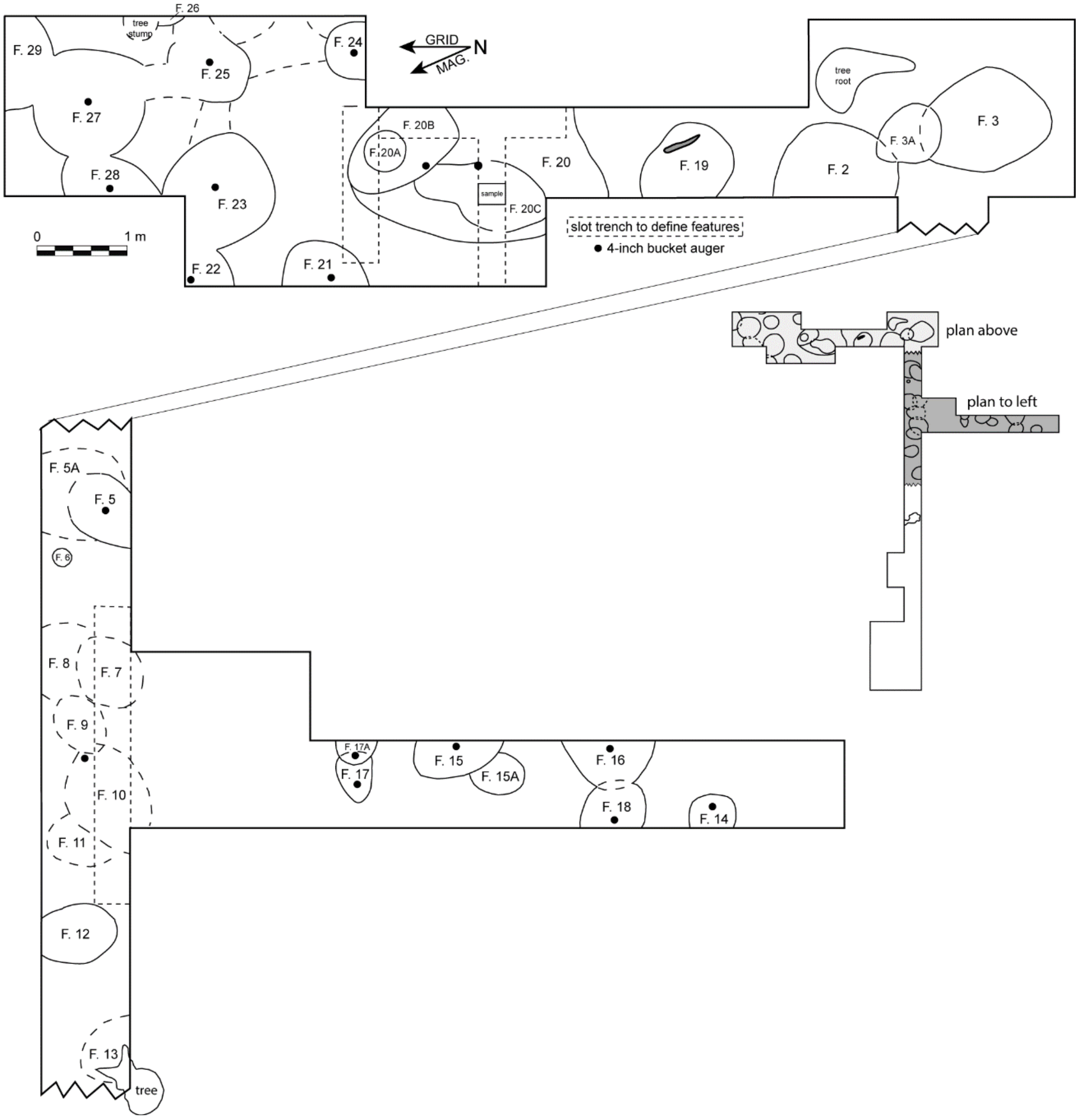


Figure 2-9. Plan drawing of all features defined at the interface of loamy topsoil and clay substrate at Victor Mills (9CB138), showing the locations of bucket augers penetrating feature fill to estimate depth below surface. Dashed lines indicate ephemeral or ambiguous boundaries around features.

All told, feature numbers were assigned to 36 stains that were assumed at the time of discovery to be of cultural origin (Table 2-1). Four such stains later proved to be the result of old tree roots, or perhaps animal burrows, which were more common than this tabulation would suggest. In most cases, stains indicative of natural agents were detected as such before being assigned a feature number. In general, “natural” features are not assigned numbers, but simply mapped, especially in cases where they intercepted cultural features.

Table 2-1. Inventory of Features Defined in 1994 Excavations of Victor Mills (9CB138) with Metric Dimensions when Available.

Feature	Type	Length (cm)	Width (cm)	Depth (cmbs)
1	Tree root stain	-	-	-
2	Cylindrical pit	100	100	109
3	Cylindrical pit	140	120	105
3A	Bell-shaped pit	-	62	70
4	Tree root stain	50	40	-
5	Cylindrical pit	-	70	100
5A	UID pit	-	100	-
6	Tree root stain	24	23	-
7	Bell-shaped pit	-	70	70
8	Basin-shaped pit	-	86	43
9	Basin-shaped pit	-	52	38
10	Hemispherical pit	-	90	76
11	Basin-shaped pit	77	60	45
12	Hemispherical pit	88	71	49
13	UID pit	-	70	-
14	Hemispherical pit	50	41	41
15	Hemispherical pit	-	-	66
15A	UID pit	60	46	-
16	Hemispherical pit	-	106	58
17	Hemispherical pit	-	50	50
17A	Tree root stain	-	35	-
18	Cylindrical pit	-	70	78
19	Cylindrical pit	100	84	110
20	UID pit/pit complex	300	-	
20A	Hearth	46	39	40
20B	Hemispherical pit	130	80	77
20C	Cylindrical pit	130	76	80
21	Cylindrical pit	-	-	88
22	UID pit	-	-	70
23	Cylindrical pit	130	126	80
24	Hemispherical pit	-	-	50
25	Cylindrical pit	90	80	90
26	UID pit/tree root stain	-	-	-
27	Hemispherical pit	124	120	60
28	Hemispherical pit	-	-	55
29	Cylindrical pit	-	-	75

With one exception, the 32 cultural features listed in Table 2-1 consist of pits of various size and shape. The exception is the aforementioned intrusive feature (Feature 20A), a rock-filled hearth with a Swift Creek sherd. Plan dimensions of all cultural features are incomplete because few of the pits were fully exposed by excavation. In some cases length and/or width could be estimated based on the exposed portion, although in general, extrapolation beyond the exposed boundaries of features was ill advised. Observations of depth likewise was not always possible because few of the features were fully excavated or profiled. However, a 4-inch bucket auger used to the penetrate the fill of 14 unexcavated features enabled reasonable estimates of pit depth.

Descriptions of each of the cultural features listed in Table 2-1 follow in the next section of this chapter. Here some general observations of pit size and shape are useful for interpreting variation among them. In aggregate, pits average 101.6 ± 29.7 cm in length, 79.6 ± 23.9 cm in width, and 70.7 ± 21.0 cm in depth. Variance around the mean of each of these dimensions is roughly 30 percent. Despite the small sample size ($n = 26$), the frequency distribution of depth measurements reflects a trimodal tendency for shallow, medium, and deep pits. In Table 2-1, features are classified as basin-shaped pits ($n = 3$), bell-shaped pits ($n = 2$), hemispherical pits ($n = 10$), and cylindrical pits ($n = 10$). Another six pits are listed as unidentifiable (UID) for lack of adequate observation.

Correlating pit depth with length or width is not possible given so many missing values. However, a tripartite scheme of basins, hemispheres, and cylinders captures much of the morphological variation. Averaging 43.7 ± 6.0 cm in depth, pits classified as basins are much more shallow they are wide or long, although in this case sample size is woefully small. Pits classified as hemispherical average 60.2 ± 11.7 cm in depth and are, by definition, only one-half as deep as they are wide. At 91.5 ± 13.5 cm in depth, pits classified as cylinders are as deep as they are wide. The term "cylinder" implies parallel walls, which accurately describes some, but not all, of those that were fully profiled. Irrespective of shape variations within each type of pit, variance in depth below surface is half the aggregate value noted earlier. For purposes of describing and interpreting pit features uncovered at Victor Mills, this tripartite scheme serves as a tentative basis for interpreting function that is subject to further evaluation after describing pit fill and other attributes besides size and shape.

FEATURE DESCRIPTIONS

Details on each of the 32 cultural features documented at Victor Mills vary depending on how much of each feature was exposed by excavation and the extent to which its fill was sampled. In the descriptions that follow, features are sorted by types, starting with cylinders, and presenting the details of excavated features and then unexcavated features in numerical order within type. An assemblage-level assessment of the function, location, and association of pits follows these descriptions.

Cylinders ($n = 10$)

Pits classified as "cylinders" were concentrated in the eastern, upslope area excavated at Victor Mills. Only three of the ten cylinders identified were fully profiled and sampled in bulk; the other seven were mapped in plan and augered, but not further investigated. Descriptions of these features begins with those that were fully profiled: Features, 2, 3, and 19.

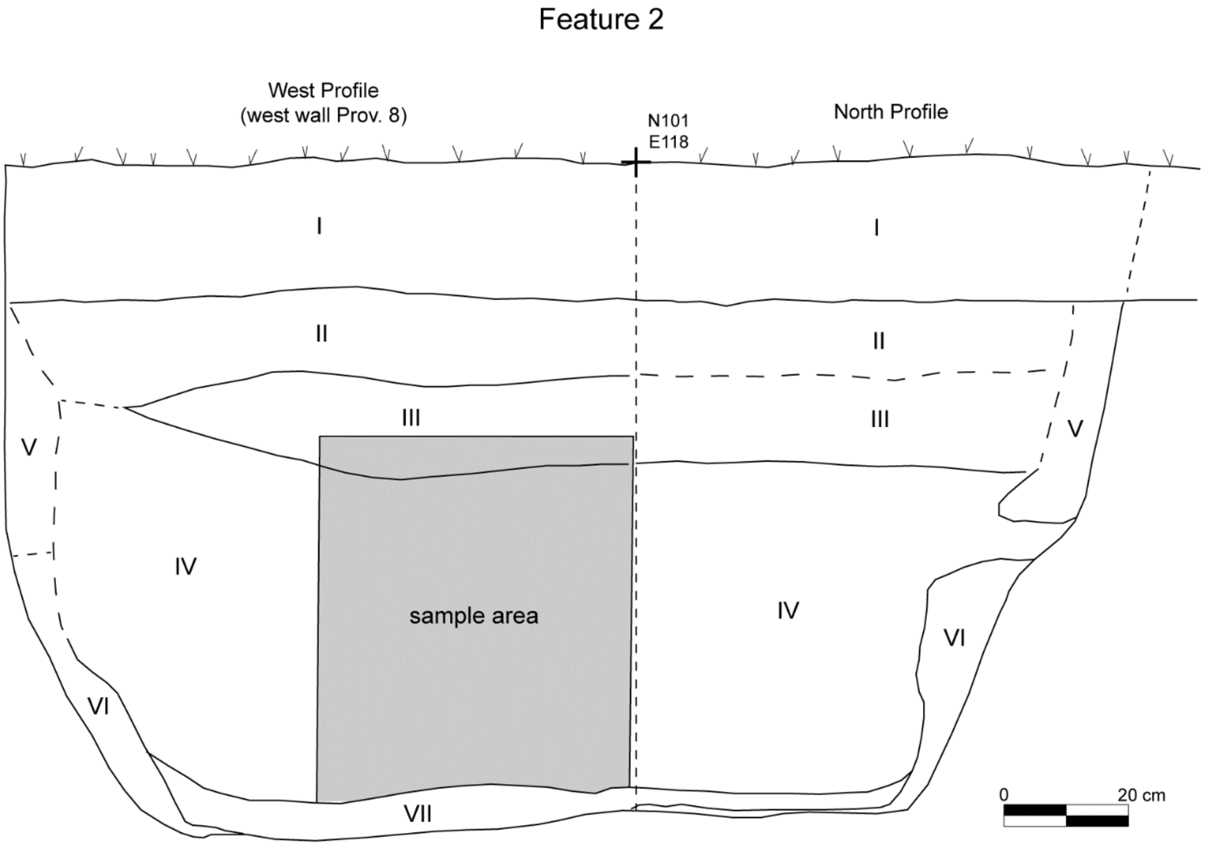
Feature 2. As excavation of the main trench at Victor Mills proceeded upslope towards the flat portion of the landform, dark circular stains about one meter in diameter were tentatively identified as the vestiges of old trees. To better assess the status of these stains, a quarter-section of one was removed by shovel to expose lateral and basal contacts with the substrate. After observing consistently sharp and regular contact between brown fill and red substrate—as well as occurrences of pottery, soapstone, nutshell, and more—these stains were assigned feature numbers and thereafter treated with the usual protocols for feature excavations.

Located in the northwest corner of Test Unit 8, Feature 2 was quarter-sectioned to the walls of the unit before additional units were added to the north. Although never fully exposed, the plan of Feature 2 at the top is estimated it to be a symmetrical circle roughly 100 cm in diameter. A good photograph of the section does not exist, but provided in Figure 2-10 is a scaled drawing of the adjoining profiles. Below the upper 25 cm of brown sandy-clay loam (Str. I), brown sandy clay of pit fill (Str. II) stood in sharp contrast with red clay (Str. V) of the natural substrate. The ~15-cm-thick upper stratum of pit fill gave way diffusely to another ~15-cm-thick stratum of dusky red clay with a few charcoal flecks (Str. III). The bulk of pit fill consisted of dark reddish brown clay with small red clay nodules and charcoal flecks that increased in density towards the base of the feature (Str. IV). The depth of pit fill below the ground surface was 109 cm.

Outside the margins of pit fill, the red clay substrate (Str. V) transitioned at about 70 cm below the surface into a reddish yellow friable clay mottled with dark red clay. This appears to be consistent with the natural strata of this saprolitic soil, although its crumbly texture may have been accentuated by heat. Indeed, at the very base of Feature 2, a lens of dark reddish brown clay attests to thermal alteration; the relatively high density of charcoal flecks at the base of pit fill supports this inference.

Because the sectioning of Feature 2 was exploratory, its fill was at first not processed for the recovery of minute materials, but simply "high-graded" for obvious artifacts and bagged as Level B of Test Unit 8. Once it became apparent that Feature 2 was anthropogenic and not merely the relict of a tree, the removed fill was passed through ¼-inch screen and additional fill through 1/8-inch waterscreen, all of which was bagged as Level B of Test Unit 8. Although some materials from Test Unit 8 likely originated from matrix outside of pit fill, the vast majority came from the upper portion of Feature 2. This includes plain fiber-tempered pottery sherds, soapstone slab fragments and nondescript clasts, quartz bifacial preforms, debitage of various raw materials, cobble tools, miscellaneous cracked rock, a fragment of a Southern Notched Ovate bannerstone, and a probable polished stone axe fragment. Admittedly, the association of any of these items with Feature 2 is indirect, and thus of limited analytical value.

For analytical purposes, the west profile of Feature was sampled in bulk. Removed from this profile was a sample of pit fill about 50 x 55 cm in plan, as shown in Figure 2-10, and about 10 cm deep. Retained for flotation was a 10.5 liter subsample; the remaining ~20



I. brown (7.5YR4/4) sandy-clay loam; plowzone (?)
II. brown (7.5YR4/4) sandy clay
III. dusky red (2.5YR3/2) clay with few charcoal flecks
IV. dark reddish brown clay (5YR3/3) with red clay nodules and charcoal flecks that increase in density towards base
V. red (2.5YR4/6) clay
VI. reddish yellow (7.5YR7/6-8, 6/6-8) friable clay mottled with dark red (2.5YR3/6) clay
VII. dark reddish brown (5YR3/2) clay

Figure 2-10. West and north profiles of Feature 2, Victor Mills (9CB138).

liters was passed through 1/8-inch waterscreen. Artifacts recovered from both subsamples were consistent with those recovered from the test unit generally, with the addition of one reed-punctate fiber-tempered body sherd. Notably, the bulk samples included charcoal, nutshell, and other botanical materials that otherwise were lost to coarse-grained recovery.

A sample of charred hickory nutshell from the bulk sample of Feature 2 returned an AMS assay of 3740 ± 30 B.P., which calibrates at two sigma to 4224–3984 cal B.P. (all data on radiocarbon assays can be found in Appendix D of this report). In a later section of this chapter the site-wide inventory of seven AMS assays puts Feature 2 at the recent end of a 400-year occupation span, ca. 4400–4000 cal B.P.

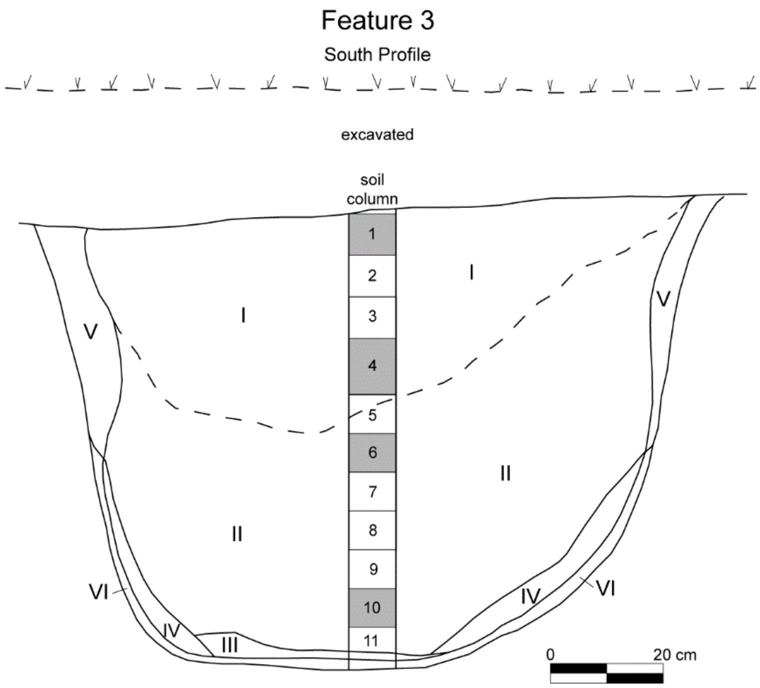
Feature 3. The dark reddish-brown stain of another large pit was located less than one meter south of Feature 2. A conjoining pit feature (3A) obscured the northern edge of what came to be defined as Feature 3. After excavation of the adjoining feature and removing the top soil of a test unit to the south (TU33), the full plan of Feature 3 showed it to be an oval roughly 140 cm long and 120 cm wide. Sectioned in half along the shorter, east-west dimension, Feature 3 nearly matched Feature 2 in depth (105 cmbs), was backfilled with similar matrix, contained a similar array of artifacts, and expressed evidence of thermal alteration at the base and along its lower vertical margins.

Figure 2-11 provides a scaled drawing of the south profile of Feature 3, along with a photograph of this same aspect. The fill of Feature 3 was relatively homogeneous dark reddish brown sandy clay divided into an upper stratum (Str. I; note that strata designations for all features are unique to those features and not extrapolated across contexts) with moderate charcoal flecks, and a lower stratum (Str. II) with abundant charcoal flecks. At the base of the pit fill was a thin stratum (Str. III) of charcoal with small clasts of red clay. Continuing along the basal margins of the pit and about halfway up either wall was a hardened red clay, a presumed consequence of thermal alteration. As with Feature 2, matrix outside the pit margins transitions from red clay of the upper mantle (Str. V) to the reddish yellow clay of the deeper substrate (Str. VI). The friability of this deeper clay was likely a consequence of heat.

Fill from the northern half of Feature 3 was removed by shovel and high-graded for obvious artifacts, which included plain fiber-tempered pottery, soapstone, quartz debitage, a quartz biface fragment, miscellaneous cracked rock, and cobble tool. As with Feature 2, bulk samples were collected from the profile of Feature 3. These were divided into two volumetric samples for flotation from the upper and lower strata of pit fill, and residua that was passed through 1/8-inch waterscreen. These bulk samples included additional artifacts like those of the north half of the feature, plus samples of botanical remains, notably hickory nutshell and wood charcoal (see Chapter 4).

Charred hickory nutshell from Feature 3 was one of the two samples submitted for radiometric analysis upon completion of fieldwork in 1994. This 1.3 g sample was too small for conventional dating, so Beta Analytic gave it an extended counting time to produce a C14 age estimate of 4060 ± 110 B.P., which at the time calibrated at two sigma to 4845–4240 cal B.P. A second sample of charred hickory nutshell was submitted to Beta Analytic in June of 2020. Assayed by AMS, this second sample returned an age estimate of 3740 ± 30 B.P., which calibrates at two sigma to 4224–3984 cal B.P., identical to the age estimate of Feature 2. Although the earlier assay may indicate that older nutshell infiltrated Feature 3 backfill, the extended count and large standard deviation render it less reliable than its AMS counterpart.

To collect soil samples for micromorphological analysis, a column was extracted from the south profile of Feature 3 in mostly 7-cm-thick intervals (Figure 2-12). For this purpose, samples had to be extracted *en bloc* and then impregnated with resin before cutting for thin sections. Four samples shown in Figure 2-11 underwent such processing by Spectrum Petrographics, but the thin sections have yet to be analyzed. The remaining seven samples of the column are curated as raw blocks in waterproof and airtight wrappings.



I. dark reddish brown (5YR3/3) sandy clay with moderate charcoal flecks
II. dark reddish brown (5YR3/3) sandy clay with abundant charcoal flecks
III. dense charcoal with small clasts of red (2.5YR4/6) clay
IV. dark red (2.5YR3/6) clay hardened from heat
V. red (2.5YR4/6) clay
VI. reddish yellow (7.5YR7/6-8) friable clay

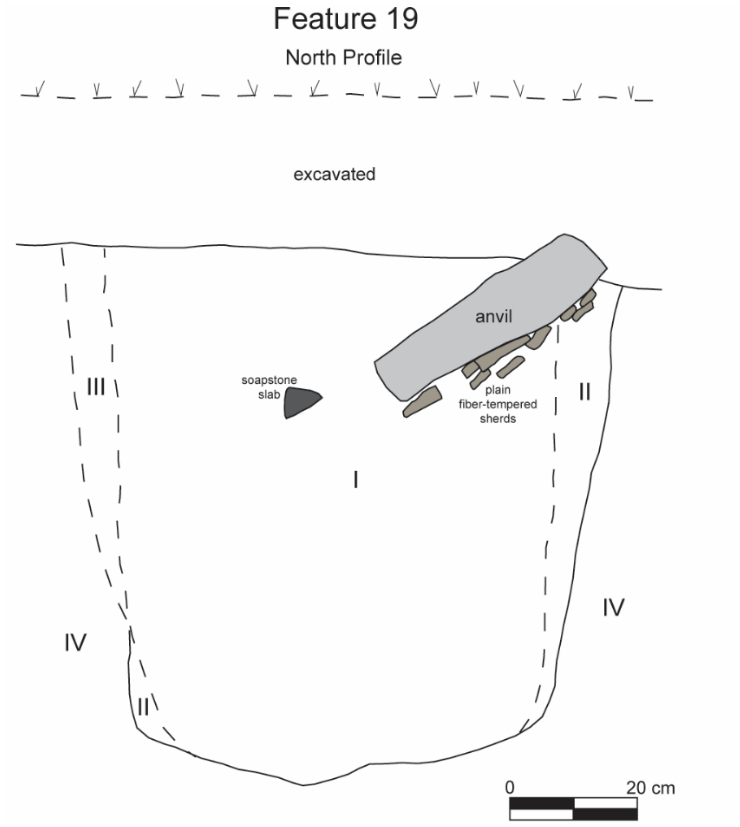
Figure 2-11. Drawing and photograph of south profile of Feature 3, Victor Mills (9CB138). The shaded squares of the soil column sample in the profile drawing were prepared but not yet analyzed for micromorphology.

Figure 2-12. A visiting Cheryl Claassen prepares a column in profile of Feature 3 for extraction of soil samples for micromorphology as Mark Brooks (right) looks on.

Additional soil samples were collected from the matrix of Feature 3 and most other features—including those that were simply augered—as well as a few places outside of features and midden, for controls. Two controls soil samples and six features samples, including two from Feature 3, were assayed by the Chemical Analysis Laboratory at the University of Georgia for 20 elements using inductively coupled plasma methods. The results of this exploratory effort and their implications for inferring pit function are addressed in a section further below.

Feature 19. About one meter north of Feature 2 was a dark oval stain that extended beyond the west wall of TU20 but was estimated to be 100 cm long and 84 cm wide. Protruding up from the eastern edge of the stain was a large granitic slab. The transverse sectioning of this pit feature, Feature 19, was designed to intercept the slab.

Figure 2-13 provides a scaled drawing and photograph of the north profile of Feature 19. Given that this profile runs perpendicular to the long axis of the feature, it appears smaller than Features 2 and 3, but it is actually a bit deeper, 110 cm below the surface. Its fill is homogenous dark reddish brown sandy clay with charcoal flecks and clasts of red clay from the substrate. Thermal alteration of the basal margins of the pit was not observed, but it is worth noting that unlike the other two cylindrical pits described thus far, a clear perspective of the profile was precluded by the confined nature of the excavation.



I. dark reddish brown (5YR3/2-3) sandy clay with charcoal flecks and small clasts of red (2.5YR4/6) clay of substrate
II. higher density of red (2.5YR4/6) clay clasts of substrate
III. portion unexcavated but inferred as pit fill from plan
IV. red (2.5YR4/6) clay

Figure 2-11. Drawing and photograph of north profile of Feature 19, Victor Mills (9CB138), showing large granitic anvil/grinding slab protruding from its eastern margin.

As the south section of Feature 19 was removed to expose the profile, sherds of plain fiber-tempered pottery appeared just below the stone slab. Some of those shown in the profile drawing (Figure 2-11) were later refitted to rim portions of two vessels (Vessels 2 and 3; see Chapter 3). Weighing over 22 kg, the slab may have fractured these vessel portions as it was emplaced in the pit, although it is impossible to infer if this was an act of human agency, as opposed to the pottery and slab sliding into a semi-back-filled pit as its upper margins eroded. The integrity of the pit feature lessens the chance that these items entered the pit naturally, and thus invites hypotheses on how this particular pit—as well as the others at Victor Mills—were backfilled, a subject addressed later in this chapter.

Besides the sherds beneath the anvil, only one other example was recovered from bulk samples of the south section (1/8-inch waterscreen and flotation). A soapstone slab protruding from the north profile of Feature 19 (Figure 2-11) was accompanied by abundant small fragments of soapstone in the removed fill. Also recovered were an Allendale-like quartz biface, debitage of diverse raw materials but mostly quartz, and four polished stone fragments, three of which are likely the spalls of polished stone axes. Of further note in the fill was abundant burned clay fragments and miscellaneous cracked rock, charred hickory nutshell, and wood charcoal.

A sample of charred hickory nutshell from the bulk sample of Feature 19 returned an AMS assay of 3860 ± 30 B.P., which calibrates at two sigma to 4410–4158 cal B.P. This puts Feature 19 in the first half of the four-century span of site use during the Early Stallings phase, and thus a precedent for Features 2 and 3.

Feature 5. Seven other features that were augered but not excavated extended at least 75 cm below the modern surface and contained fill that matched the fill of Features 2, 3, and 19. One of these features, Feature 5, is narrow in plan, like Feature 19, but 100 cm deep. An auger in the center of this feature produced dark reddish brown (5YR3/2) clayey loam with charcoal flecks. A plain fiber-tempered sherd on the top of the graded surface (ca. 25 cm bs) was accompanied in the auger by a second sherd of similar type, small pieces of soapstone, and fragments of cracked rock.

Intercepting Feature 5 on the north side was Feature 5A, a 100-cm wide pit of indeterminate length and depth. According to field notes, the fill of Feature 5A was redder and had less charcoal that the fill of Feature 5. Feature 5A was neither augered nor excavated.

Feature 18. Only one of several pit features exposed in the south trench was sufficiently deep to warrant its classification as a cylinder. Feature 18 was 70 cm wide at the contact with substrate but extended into the west wall of the south trench to preclude an estimate of length. An auger sunk into the center of the feature shows that dark reddish brown (5YR3/2) clayey loam extended to 78 cm below the surface. The fill was heavily laden with particulate charcoal, more than the fill of any other feature. Overlapping Feature 18 slightly on its eastern margin was a hemispherical pit, Feature 16.

Feature 20C. Part of a complex of at least three pits in the north trench, Feature 20C was difficult to define in plan. The length estimate of 130 cm given in Table 2-1 may be too long if the north end of this feature involves a fourth, undetected pit. The width of 76 cm is more certain, as is its depth of 80 cmbs, which was ascertained through augering. The fill of Feature 20C is the familiar dark reddish brown (5YR3/2) clayey loam with abundant charcoal flecks. What sets Feature 20C apart from other cylindrical pits is an abundance of quartz debitage. It is unclear if the debitage originated from the fill of Feature 20C or the larger context of Feature 20, it too poorly defined. Plain fiber-tempered pottery and soapstone fragments accompanied the debitage. Bulk samples of this fill were cataloged as Feature 20, although the relationship between these samples and the fill of Feature 20C remains ambiguous.

Feature 21. Extending into the west wall of the north trench, Feature 21 evaded measurement in plan but was at least 90 cm wide. An auger in the presumed center of the feature revealed homogenous dark reddish brown (5YR3/3) clayey loam to a depth of 88 cmbs. Included in the fill was a moderate density of charcoal flecks, miscellaneous cracked rock, and small pieces of burned clay. Texturally, the lower ~18 cm of pit fill was friable and ashy, presumably a result of thermal exposure.

Feature 23. One meter north of Feature 21 was a large, circular pit that was nearly fully exposed by the excavation of the north trench. Feature 23 measured 130 x 126 cm in plan and extended 80 cmbs in a single auger placed in the center of exposed fill. Fill consisted of the usual dark reddish brown (5YR3/2) clayey loam with abundant charcoal flecks. Like Feature 21, pit fill near the base was friable and ashy. If artifacts were observed in the auger fill they were not noted on the feature form.

Feature 25. Located about one meter to the east of Feature 23, Feature 25 measured 90 x 80 cm in plan and extended 90 cmbs. Fill from a single auger placed in the center of the feature consisted of dark reddish brown (5YR3/2-3/3) clayey loam with a moderate density of charcoal flecks and small pieces of miscellaneous cracked rock. Fill became friable with depth and made sharp contact with the underlying saprolitic clay. Artifacts besides cracked rock, if any, were not noted on the feature form.

Feature 29. A stain extended into the northeast corner of the north trench, precluding measurement in plan but clearly was large (at least 1 m wide). What came to be known as Feature 29 was augered to estimate its depth at 75 cmbs. Dark reddish brown (5YR3/2) clayey loam observed in the auger contained particulate charcoal that increased in size and density with depth. Contact with underlying saprolitic clay was sharp. Observed as well were small fragments of soapstone and a small sherd of fiber-tempered pottery.

Bell-Shaped (n = 2)

Pits classified as cylinders may have started off as bell-shaped pits whose upper walls collapsed before they were backfilled. The profile of Feature 3 provides perhaps the best example of this. Only two feature, Features 3A and 7, retained enough of a bell-shaped profile to warrant their classification as "bell shaped."

Feature 3A. Bridging the north margin of Feature 3 and the south margin of Feature 2, Feature 3A was oval is plan although fully discerning its overlapping margins was not possible

(Figure 2-12). Its width was estimated to be 62 cm, its long dimension uncertain. It is possible that Feature 3A was originally symmetrical in plan, that is, circular, not oval. Field forms indicate that Feature 3A postdated the excavation and backfilling of Features 2 and 3. In the effort to define this sequence, much of the fill of Feature 3A was troweled out and passed through ½-inch screen to recovery only larger items. The remainder was passed through 1/8-inch waterscreen. The homogeneous dark reddish brown (5YR3/3) fill of the pit contained debitage, a biface fragment, soapstone fragments, a flake of polished stone from a probable axe, cobble tools, miscellaneous cracked rock, burned clay, and a small amount of vertebrate faunal remains. Particulate charcoal was distributed evenly throughout the pit fill.

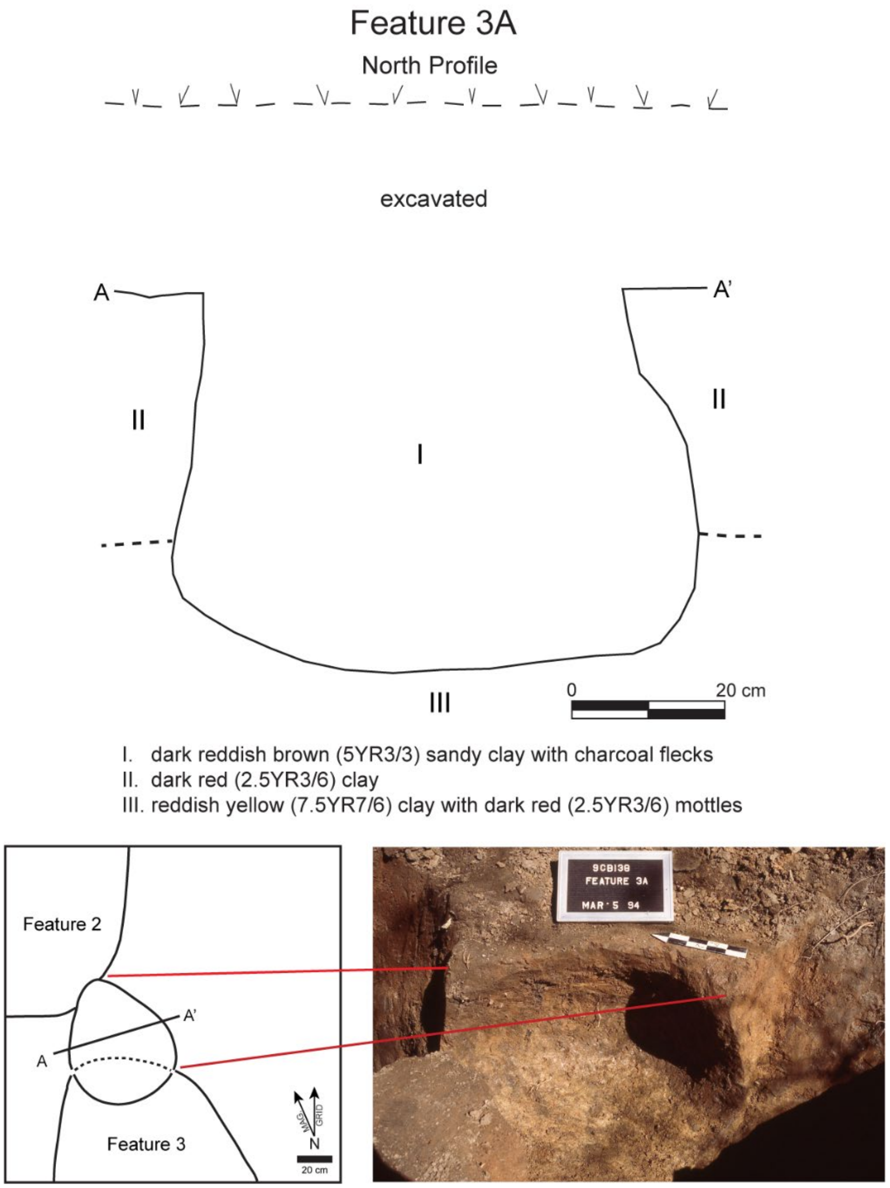


Figure 2-12. Profile and plan drawings of Feature 3A, with photograph of the excavated feature showing the bell-shaped profile of the east wall.

Feature 3A is bell-shaped in profile but its expansion with depth is modest; at maximum width, the interior of the pit measured only 70 cm. Its depth below surface was estimated at 70 cm. As with cylinders whose upper walls may have collapsed, Feature 3A originally may have been more constricted near the surface.

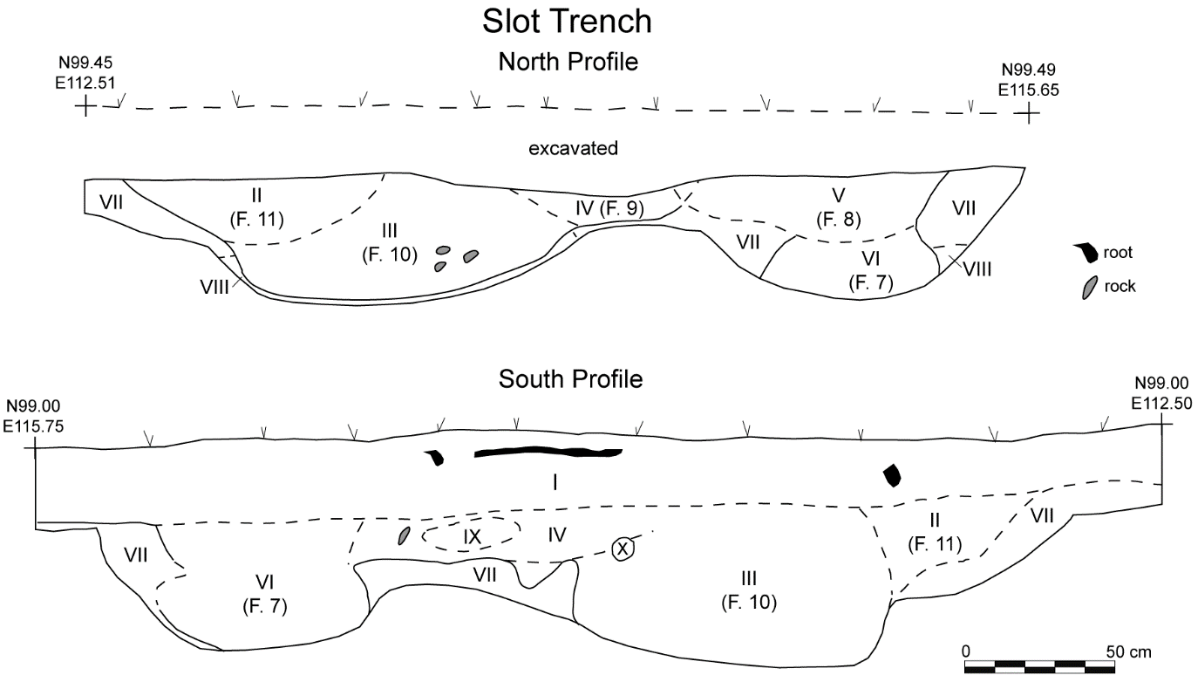
Feature 7. An amalgam of at least five pit features in Test Units 12 and 13 of the main trench included Feature 7, a 70-cm-deep bell-shaped pit. Defining the dimensions of any of these features in plan was impossible given the generally similar color and texture of pit fill. In an effort to distinguish among these features in profile, a 50-cm-wide, 3-m-long slot trench was excavated along the south wall of the adjoining test units. The north and south profiles of this slot trench—showing the five defined features—and a south-facing view after excavation are provided in Figure 2-13.

As seen in the south profile of the slot trench, Feature 7 has the distinctive expanding shape of a bell-shaped pit. Having been intercepted by a later pit (Feature 8), the top of Feature 7 was obliterated. Homogeneous pit fill consisted on dark reddish brown (5YR3/3) loamy clay with red (2.5YR4/6) clay mottles and charcoal flecks. A 9-liter sample of fill was processed by flotation to reveal the usual assemblage of debitage, soapstone fragments, fired clay, and miscellaneous crack rock, along with charcoal and charred hickory nutshell. Three plain fiber-tempered sherds were collected from the "surface" of Feature 7, although the plan surface of feature definition, from which the slot trench originated, could not have provided enough clarity to attribute these sherds to this feature with certainty.

Hemispheres (n = 10)

By definition, hemispherical pits, or hemispheres, are twice as wide as they are deep, as well as arcuate in profile. To be a true hemisphere is to be half of a sphere. In actuality, none of the 10 features classified as such in Table 2-1 are true hemispheres, but they all have profiles with walls that converge at the base with arcuate lines. Some are as deep as the shallowest cylinders (~75 cmbs), but none of them have parallel walls. Granted, some of the features classified as cylinders that were merely augered and not fully profiled could very well have arcuate walls, but in most cases depth was equal to or exceeded the maximum plan dimension at contact with substrate and all showed signs of thermal alteration, which was not as prevalent among those classified as hemispheres. Moreover, the density of particulate charcoal in the pit fill of hemispheres was low compared to the fill of most of the cylinders.

Feature 10. Like Feature 7 in the slot trench, Feature 10 was truncated from above by later pit digging, in this case two pits, Features 9 and 11 (Figure 2-13). The north profile of the slot trench reveals a hemispherical shape to Feature 10. The more globular shape of the south profile appears to be a consequence of intrusive digging. At least 90 cm wide and about 76 cm deep, Feature 10 was filled with dark reddish brown (5YR3/3) to dark brown (7.5YR3/2) loamy clay with small flecks of charcoal and red (2.5YR4/6) clay. A 6.5-liter sample of fill processed by flotation included two plain fiber-tempered sherds, debitage, soapstone fragments, fired clay, miscellaneous crack rock, charcoal, and charred hickory nutshell.



I. reddish brown (5YR4/4) to brown (7.5YR4/4) clayey loam with abundant roots; possibly plowzone
II. dark reddish brown (5YR3/3) loamy clay (Feature 11)
III. dark reddish brown (5YR3/3) to dark brown (7.5YR3/2) loamy clay with small flecks of charcoal and red (2.5YR4/6) clay
IV. dark reddish brown (5YR3/3) loamy clay with red (2.5YR4/6) mottles (Feature 9 on north profile; not clear on south profile)
V. dark reddish brown (5YR3/3) loamy clay with red (2.5YR4/6) mottles (Feature 8)
VI. dark reddish brown (5YR3/3) loamy clay with red (2.5YR4/6) mottles and charcoal flecks (Feature 7)
VII. dark red (2.5YR3/6) clay
VIII. brownish yellow (10YR6/6) friable clay with dark red (2.5YR3/6) mottles
IX. reddish brown (5YR4/4) loamy clay
X. red (2.5YR4/6) clay

Figure 2-13. North and south profiles and a photograph of the south profile of the slot trench excavated to discriminate among five intersecting pit features (Features 7–11).

Feature 12. One of the few features not to intercepted by other features was located in the main trench, west of all other pit features. Feature 12 was an 88 x 71 cm oval pit that reached a depth of 49 cmbs (Figures 2-14, 2-15). This was among the more symmetrical hemispherical pits observed at Victor Mills. Its fill consisted of dark reddish brown (5YR3/3) loamy clay with an ashy texture and charcoal flecks that gave way to dark reddish brown (5YR3/4) sandy clay with small clasts of burned clay. Contact with red clay substrate was relatively sharp.

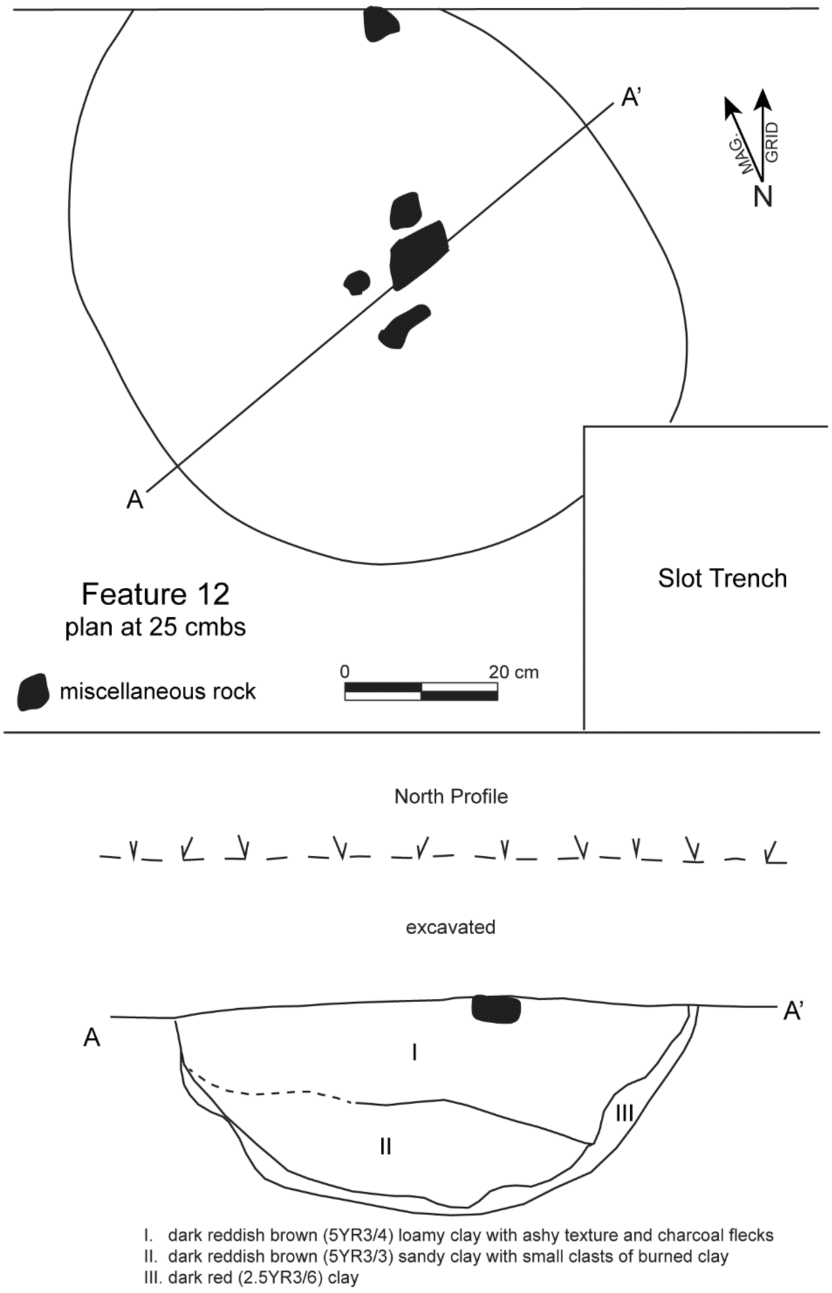


Figure 2-14. Plan and north profile of Feature 12, Victor Mills (9CB138).

Figure 2-15. Photograph of the north profile of Feature 12, Victor Mills (9CB138).

Rocks exposed at the surface of Feature 12 attested to a fill rich in other cracked rock, along with soapstone, plain fiber-tempered sherds, debitage, and fired clay. A 10-liter sample of fill processed by flotation produced additional plain fiber-tempered sherds, debitage, soapstone fragments, fired clay, and miscellaneous crack rock, along with charcoal, charred hickory nutshell, and other plant matter.

A sample of charred hickory nutshell from the bulk sample of Feature 12 returned an AMS assay of 3780 ± 30 B.P., which calibrates at two sigma to 4245–4009 cal B.P. This puts Feature 12 in the second half of the four-century span of site use during the Early Stallings phase, coeval with Features 2 and 3.

Feature 20B. An amalgam of several features in the north trench of Victor Mills was revealed through selective slot trenching and augering (Figure 2-9). Initially identified as Feature 20, the amalgam was subdivided into four features, one of which classifies as a hemispherical pit based on its south profile in the northern-most slot trench (Figure 2-16). Estimated to be 130 cm long and 80 cm wide in plan, Feature 20B is not well defined along the upper western margin of the profile, owing to its intersection with Feature 20 proper. The stratigraphic relationship between these two was never resolved, but enough of the basal portion of Feature 20B was intact to know that it had a hemispherical shape. Maximum depth below surface was 77 cm.

The fill of Feature 20B was dark reddish brown (5YR3/3) sandy clay that was slightly hardened or compacted, with charcoal flecks and small clasts of red (2.5YR4/6) clay. Larger clasts of red clay (i.e., 5-10 cm range) attest to backfill that included some of the substrate surrounding the feature. Basal contact with reddish yellow, friable clay resembled the basal contact of cylinders and implies some manner of thermal alteration.

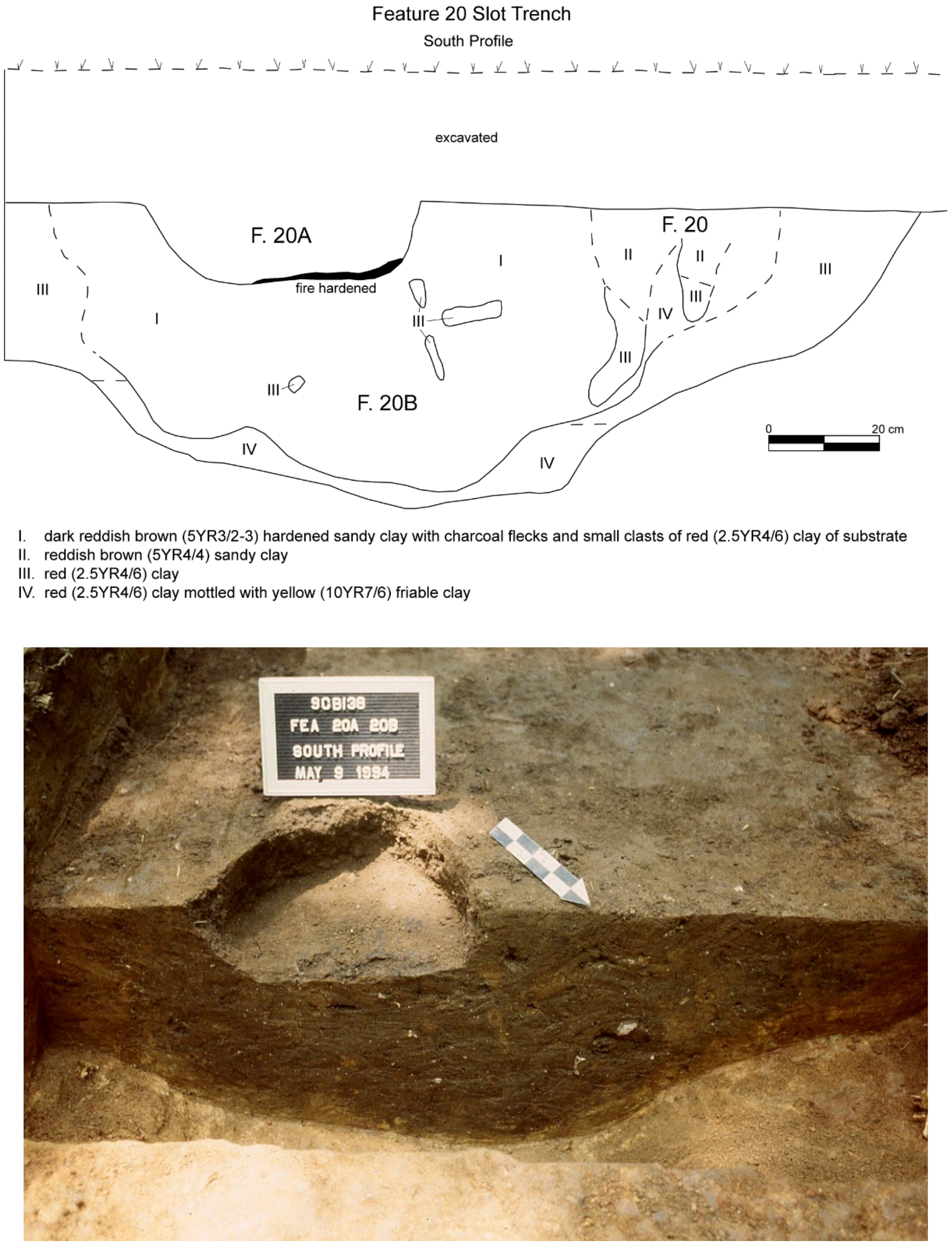


Figure 2-16. Drawing and photograph of the south profile of a slot trench that revealed the outlines of Feature 20B and two other features, Victor Mills (8CB138).

Feature 20B was not sampled as a discrete unit. Recovered in the greater Feature 20 matrix—which likely included fill from Feature 20B—was the usual Early Stallings assemblage of pottery, soapstone, and flaked stone found in most other features and the midden. The only noteworthy exception was the inclusion of a single separate punctate fiber-tempered sherd.

Feature 14. One of seven hemispherical pits that was augered but not profiled, Feature 14 was located along the west wall of the south trench. In plan it measured 50 x 41 cm. Its depth is estimated at 41 cmbs, where dark brown (7.5YR3/3) sandy clay fill makes sharp contact with red (2.5YR4/6) clay substrate. Smalls flecks of red clay and traces of charcoal mottle with is otherwise homogenous pit fill. No artifacts were observed in fill extracted with a bucket auger.

Feature 15. About three meters north of Feature 14 in the south trench are a pair of overlapping features designated Features 15 and 15A. The former is an oval-shaped pit whose dimensions could not be estimated given the ambiguity between it and Feature 15A, along with the fact that as much as one half of it extending into the east wall of the trench. An auger placed near the wall and the presumed center of the pit showed it to extend 66 cmbs. Dark reddish brown (5YR3/2) loamy clay pit fill contained a moderate amount of particulate charcoal. A small plain fiber-tempered sherd was the only artifact recovered from the auger.

Feature 16. Between Features 14 and 15 in the south trench were two overlapping pits. The larger of the two, Feature 16, extending into the west wall of the trench but was estimated to be 106 cm wide. An auger in the presumed center of the feature showed that dark brown (7.5YR3/3) loamy clay pit fill extended to 58 cmbs. Contact with substrate was sharp. Recovered at the scraped, plan surface of Feature 16 were four plain fiber-tempered sherds, a metavolcanic biface fragment, and one fragment of soapstone slab. No artifacts were observed in auger fill.

Feature 17. At the north end of the south trench two other overlapping features includes one hemispherical pit designated Feature 17. Contained fully within the trench, Feature 17 was intercepted by the fill of a second feature (Feature 17A) that extended into the west wall of the trench. Because of the overlap, the length of Feature 17 could not be measured, but is estimated to have an oval plan with a width of 50 cm. An auger placed in the presumed center of the feature shows it to extend to 50 cmbs. Pit fill consisted of dark reddish brown (5YR3/4) clayey loam with minor charcoal and miscellaneous cracked rock.

Feature 24. Among several features found in the expanded area of the north trench was a pit that was only partially exposed and thus difficult to characterized in plan. Feature 24 was at least 50 cm wide and extended to 50 cmbs in a single auger. The homogeneous dark reddish brown (5YR3/4) clayey loam of pit fill contained only minor charcoal but an ashy, friable texture. Contact with substrate was sharp. Although the field form for Feature 24 indicates that a large metavolcanic flake and a fragment of soapstone slab was recovered, neither of these items can be located in the collection.

Feature 27. About two meters north of Feature 24 was a large pit feature measuring 124 x 120 cm in plan and 60 cm deep. The homogeneous dark reddish brown (5YR3/2-3/3) clayey loam of pit fill contained moderate particulate charcoal and expressed sharp contact with substrate. No artifacts were observed at the surface or in the fill of a single auger.

Feature 28. Overlapping Feature 27 on its western margin was an oval pit that extended into the east wall of the north trench. Plan dimensions were elusive but width was at least 50 cm and depth estimated at 55 cmbs in an auger sunk in the presumed center of the feature. Pit fill consisted of the typical dark reddish brown (5YR3/2) loamy clay but with more charcoal than other hemispherical pits. The field form notes a small piece of soapstone near base of pit fill that evidently was not collected.

Basins (n = 3)

Three features that were exposed in the slot trench of the main trench (Figure 2-13) have profiles that are much shallower than they are wide or long and generally with flat bottoms, although observations on pit morphology were rendered difficult by the amalgamation of pits in this part of the site. These shallow, presumably flat-bottomed pits are classified as "basins." Other such features were likely overlooked in the stripping of topsoil.

Feature 8. Of indeterminate length and a width of 86 cm, Feature 8 extended to 43 cmbs with dark reddish brown (5YR3/3) clayey loam fill with charcoal flecks and small clasts of red clay. Nothing was collected from Feature 8.

Feature 9. Overlapping Feature 8 on its western margin was a second basin-shaped pit designated Feature 9. Estimated at 52 cm in width, Feature 9 extended to 38 cmbs with dark reddish brown (5YR3/4) clayey loam fill with trace charcoal flecks and small clasts of red clay. Nothing was collected from Feature 9.

Feature 11. Intercepting Feature 10 on its western margin was a third basin, Feature 11, that was sectioned to reveal a somewhat flat-bottomed profile that extended to 45 cmbs (Figure 2-17). Estimated at 77 cm long and 60 cm wide, Feature 11 consisted of dark reddish brown (5YR3/3) clayey loam fill with charcoal flecks. Waterscreened fill from the north half of the feature contained eroded (plain?) fiber-tempered sherds, soapstone fragments, debitage, miscellaneous cracked rock, and charcoal. An 11-liter flotation sample provided similar artifacts along with more charcoal and charred hickory nutshell.

Figure 2-17. Photograph of the south profile of Feature 11, Victor Mills (9CB138).

Hearth (n = 1)

A single feature at Victor Mills stood apart from all others not because of its morphology but because of its content. Located near the north end of the feature complex designated Feature 20 was a cluster of cracked rock contained within a basin measuring 46 x 38 cm in plan and 40 cmbs. The larger context of Feature 20A can be seen in profile in Figure 2-16. Figure 2-18 provides a drawing and photographs of this feature in plan.

Figure 2-18. Drawing and photographs of Feature 20A in plan, Victor Mills (9CB138).

The inference that Feature 20A was used as a fire hearth is supported by an advanced degree of thermal alteration to the margins of both the sidewalls and base of this pit. Much of cracked rock removed from the pit likewise exhibits thermal alteration. A single soapstone slab fragment beneath one of the rocks, along with a small, plain fiber-tempered sherd, was consistent with the artifact assemblages of other features and the midden. However, after removing the nearly nine kilograms of cracked rock (n = 47), a sand-tempered sherd with a complicated-stamped surface treatment showed that this feature was actually much younger. The curvilinear design of the stamping is indicative of the Swift Creek phase of the Woodland period (see Chapter 3), a common type in Georgia. It is extremely unlikely that this sherd found its way into an existing Early Stallings hearth; rather, this single sherd is proof of a later, intrusive feature at Victor Mills, the only one not of Early Stallings age. It is worth mentioning that rock-filled hearths such as Feature 20A are actually uncommon in Stallings-era feature assemblages, but not uncommon in Woodland-era assemblages. Despite the elaborate nature of this feature, the Swift Creek presence at Victor Mills was evidently ephemeral.

Unidentifiable (UID) Pits (n =6) and Tree Root Stains (n = 3)

Six stains that approach the symmetry of pit features were either compromised by intrusions from other features or extended so far into the sidewalls of excavation units to render them ambiguous in plan. Features 5A, 13, 15A, 20, 22, and 26 are classified as UID pits. Among them, only Feature 20—the core of an amalgam of multiple features—was sampled for artifacts and related materials. Its assemblage of pottery, soapstone, flaked stone, and more is consistent with Early Stallings materials elsewhere at Victor Mills.

Three additional stains were assigned feature numbers (Features 1, 4, and 17A) but proved to be the remnants of tree roots, or perhaps animal burrows. Amorphous or irregular plans and profiles of natural features such as these were actually more numerous than this small inventory suggests, but in most cases, they were not assigned feature numbers, nor were any materials associated with them collected and cataloged as feature proveniences. In most cases, such materials were assigned to the respective provenience of level excavation within test units.

PRELIMINARY RESULTS OF ELEMENTAL ANALYSIS OF PIT FILL

Although analysis of pit contents is beyond the scope of this chapter, some preliminary results of the elemental composition of fill bears relevance to the interpretation of pit function. How and with what materials pits are backfilled may have little to do with the actual use of pits. When pit use involves large quantities of disposable by-products, however, one might expect a more direction relationship between pit use and pit fill. Storing hickory nuts is one such use. With their hulls/husks and thick shells, hickory nuts in a preprocessed state consist mostly of inedible tissue. Shell fragments of course make good fuel, and the ubiquitous if not always numerous charred pieces from archaeological deposits attest to resourceful use of inedible mass. It seems unlikely, however, that all nutshell would be parlayed into fuel, and perhaps rarely, if ever, were husks burned (see Chapter 4). It is worth considering that the inedible by-products of mast use ended up back in pits that were presumably used to store mast.

As noted in Chapter 1, the favored but now-abandoned hypothesis for the function of large pits at Victor Mills was to bake fish, notably anadromous fish like shad. Given that the bones of shad are not expected to be well preserved even if the fish were taken and eaten in large numbers, indirect evidence was sought in the elemental composition of pit fill. To that end, samples of pit fill were sent to the Chemical Analysis Laboratory of the University of Georgia (UGA) in 1994, shortly after the excavation. This lab has been superseded by other analytical units of UGA, but at the time provided inductively coupled plasma (ICP) analyses to determine the parts per million (ppm) of 20 elements. Submitted to the lab were six samples of pit fill from five features (3, 15, 19, 21, and 23), along with two control samples of substrate outside of pit fill. The results of ICP analysis are given in Table 2-1.

Interpretation of the results of ICP analysis suffered in 1994 from lack of reliable data on the chemical composition of shad, or insight on the diagenesis of compounds. Elevated levels of strontium and barium might be expected if the remains of anadromous fish were routinely deposited into pits, but other plants and animals could likewise elevate these elements. At the suggestion of UGA analysts, and following an analysis of soil from the Neville site in New Hampshire (Dincauze 1976:96-99), two additional samples of pit fill and one control sample were submitted to detect mercury, an element indicative of marine taxa to the exclusion of terrestrial taxa. The results of cold vapor analysis showed only trace levels of mercury in the control sample (0.000172 ppm), and even lower concentrations in the basal fill of Feature 3 (0.000148 ppm) and Feature 15 (0.000084 ppm).

Table 2-1. Results of ICP Analysis of the Elemental Composition of Two Control Samples and Pit Fill from Five Feature, in Parts per Million (ppm).

	Control 1	Control 2	F. 3 Upper	F. 3 Lower	F. 15	F. 19	F. 21	F. 23
Aluminum	62,655.00	32,905.00	46,098.00	50,803.00	43,283.00	34,595.00	39,588.00	34,118.00
Boron	1.49	0.00	2.82	3.86	3.08	4.49	3.62	2.80
Barium	106.83	43.24	252.48	286.83	319.37	188.91	469.81	359.72
Calcium	792.35	620.72	1,414.40	1,180.30	2,600.20	693.49	1,601.40	1,604.30
Cadmium	1.49	1.25	1.47	1.55	1.49	1.41	1.97	1.33
Cobalt	6.37	5.26	10.23	9.32	10.31	11.06	11.49	9.89
Chromium	30.12	22.12	45.31	41.29	32.16	35.40	42.67	29.93
Copper	19.60	13.61	31.40	32.34	25.99	32.25	32.92	31.36
Iron	28,486.00	16,497.00	23,775.00	24,402.00	19,988.00	19,325.00	18,959.00	16,671.00
Potassium	591.48	468.04	1,039.80	998.70	1,011.20	895.67	941.38	777.03
Magnesium	727.97	584.95	1,169.60	1,040.80	963.57	954.75	999.85	812.83
Manganese	74.37	184.25	1,276.80	1,397.10	1341.20	1,398.70	1,534.80	1,772.90
Molybdenum	34.95	20.91	27.37	31.74	26.40	22.70	26.32	21.93
Sodium	32.99	21.70	42.41	33.62	55.55	38.53	36.35	43.80
Nickel	12.09	5.52	17.37	15.93	14.46	15.00	18.01	13.61
Phosphorus	943.03	704.60	1,010.80	1,665.80	1,374.80	872.78	1,744.30	1,049.00
Lead	118.35	73.62	100.56	111.37	94.37	86.69	94.53	81.13
Silicon	440.78	322.89	369.89	408.75	317.25	367.30	304.83	375.07
Strontium	9.75	5.05	18.17	25.58	27.71	12.12	38.54	36.89
Zinc	48.08	28.01	76.91	93.18	83.46	65.05	97.11	85.97

In hindsight, the hypothesis that pits at Victor Mills were used to bake fish was misguided. However, the results of ICP analysis of pit fill lends credence to the hypothesis that pits were used to store hickory nuts, and, evidently, were backfilled with the inedible portions (shells, and perhaps husks), along with the material culture (i.e., pottery, soapstone slabs, hammerstones, anvils) needed to process nuts by pulverizing and boiling (e.g., Talalay et al. 1984).

Hickory nuts are high in potassium, phosphorus, magnesium, and calcium, along with appreciable traces of zinc, manganese, and iron (Furr et al. 1979). Many other tree nuts also have concentrations of these elements, so attributing organic matter of the pit fill to any given taxon is not possible. However, other than iron (which is prevalent in the soil), elements common to hickory have concentrations in pit fill that are at least 150 percent greater than counterparts of the control samples. Notably, manganese is on average over 1,100 percent greater in pit fill than in control samples. Along with zinc, concentrations of manganese help to distinguish hickory from acorn, the latter of which contains much smaller traces of these two elements.

Extreme caution is advised in interpreting the results of ICP analysis. Besides the possible array of foodstuffs that contributed to pit fill, the chemical profiles of food-processing tools common to Victor Mills most likely contributed too. For instance, the high concentration of manganese in pit fill may be attributed to the leaching of this element out of soapstone (e.g., Quintaes et al. 2002). The same can be said for magnesium and possibly barium. Despite the ambiguity of ICP results, when combined with other lines of evidence, they contribute strength to the inference that Victor Mills was a place of primarily mast storage and processing. These various lines evidence are pulled together and discussed in the closing chapter of this report.

RADIOMETRIC DATING

The results of radiometric dating for five features and the shell midden were reported in the respective sections of this chapter. The raw data for all such assays can be found in Appendix D. Here we review the radiometric chronology of Victor Mills as a whole, and in the final chapter, place it into regional context.

Figure 2-19 provides the probability distributions of each of the seven assays, plus the summed probability distribution using OxCal v4.3.2 (Bronk Ramsey 2017) and the r.5 IntCal13 atmospheric curve (Reimer et al. 2013). Starting with the summed distribution, these assays suggest that the activities that resulted in infilled pits and a downslope sheet midden at Victor Mills took place over a 300-year span of ca. 4350-4050 cal B.P., or roughly 2400-2100 B.C. As discussed in Chapter 5, this 300-year period falls at the end of the Early Stallings phase according to a chronology that puts its origins in the early fifth millennium B.P. Irrespective of a foreshortening of origins, the Early Stallings phase gives way at ca. 4050 cal B.P. to the Classic Stallings phase. Thus, the use of Victor Mills by people who made and used plain fiber-tempered basins for indirect-heat cooking—the hallmark of the phase—continued up until this change, and without a major hiatus.

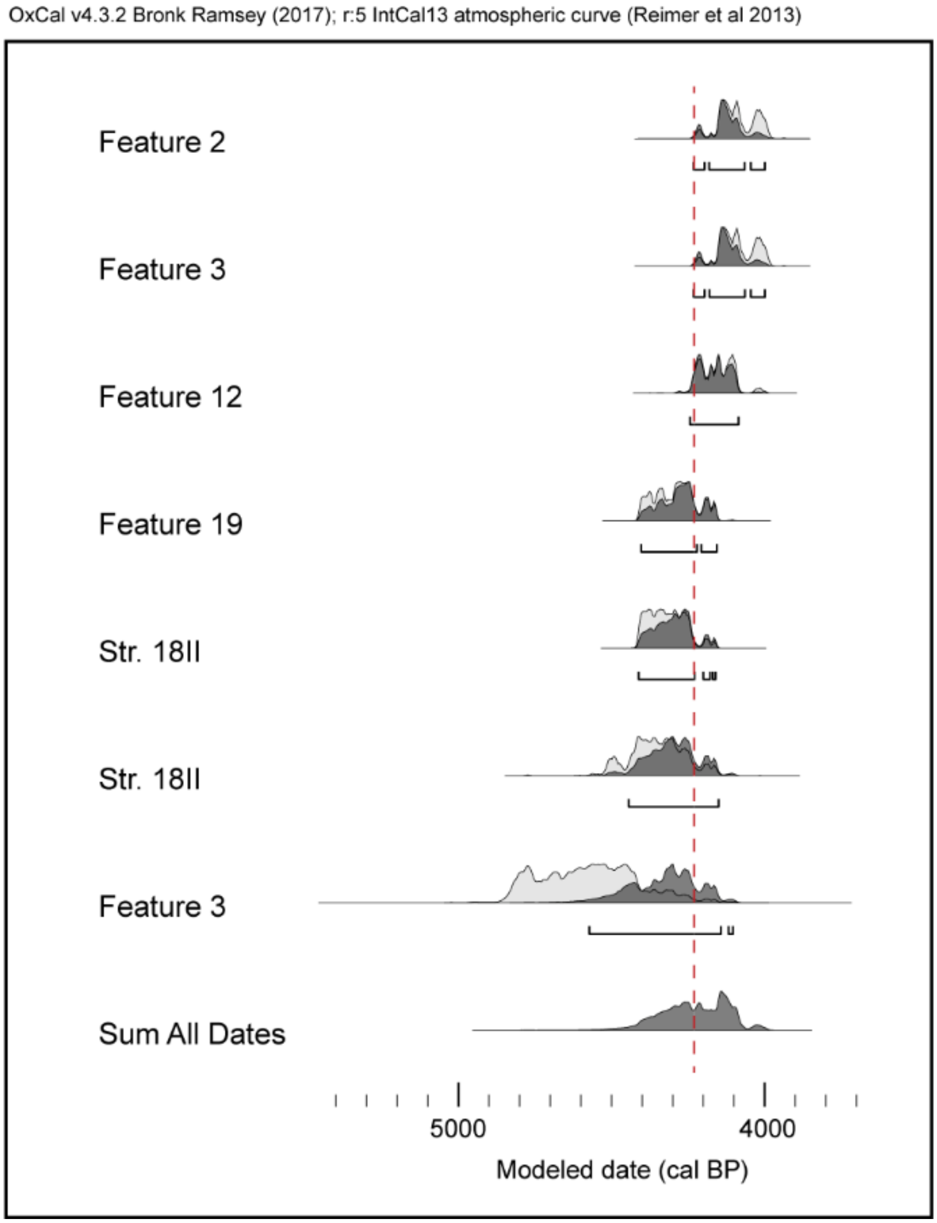


Figure 2-19. Summed probability distribution of calibrated radiocarbon assays from Victor Mills (9CB138). The dashed red line on this figure marks a possible break in a ~300-century span of Early Stallings activity. Calibration and probability distributions calculated using OxCal v4.3.2 (Bronk Ramsey 2017) and the r.5 IntCal13 atmospheric curve (Reimer et al. 2013).

Changes in the use of Victor Mills over this 300-year span are not apparent in the material culture and features of the site, but the radiometric chronology hints at a break in activity ca. 4220 cal B.P. Over the ca. 120 years predating this break, the midden formed and at least one cylidrical pit (Feature 19) was dug and back filled. Over the ca. 180 years after this break, at least two cylindrical (Features 2 and 3) and one hemispherical pit (Feature 12) was dug and back filled; if material was added to the midden, it was not sampled for dating.

It bears mentioning that two of the seven assays were obtained in 1995, the rest in 2020. The earlier assays include one AMS date (Str. 18II, of the shell midden) with a standard deviation of 60 years. Calibrated using current standards, this assay matches closely the more precise AMS date from the same context. The other sample submitted in 1995—charred hickory nutshell from Feature 3 fill—required an extended count that resulted in a much larger standard deviation (110 years) and thus a long span of probable time (ca. 600 years). A second sample from this feature returned a later, more precise AMS age estimate, which we consider a more reliable date. Having noted that, the use of Victor Mills over a 300-year span by people of Early Stallings identity appears to have been consistent and redundant, if not continuous.

CONCLUSION

Excavaton in 1994 at Victor Mills began with a trench through a discrete sideslope shell midden that was first noted by Claflin (1931) and later evaluated by Law Environmental (Webb 1992) in advance of a proposed pipeline. Extending the trench upslope and along the ridge exposed a number of subsurface features, almost all pits, each filled with dark, organic soil, and most containing the artifacts of Early Stallings age, notably the technology of indirect-heat cooking. Sections of features revealed at least four types: cylinder, bell-shaped, hemisphere, and basin. Radiometric age estimates for five pit features and the midden span a three-century period, ca. 4350-4050 cal B.P. Aside from one intrusive hearth feature dating to the Woodland period, the feature assemblage of Victor Mills represents a cohesive pattern of intermittent, arguably specialized activities (i.e., mast storage and processing) over this three-century span. Inferences about the function(s) of pits as a measure of the activities taking place there are strongly informed by the associated artifact assemblage, the subject of the next chapter.

To facilitate discussion of artifacts in Chapter 3, the excavation of Victor Mills can be divided into three areas (Figure 2-20). Area A corresponds to the downslope shell midden, of which 18m^2 was excavated. Area B corresponds to the main and south trenches in which mostly hemispherical and basin-shaped pits were exposed in 22 m^2 of excavation. Area C corresponds to the upslope, east trench of 23 m^2 in which mostly cylindrical pits were exposed. Although pit types crosscuts Areas B and C, no such features existed in Area A, the shell midden. Finally, feature provenience for all artifacts is preserved in the chapter that follows even as we acknowledge that the upper 20 cm of soil in Areas B and C consists of fill from pits that could not be discriminated until observed in the plan of red clay substrate.

No matter the ambiguity of some contexts, Victor Mills is a site with remarkable spatial integrity and thus analytical potential for inferring activity areas. This potential turns as much on formal variation within artifact classes like pottery and bifaces as it does on the spatial patterning among such classes, which we highlight in the chapter that follows.

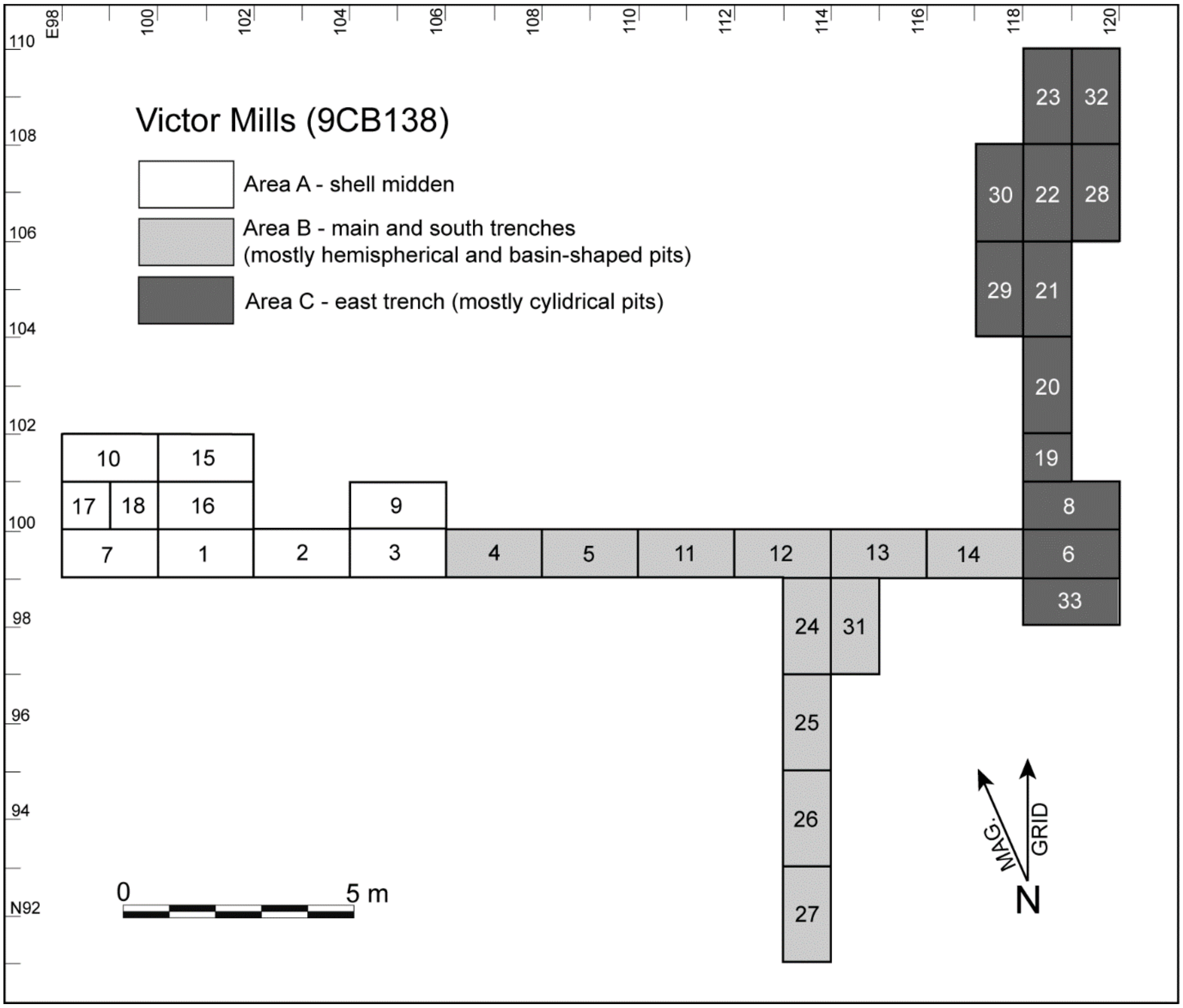


Figure 2-20. Plan map of the Victor Mills excavations divided into three areas (A-C) for purposes of comparing artifact distributions in Chapter 3.

CHAPTER 3
MATERIAL CULTURE

Salvage excavations at Victor Mills in 1994 resulted in the recovery of abundant material culture. Pottery sherds, flaked stone tools, debitage, soapstone slab fragments, and cobble tools were ubiquitous and usually numerous. Also recovered were occasional fragments of polished stone axes and bannerstones, as well as anvil/nutting stones, one weighing 22.1 kg. Especially abundant was fire-cracked rock, most of which was not collected and returned to the lab but simply noted in the field records. Because the method of recovery of material culture varied with context (i.e., flotation, 1/8-inch waterscreening, ¼-inch and ½-inch dry screening, point plotting), comparisons of the frequency or density of artifacts by provenience require standardization. Adjustments to counts and weights for comparative purposes are explained as necessary in the sections that follow below.

Table 3-1 provides an inventory of all material culture by proveniences aggregated by features and the Area designations defined in Chapter 2. More detailed inventories by general class are provided in the sections that follow below, starting with pottery.

Table 3-1. Inventory of Material Culture and Associated Inorganic Materials by General Class and Proveniences Aggregated by Area and Features, Victor Mills (9CB138).

		Area A	Area B	Area C	Area Subtotal	Features	Total
Hafted Biface	ct	11	6	8	25	2	27
Other Biface	ct	15	24	54	93	3	96
Uniface	ct	1		1	2		2
Utilized Flake	ct		1	8	9	1	10
Core	ct	1	1	6	8		8
Cobble Tool	ct	34	4	14	52	12	64
Polished Stone	ct	11		3	14	7	21
Debitage ≥1/4-in	ct	456	815	2,333	3,604	489	4,093
	wt	1,371.7	3,165.5	8,833.9	13,371.1	789.6	14,160.7
Debitage <1/4-in	wt	11.8			11.8	87.0	98.8
Soapstone	ct	705	39	81	825	891	1,716
	wt	8,194.0	684.6	793.2	9,671.8	1,809.7	11,481.5
Fiber-tempered sherd	ct	100	84	106	290	57	347
	wt	686.4	511.4	664.9	1,862.7	750.3	2,613.0
Sand-tempered sherd	ct	4	6	10	20	1	21
	wt	12.9	19.4	39.9	72.2	4.4	76.6
Crumb sherd	ct	54	43	109	206	52	258
	wt	69.8	59.5	139.9	269.2	27.8	297.0
Cracked Rock	ct	4,554	19	218	4,791	4,384	9,175
	wt	16,029.3	1,079.8	4,118.0	21,227.1	26,238.2	47,465.3
Pebbles/Cobbles ≥1/4-in	ct	505		37	542	497	1,039
	wt	1,787.6		61.5	1,849.1	762.8	2,611.9
Misc. Rock Detritus <1/4-in	wt	35.0		111.2	146.2	4,053.9	4,200.1
Limonite/Hematite	ct	6			6	30	36
	wt	28.4			28.4	11.5	39.9
Fired Clay	ct	392	45	675	1,112	1,444	2,556
	wt	410.2	200.9	282.5	893.6	989.0	1,882.6

ct = count; wt = weight in grams

POTTERY

A total of 626 sherds were recovered in the 1994 salvage excavations of Victor Mills. Table 3-2 provides an inventory of sherds by provenience and type. The 258 "crumb" sherds of this inventory consist of sherds less than ½-inch in maximum dimension. These minute fragments were counted and weighed but not classified further. Nonetheless, the vast majority of crumb sherds are from fiber-tempered vessels, the dominant type of sherd (94.3 percent) in the assemblage of larger sherds (n = 368). The remaining 21 sherds classified by type consist of sand-tempered sherds, four of which have surface treatments indicative of a later, Woodland-period presence at the site. Seventeen other sand-tempered sherds are likely to be coeval with the fiber-tempered wares, as discussed in a later section.

Fiber-Tempered Sherds

Fiber-tempered sherds >1/2-inch recovered from Victor Mills are mostly plain (n = 340, 98.0 percent) and from the body or base of vessels (n = 304; 87.6 percent). An additional seven fiber-tempered sherds are punctated body sherds, two separate punctate and five drag-and-jab punctate. All but one fiber-tempered rim sherds (n = 36) are plain, and about half of those have the thickened lips of the Early Stallings phase. The exception is an eroded rim sherd with drag-and-jab punctation. Assemblages securely dated to the Early Stallings phase throughout the region are dominated by sherds from vessels lacking any sort of decoration, more than 20 percent of which have thickened and/or flanged lips (Sassaman 1993:106). Early Stallings asssemblages also typically contain sherds from a few decorated vessels, including those with random, separate linear, and drag-and-jab punctations. With minor exception, the Victor Mills fiber-tempered assemblage meets these criteria. The radiometric chronology reported in Chapter 2 supports this age estimate.

Fiber-tempered sherds were distributed widely, if thinly, across all excavation units. Not counting features, fiber-tempered sherds were recovered at a rate of 4-5 sherds per square meter in all three Areas defined in Chapter 2. A slightly higher density of sherds in Area A, the shell midden, is owed to deeper excavation. Because features were not excavated consistently, comparisons across contexts are difficult, but in general the density of sherds in features is comparable to unit excavation, which again, is low. The major exception among features is Feature 19, which contained relatively large sherds from two plain fiber-tempered vessels with thickened lips. By weight, sherds >1/2 inch from features are generally twice as large on average than sherds from unit excavation (13.8 vs. 6.4 g/sherd respectively), even when those from Feature 19 are removed (10.2 vs. 6.4 g/sherd respectively). The difference here is a matter of taphonomy: sherds deposited in features were not subject to as much communition as sherds deposited on or near the surface.

The remainder of this discussion turns to a vessel unit of analysis. Since the early 1990s, studies of Stallings pottery by the senior author have consistently developed data on vessel lots to enable comparisons across different contexts free of the bias of differential breakage or recovery. Comparing sherd counts and weights across contexts is not always biased by differential breakage, but recovery bias bedevils the study of any site that is not fully excavated, and even then, sherds can be removed from a site and relocated elsewhere by potters or others

Table 3-2. Inventory of Pottery Sherds by Type, Form, and Provenience, Victor Mills (9CB138).

	Plain F-T				Decorated F-T				Plain S-T		Decorated S-T				
	Body		Rim		Body		Rim		Body		Body		Crumb		
Prov.	ct	wt	ct	wt	ct	wt	ct	wt	ct	wt	ct	wt	ct	wt	Notes
1	10	40.1													
2	1	3.3													
3	9	41.9	1	1.9									5	6.6	
4					1	10.0									dec. F-T: D&J
5	1	9.6													
6	15	48.7	1	30.4					3	15.6			18	27.1	
7	7	34.5	1	6.1									4	4.9	
8	25	93.1	1	3.4					5	18.6			31	44.0	
9	1	1.8													
10	40	330.1	3	63.2					1	4.7	3	8.2	31	41.6	3 dec. S-T: Swift Creek Comp. St. (refit)
11	9	28.3	2	11.0					1	1.9			2	2.5	
12	14	61.6	3	10.5					3	9.4	1	4.5	10	16.4	1 dec. S-T: sep. reed punc.
13	28	186.9	7	35.0	2	7.4			1	3.6			27	36.8	2 dec. F-T: D&J; 1 F-T plain body w/repair hole
14	24	124.4	5	25.3			1	3.1	1	2.5			38	49.4	1 dec. F-T rim sherd: D&J
15	7	50.6											3	4.2	
16	1	2.7											2	2.5	
17	12	79.6											2	3.4	
18	6	20.6											7	6.6	
20	4	66.2	1	16.8									1	2.0	
21	5	43.2											17	10.4	1 F-T plain w/repair hole
22	1	4.7													
23	4	61.9													
24	3	40.8	1	14.3											
25	4	28.1													
26	2	28.9													
27	3	21.1	1	6.6											
28	2	6.3							1	3.2			3	4.8	
29	10	74.6	1	7.0	1	2.1									1 dec. F-T: D&J
30	3	35.7											1	1.7	
31	4	15.4											4	3.8	
32	2	18.0													
F. 2	2	15.4	1	18.6	1	10.7							1	1.0	1 dec. F-T: sep. reed punc.
F. 3	4	14.0	1	6.6									1	0.7	

Table 3-2. continued.

	Plain F-T				Decorated F-T				Plain S-T		Decorated S-T				
	Body		Rim		Body		Rim		Body		Body		Crumb		
Prov.	ct	wt	ct	wt	ct	wt	ct	wt	ct	wt	ct	wt	ct	wt	Notes
F. 4	1	5.4											2	2.1	
F. 7	3	43.3											1	2.0	
F. 10	2	15.7											4	2.0	
F. 10/11			1	10.5											
F. 11	5	20.6											9	3.4	
F. 12	6	28.4											13	5.9	
F. 15	1	10.4													
F. 16	4	71.0													
F. 19	16	290.3	5	118.7									7	4.6	
F. 20	1	5.8			1	22.0							12	5.3	1 dec. F-T: sep. punc.
F. 20A	1	1.6									1	4.4	2	0.8	1 dec. S-T: Swift Creek Comp. St. (refit fresh break)
F. 26	1	41.3													
Total	304	2,165.9	36	385.9	6	52.2	1	3.1	16	59.5	5	17.1	258	297.0	

ct = count
wt = weight in grams
F-T = fiber-tempered
S-T = sand-tempered
dec. = decorated
D&J = drag-and-jab punctate
Comp. St. = complicated stamped
sep. reed punc. = separate reed punctate
sep. punc. = separate punctate

engaged in lateral recycling (e.g., using sherd as abrader, template for design, or source of grog). Although methods for diminishing such biases are available, in order to collect data on the attributes of vessels (e.g., orifice diameter, rim thickness), as opposed to sherds, assemblages must first be sorted into vessel lots.

Assigning sherds to vessel lots began by pulling all rim sherds and sorting them into groups based on whatever attributes present themselves as variable. Plain pottery of any type is difficult to sort into vessel lots for lack of variation in surface treatment, but in the case of Early Stallings pottery, variations in lip form are particularly useful. Orifice curvature, rim form, vessel wall thickness (measured at standardized point, in this case 3 cm below lip), and paste also factored into the process. Rim sherds were conjoined whenever possible in order to maximize portions for estimating the size and shape of vessels. Plain body sherds were then assigned to vessel lots based on rim sherds by virtue of conjoining or especially distinctive attributes. Efforts to conjoin body sherds to rims are worthwhile for maximizing the profiles of vessel walls. With the exception of two vessel lots from Feature 19, few such matches were found. In the 30+ years of refitting Stallings sherds for thousands of vessel lots, a complete vessel has never taken shape, and large portions of vessels are extremely rare. More often than not, a vessel lot is represented by a single sherd. The Victor Mills assemblage is no different.

Table 3-3 provide data on the 18 vessel lots identified in the sherd assemblage from Victor Mills. Thirteen of these vessels consist of plain fiber-tempered rim sherds, seven accompanied by body sherds that refitted to rims in only two cases, both from Feature 19. Shown in Figure 3-1 as Vessels 2 and 3, these reconstructed portions provide some of the only reasonable estimates of orifice diameter (both ~30 cm) and vessel profile. Vessel 4 also has a large enough rim portion to estimate orifice diameter (~32 cm), but its rim sherds provide only a shallow profile. All other plain fiber-tempered vessel lots shown in Figure 3-1 (Vessels 1, 5, 12-14), as well as those not illustrated here, consist of rim sherds too small to garner much morphological data. The other five vessel lots of Figure 3-1 consist of punctated sherds, four body and one rim, and one (Vessel 15) that is tempered with sand but not fiber.

Despite the limited number of large vessel portions, the assemblage of plain fiber tempered pottery is relatively consistent in terms of vessel size and shape. We suspect that most of these were open-mouthed, shallow vessels, roughly 30 cm in orifice diameter, and roughly 15-20 cm tall. They are what Sassaman (1993:144-145) refers to as “basins,” and they are believed to have been used as containers from indirect-heat cooking. Occasional basal sherds in the assemblage (none assigned to vessel lots) attest to mostly flat bottoms, the sort of design that was conducive to indirect-heat cooking but unlikely to have provided effective direct-heat cooking, at least not prolonged cooking over fire. At least one basal sherd shows an advanced level of oxidation, presumably from use of fire, but it is especially thick (~17 mm) and thus not terribly conducive to thermal conductivity. If any of the Victor Mills basins were used over fire, we imagine it was for parching or some other short-term, low-heat application.

As noted earlier, thickened lips are common features on Early Stallings basins. Those from Feature 19 (Vessels 2 and 3) are good examples. Vessel 12 is a third example, but one in which the vessel wall below the lip is barely thinned. Not shown in Figure 3-1 are two other examples (Vessels 14 and 18) that resemble those from Feature 19. In all five cases the lip is

Table 3-3. Data on Vessel Lots Derived from Assemblage of Sherds from Victor Mills (9CB138).

#	Prov(s)	# Sherds	Temper	Surface Treatment	Lip Form	Rim Form	Lip Thk. (mm)	Rim Thk. (mm)	Notes
1*	24, 28	2	FMS	XP	XF	IN	7.5	6.8	
2	F19	5	FMS	XP	TF	ST	12.1	6.3	irregular lip and rim thk.
3*	F19, 6, 20	11	FAS	XP	TF	ST	13.5	9.2	irregular lip thk.
4	10	15	FAS	XP	XF	ST	9.2	7.1	
5*	13, 14, 20	3	FMS	XP	RE	ST	7.3	8.2	
6	F3	1	FAS	XP	RD	-	8.4	-	
7	27	1	FMS	XP	XF	-	7.6	-	
8	29	1	FMS	XP	-	-	6.9	-	
9	13	1	FAS	XP	PR	-	4.9	-	
10	13, 14, 29	4	FAS	PD	-	-	-	-	subtriangular pointed punc.
11	4	1	FAS	PD	-	-	-	-	subtriangular pointed punc.
12*	10	1	FAS	XP	TF	ST	13.7	10.6	
13*	13	2	FAS	XP	XF	ST	8.5	-	
14	11	2	FAS	XP	TF	IN	9.0	-	irregular lip thk.
15	12	1	ST	PS	-	-	-	-	hollow reed punctate
16	F2	1	FAS	PS	-	-	-	-	hollow reed punctate
17*	F20	1	FAS	PS	-	-	-	-	irregular punc., nonlocal
18*	F10/11	1	FAS	XP	TF	ST	7.9	8.9	

*vessel lots in petrographic sample
Temper: FMS – fiber minor, with sand; FAS – fiber abundant, with sand; ST – sand tempered (no fiber).
Surface Treatment: XP – plain; PD – drag-and-jab punctate; PS – separate punctate.
Lip Form: XF – flat; TF – thickened flat; RE: rounded exterior; RD – rounded; PR – tapered.
Rim Form: IN – slightly incurvate; ST – straight.

flattened at the top. Flattening is common as well on lips that were not thickened, but also observed are rounded and tapered lips.

Rim forms on fiber-tempered basins are generally straight or slightly incurvate on walls that are slightly outflaring. Vessel 2 exemplifies the most open form. None of the vessels in this assemblage express a restricted orifice.

Little can be said about the vessel lots represented by punctated sherds. Even the sole rim sherd of this small group is too eroded to accurately describe its type and dimensions. With the exception of one sand-tempered sherd, the “look and feel” of these decorated sherds matches that of the plain fiber-tempered pottery. Punctations were made with a hollow reed, an implement with a subtriangular pointed tip, or with a stylus with a tip that produced chevron-like punctations. Vessels with drag-and-jab punctations were decorated with a subtriangular pointed stylus, which is a hallmark of Classic Stallings pottery.

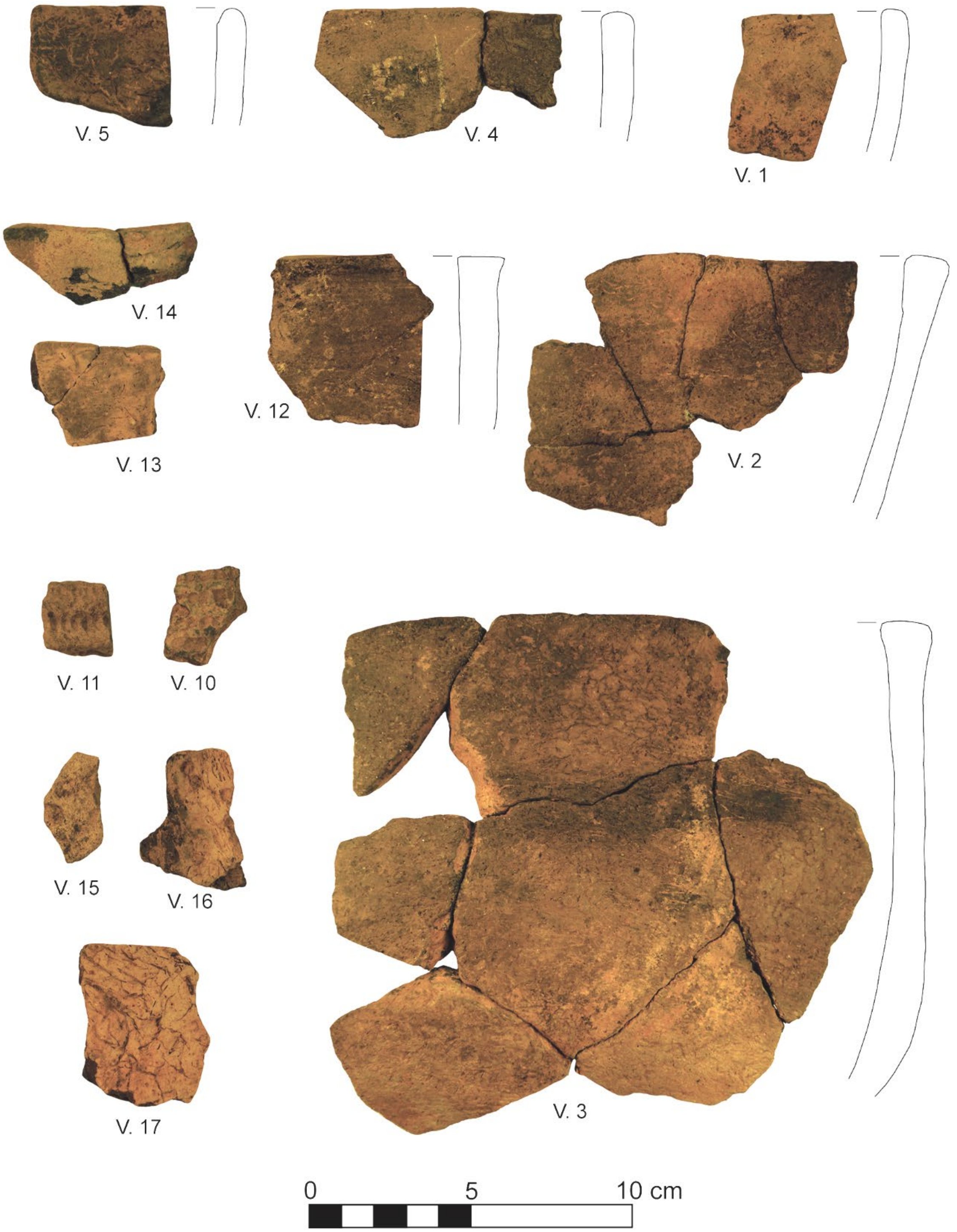


Figure 3-1. Vessel lots of mostly plain fiber-tempered pottery with profiles for rims with at least 3 cm of height. Rare decorated vessels are represented by two drag-and-jab punctate sherds (vessels 10 and 11), and separate punctate, two of which (vessels 15 and 16) were punctated with a hollow reed. Vessel 15 is sand-tempered. Vessels 1, 3, 4, 5, 12, and 13 have flat planes resulting from band-saw cuts made for thin sectioning sherds for petrography.

Additional insight on the fiber-tempered pottery of Victor Mills can be gleaned from recent characterization studies. As part of an NSF-funded research project to characterize the mineral composition and clay provenance of Stallings pottery (Gilmore et al. 2018; Sassaman and Gilmore 2021), sherds from Victor Mills and 12 other sites in the region were sampled for neutron activation analysis (NAA) and petrography. Sample parameters for the project aimed to collect NAA data from at least 30 vessel lots from each site and petrographic data from a subset of 15 each. Project collaborator Zack Gilmore created 30 vessel lots for Victor Mills by expanding the criteria noted earlier to include samples of sherds with attributes of form, condition, and paste that could not be accommodated by lots based primarily on rim sherds. Reconciling the difference between the vessel lots created by Gilmore and those reported here was simply a matter of cross-tabulating provenience data, but ultimately, only seven of those listed in Table 3-3 (marked with asterisks) are among the 15 sectioned for petrography. Another eight vessel lots provide useful data on the composition of Victor Mills pottery, but how does this subsample differ, if any, from that listed in Table 3-3?

To answer this question and resolve any discrepancy in sampling, petrographic data from both subsamples were compared using basic descriptive statistics and a difference-of-means test (Student's t-test). Table 3-4 provides descriptive statistics for three petrographic variables—percent fiber, percent sand, and sand size index (see Sassaman and Gilmore 2021 for details on how observations of these variables were collected by Gilmore from petrographic thin sections)—on sherds from the two subsamples, one labeled "Vessel Lots" for those listed in Table 3-3 (n = 7), and "Other Vessels" for those Gilmore analyzed that are not in this list (n = 8). None of the differences of means for these three variables is statistically significant, meaning that the two subsamples have been drawn from the same sample population.

Table 3-4. Descriptive Statistics for Petrographic Variables (Percent Fiber, Percent Sand, and Sand Size Index) of Sherds from Vessel Lots and Other Vessels, Victor Mills (9CB138).

	Mean	St. Dev.	Minimum	Maximum	CV
PERCENT FIBER					
Vessel Lots (n = 7)	12.95	3.36	7.06	16.67	0.26
Other Vessels (n = 8)	13.15	3.68	8.38	20.26	0.28
Total (n = 15)	13.06	3.41	7.06	20.26	0.26
PERCENT SAND					
Vessel Lots (n = 7)	12.03	5.52	3.07	19.79	0.46
Other Vessels (n = 8)	11.40	5.26	2.87	18.22	0.46
Total (n = 15)	11.69	5.19	2.87	19.79	0.44
SAND SIZE INDEX					
Vessel Lots (n = 7)	2.28	0.60	1.23	2.80	0.26
Other Vessels (n = 8)	2.41	0.52	1.69	3.35	0.22
Total (n = 15)	2.35	0.54	1.23	3.35	0.23

The lack of significant difference between the two subsamples enables us to generalize about the composition of Victor Mills pottery from the total sample of 15 vessel lots. As shown in Table 3-4, the percent fiber in Victor Mills fiber-tempered pottery varies from 7.06 to 20.26 percent, with a mean of 13.06 percent. Percent sand varies a bit more, from 2.87 to 19.79 percent, with a mean of 11.69 percent. The average size of sand, as measured by the Sand Size Index, ranges from 1.23 to 3.35, with a mean of 2.35. The central tendencies and variances of values for each of these variables fits within the regionwide pattern for Early Stallings vessels (Sassaman and Gilmore 2020), and with notable exception, the composition of Victor Mills vessels points to local production. The results of NAA show that about 17 percent of a sample of 30 vessel lots from Victor Mills were made on clays from sources downriver (Gilmore et al. 2018). Only one of these nonlocal vessels (Vessel 17) is included in the list of Table 3-3; another two are included in the petrographic subsample of Gilmore, while another two were not analyzed for petrography. The single example in the listed vessel lots was punctated with an irregularly-shaped stylus. Those in the Gilmore subsample are plain.

In the closing chapter of this report we put these results into broader context to argue that the nonlocal vessels deposited at Victor Mills were carried to the site by the same potters who made vessels locally. Furthermore, we infer from these and other data a pattern of seasonal mobility extending from the Coastal Plain to the Fall Zone.

One final note on the fiber-tempered pottery is the lack of evidence for use alteration, particularly the accumulation of soot expected from direct-hear cooking. This of course is not surprising given the inference that fiber-tempered basins were used as containers for indirect-heat cooking. As noted earlier, occasional oxidation on basal sherds suggest that basins may have also been used over coals to parch nuts or seeds, but not for prolonged cooking. One basal sherd from an unassigned vessel lot has a patch of carbonized remains on its interior surface that could potentially be assayed with gas chromotography and mass spectromery to determine what was processed therein.

Sand-Tempered Sherds

All of the fiber-tempered pottery from Victor Mills contains some sand, presumably incidental to the clays used, but only 21 sherds lack fiber and contain only sand as an aplastic constituent. All but four of the sand-tempered sherds are likely to be coeval with the fiber-tempered wares. Throughout the region, sand-tempered pottery with decorative motifs similar to Stallings fiber-tempered pottery is classified as Thoms Creek. Although these decorated wares, fiber- or sand-tempered tempered, became more popular over time, even Early Stallings assemblages include a few sand-tempered plain vessels. Sixteen body sherds from Victor Mills may be explained in these terms as they have plain surfaces and are otherwise indistinguishable from plain fiber-tempered body sherds from the site. The sole decorated sherd that is likely to be coeval was punctated with a hollow reed (Vessel 15), much like its fiber-tempered counterparts.

The remaining four sand-tempered sherds consist of complicated stamped sherds of the Swift Creek tradition. Dating from ca. 100-750 CE, Swift Creek pottery is distributed across all of Georgia, eastern Alabama, and north Florida (Williams and Elliott 1998). Extending into

South Carolina along the margins of the Savannah River Valley, this tradition was thus peripheral in the vicinity of Victor Mills. Its occurrence here in only trace amounts is hard to explain; there is nothing to recommend from the results of our excavations that people of Swift Creek culture spent much time at the site. These four small sherds—three of which conjoin to form one sherd—are the only definitive evidence for activity beyond the Early Stallings phase.

SOAPSTONE

Fragments of perforated slabs, amorphous nodules, and miscellaneous fragments of soapstone abound at Victor Mills. Table 3-5 provides counts and weights for all soapstone by provenience. A total of 1,716 pieces weighing 11,481.1 g were distributed widely across excavation units and features, although the majority by count (40.3 percent) and especially weight (71.3 percent) came from units in Area A, the shell midden. As with fiber-tempered pottery, the relatively greater amount of soapstone in Area A partly is a consequence of differential recovery across contexts. However, comparing the relative values of soapstone across areas to those of pottery suggest that deposition of soapstone in the shell midden was nonrandom. Most items of soapstone recovered from the shell midden, as elsewhere, including pit features, consist of fragments of perforated slabs.

Misidentified as net sinkers in the 1931 report on Stallings Island (Claflin 1931:32), and by C. C. Jones (1873:337) nearly a half-century earlier, perforated soapstone slabs are now understood as a local innovation for indirect-heat cooking, with or without pottery (Sassaman 1993:116-119). Claflin (1932:32) reported over 2,500 flat, perforated slabs from Stallings Island and noted that they averaged about one-half inch (12.7 mm) thick. He also remarked on how odd the preference for flat perforated slabs was given the existence at Stallings Island of soapstone "lumps" encircled by a groove, which he surmised required much less work to make and would have provided the same service in weighing down nets. Whereas engrooved lumps were likely used as net sinkers (Sassaman 2006:118-119), other nodules of soapstone with minimal modification or shallow pits on either face were used in indirect-heat cooking, probably in earth ovens, as well as containers. Arguably, an evolutionary sequence starting with slightly modified lumps to pitted and then perforated lumps culminated in the flat perforated variety so numerous at Stallings Island and other Classic Stallings sites in the region (Sassaman 2006:44-45).

Recovered from excavations at Victor Mills were numerous fragments of perforated soapstone slabs of variable thickness and cross-section, along with amorphous nodules or lumps that were drafted into thermal applications (Figures 3-2, 3-2). Irrespective of form, many of the fragments and nodules show evidence of heat exposure, notably rubification. Good examples of heat-reddened soapstone are seen in Figure 3-2 h, k, and t.

Judging from the completeness of the holes drilled through slabs, three examples from Victor Mills could be considered "whole" (Figure 3-2c, i and Figure 3-3h). This does not, however, take into consideration that soapstone slabs were sometimes recycled after breaking, which often took place along planes that intercepted holes. Below we consider further the evidence for recycling slabs but note for now that only one fragment of a perforated slab bears evidence for more than one hole.

Table 3-5. Count and Weight of Soapstone by Provenience, with Estimate of Minimum Number of Slabs by Unit or Feature.

Provenience	Count	Wt. (g)	Minimum Number of Slabs
1	51	807.9	5
2	24	167.4	1
3	81	839.8	
6	21	159.4	
6 & 8	1	3.2	
7	19	98.1	1
8	18	67.6	
9	19	364.3	1
10	151	1,744.1	6
11	8	49.4	
12	10	55.4	
13	14	63.5	
14	21	157.6	
15	56	1,030.3	6
16	91	1,158.1	3
17	50	1,191.6	5
18	162	779.2	3
19	1	59.7	
20	1	21.1	
21	17	295.3	
24	1	45.9	1
25	3	108.3	1
26	1	282.7	1
27	1	5.6	
29	2	42.5	
31	1	73.8	
Subtotal	806	9,671.8	34
F2	134	356.9	1
F3	164	673	4
F3A	19	318	3
F4	12	37.3	
F7	255	75.8	
F10	18	1.0	
F11	15	10.6	
F12	55	6.3	
F16	1	9.4	
F19	191	59.5	
F20	26	4.2	
F20A	1	257.3	
Subtotal	890	1,809.3	8
Total	1,716	11,481.1	42

Figure 3-2. Soapstone slab fragments (a-s) and nodules (t-x) from Victor Mills (slab number in parentheses): a. 10B-17(8); b. 15C-1(2); c. 17B-1(39); d. 17B-1(4); e. 16B-12(33); f. 16B-12(40); g. 17B-1(27); h. 16A-2, 17A-1(22); i. F2-3(1); j. F3-1(23); k. 15B-5, 17C-1, 6(7); l. 10B-1(6); m. 26A-1(5); n. F2-3, F3A-5(30); o. 18C-1(3); p. 18C-1, 10B-17(9); q. 16B-12(37); r. 9A-5; s. 15A-1; t. 3A-8; u. 21A-1; v. 10A-1; w. 20A-1; x. 17B-6.

Figure 3-3. Soapstone slab fragments from Victor Mills (slab number in parentheses): a. 2A-6(26); b. 15A-1(18); c. 18B-6(24); d. 1A-1(38); e. 10A-1(35); f. 10B-17(28); g. 1A-1(25); h. F3A-5(42); i. F3-1(10); j. 25A-1(13); k. 1A-1(21); l. 10B-17(36); m. 15A-1(11); n. 1A-1(20); o. 10A-1(17); p. F3-1(41); q. 15A-1(19); r. 15B-5(12); s. 24A-2(29); t. 15B-5(31); u. 9A-5(34); v. 7A-4, 16A-2(32); w. F3A-5(14); x. 1B-4(15); y. F3-1(16).

To facilitate comparisons within and between sites, we calculated the minimum number of perforated slabs at Victor Mills by first isolating all fragments with a complete hole (n = 3) or a remnant of a hole (n = 48). Like the rim sherds of pottery, holes among slabs are a useful attribute for defining lots. Sorting slab fragments into lots was facilitated by the variable texture and color of soapstone, as well as variations in form, thickness, condition, and the morphology of perforations, most of which are biconical in cross-section but of varying diameter and symmetry. A few cross mends presented themselves (Figure 3-2 k, p), and in a few other cases fragments were assigned to a lot despite a lack of refit (Figure 3-2 h, n). It is not uncommon for broken slabs to be ground along fracture planes, rendering refitting difficult.

Our sorting and refitting effort resulted in a minimum estimate of 42 perforated slabs. Table 3-6 provides data for each of these items, including the number of perforations per slab, the inside diameter of perforations (if at least 50 percent), and slab thickness at the perforation.

Table 3-6. Data for 42 Soapstone Slabs from Victor Mills (9CB138).

Slab #	Prov.	Portion[a]	Perforation X-Sec[b]	# Perforations	Inside Diam. (mm)	Thickness at Perforation (mm)	Wt. (g)	Notes
1	Feat. 2	HW	BC	1	12.2	27.5	194.4	
2	15C	HN	BC	1	14.4	22.1	96.8	
3	18C	HN	BC	1	14.3	25.5	140.3	
4	17B	HN	BC	1	12.4	26.8	122.7	
5	26A	HF	BC	1		20.4	282.7	
6	10B	HF	BC	1		19.5	173.6	
7	15B	(HN)	BC	1	13.6	27.1	110.9	also pitted
	17B	HF					15.9	refit with 7
	17C	HF					124.1	refit with 7
8	10B	HN	BC	1		27.2	63.4	
9	10B	(HN)	BC	1	17.1	25.6	67.2	
	18C	HF					198.5	refit with 9
10	Feat. 3	HN	BC	1	13.4	24.0	61.9	
11	15A	HF	BC	1		25.5	78.3	
12	15B	HF	BC	1	12.0	25.1	105.7	
13	25A	HN	BC	1	14.4	21.8	76.3	
14	Feat. 3A	HF	BC	1	14.9	29.6	95.2	
15	1B	HF	BC	1		21.8	63.0	
16	Feat. 3	HF	BC	1		22.3	71.8	
17	10A	HF	BC	1		19.2	67.0	
18	15A	HF	BC	2		19.8	33.9	recycled
	15A		BC			20.1		second perforation
19	15A	HF	BC	1		21.5	70.4	
20	1A	HF	BC	1		23.4	93.4	
21	1A	HF	BC	1		18.7	52.0	
22	16A	HF	BC	1		20.9	44.6	
	17A	HF	BC	1		21.2	47.9	match with 22
23	Feat. 3	HF	BC	1		23.1	131.0	
24	18B	HF	BC	1		20.0	39.0	
25	1A	HF	BC	1	14.8	13.5	51.5	
26	2A	HF	BC	1		18.9	18.5	
27	17B	HF	BC	1		23.0	84.9	
28	10B	HF	BC	1		19.2	54.7	
29	24A	HF	BC	1		16.9	45.9	
30	Feat. 2	HN	BC	1	12.6	17.8	66.3	
	Feat. 3A	HF	BC	1		19.6	81.7	match with 30
31	15B	HF	CY	1		14.7	74.0	
32	7A	HF	BC	1		20.4	49.0	
	16A	HF	BC	1		19.4	47.6	match with 32
33	16B	HF	BC	1	12.5	14.9	90.3	
34	9A	(HN)	BC	1	12.4	14.1	56.2	
	10B	HF					13.2	refit with 34
	10B	BF					4.5	refit with 34
35	10A	HF	BC	1		19.2	25.0	
36	10B	HF	BC	1		17.2	64.9	
37	16B	HF	BC INC	1		23.4	205.5	
38	1A	HN	BC	1	10.1	20.5	22.8	
39	17B	HW	BC	1	7.6	21.5	64.2	possibly recycled
40	16B	HW	BC INC	1		22.9	113.6	possibly recycled
41	Feat. 3	HW	BC INC	1		21.3	66.7	possibly recycled
42	Feat. 3A	HW	BC	1	6.4	13.0	21.8	possibly recycled

[a] HW = hole complete; HN = hole <50%; HF = hole <50%; BF = body fragment

[b] BC = biconical; CY = cylindrical; INC = incomplete drilling

Table 3-7. Descriptive Statistics on the Number of Perforations, Inside Diameter of Perforations, and Maximum Thickness of Slabs at Perforations for 42 Slabs from Victor Mills (9CB138).

	Number of Perforations	Inside Diameter of Perforation (mm)	Maximum Slab Thickness at Perforation (mm)
n	43	17	42
Mean	1.02	12.65	21.21
Standard Deviation	0.15	2.64	3.98
Minimum	1	6.40	13.00
Maximum	2	17.10	29.60
CV	0.15	0.21	0.19

Descriptive statistics for these variables are provided in Table 3-7. The distribution of perforated slabs across proveniences is given in Table 3-5.

As noted earlier, only one slab (2.4 percent) shows evidence of a second perforation, giving the entire assemblage of 42 slabs an average of only 1.02 perforations/slab. This is not an unusually low average for assemblages within about 30 km of a geological source of soapstone. Multiple perforations of slabs from assemblages of the middle Coastal Plain, at least 80 km from soapstone sources, are observed on over 40 percent of all slabs, averaging up to 1.47 perforations/slab (Sassaman 1993:122). Overall, the Victor Mills assemblage registers little evidence for recycling broken slabs by re-perforating fragments, although a few specimens are modified in other ways that hint at repurposing, if not recycling. Specifically, two small slab fragments have complete perforations that are only about half the diameter of the perforations of all other slabs (Figure 3-2 c and Figure 3-3 h), suggesting that they were drafted into uses other than indirect-heat cooking. Two others have incomplete biconical perforations (Figure 3-2 f and Figure 3-3 p) but no trace of prior holes along fracture planes. One fragment of another slab consisting of three refitted pieces (Figure 3-2 k) has shallow depressions of opposite faces, likely a consequence of repurposing after breakage. A fourth example with shallow depressions was fractured along an intercepting plane (Figure 3-2 q).

The average inside diameter of 17 perforations complete enough to measure is 12.65 mm. Excluding the two slabs with especially narrow holes of 6.4 and 7.6 mm, the average jumps to 13.40 mm. All but one of the perforations is biconical, meaning they were drilled on opposite faces by a tool with expanding margins. The single example with a cylindrical hole (Figure 3-3 t) is but a small portion whose diameter could not be estimated. If truly cylindrical, this hole was likely drilled with a piece of hollow cane.

The thickness of slabs at the perforation ranges from 13.0 to 29.6 mm and averages 21.21 mm. A minority of slabs less than 19 mm thick brings this average down from what otherwise would be among the thickest in the greater region (Sassaman 1993:122). In general, the Victor Mills slab assemblage includes only a trace of the flat variety so common to Stallings Island that Claflin estimated averaged about 13 mm thick. Since Claflin's time we have come to understand that Stallings Island has at least two major components involving perforated soapstone slabs, one dating to the Paris Island and Mill Branch phases, and a later one dating to the Classic Stallings phase (Sassaman et al. 2006). Presently, we do not have data to support the inference that slab morphology over this time evolved from thicker to thinner forms, but extrapolating from other assemblages in the region, this is likely the case. On balance, the Victor Mills assemblage of perforated slabs matches closely those of other Early Stallings assemblages in the middle Savannah area, notably the one from Rae's Creek (Crook 1990).

Lacking compositional data on Victor Mills slabs, we cannot comment conclusively on how many sources of soapstone were involved in their manufacture but there is certainly enough variety in texture and color to suggest more than one source. The closest known source involving the production of slabs is at the mouth of Kiokee Creek and the Savannah River (9CB23; Elliot 2017:40), about 14 kilometers up river from Victor Mills. Other sources in Columbia County have been documented along Marshall Road (9CB62), about 16 km northwest of Victor Mills (Elliott 2017:41), and near the town of Appling, about 16 km to the west (Elliott 2017:38-39). C. C. Jones (1880:350) recorded a soapstone quarry near present-day Grovetown, about 11 km west of Victor Mills, but it evidently was used for the production of soapstone bowls (Elliott 2017:38). Efforts to characterize the composition of geological sources both locally (e.g., Wood et al. 1986) and throughout the Eastern Woodlands have not been terribly successful because outcrops often have as much mineralogical variation within them as they do between them. It follows that mineralogical variation within any archaeological assemblage may belie a single source. Only an aggressive program of intra-source characterization can alleviate this ambiguity. Still, with three or more sources within 16 km of Victor Mills and none closer than 11 km, we suspect that multiple sources of soapstone were involved in the manufacture of slabs deposited at the site.

Finally, the density of soapstone at Victor Mills is relatively high compared to other sites for which the area excavated is known (Sassaman 1993:122-123). At 182.2 g/m^2, soapstone at Victor Mills is lower than Rae's Creek (229.0 g/m^2) and 9RI86 (301.2 g/m^2), but higher than other sites in the middle Savannah area and certainly sites downriver, in the Coastal Plain. Stallings Island likely exceeds all these sites in density, as might Lake Spring, Kiokee Creek, and Uchee Creek up river, but reliable data on these sites are not currently available.

FLAKED STONE

Flaked stone artifacts and the by-products of their manufacture, use, and maintenance account for 4,236 of the Victor Mills assemblage of items ≥1/4 inch (Table 3-8). Debitage (n = 4,093) comprises the vast majority (98.8 percent) of such items. Debitage <1/4-inch in size collected from 1/8-inch waterscreened and flotation samples is not included in the inventory of Table 3-8 but can be found in the catalog of Appendix A.

As described in the sections that follow, flaked stone artifacts from Victor Mills are dominated by the by products of biface production involving locally available quartz cobbles. Most of 96 items classified as "Other Bifaces" consist of bifacial blanks and preforms that were abandoned due to production failures, often owing to the irregularities of cobble quartz. Final products of this material are represented by complete and fragmented hafted bifaces, but accompanying them are examples made from Coastal Plain chert and, less common, metavolcanic rock, which presumably were carried to the site in more-or-less finished form. We begin our discussion of flaked stone items with these formalized tools.

Table 3-8. Absolute Frequency of Flaked Stone Artifacts and Absolute Frequency and Weight of Debitage ≥1/4-inch by Provenience, Victor Mills (9CB138).

Provenience	Hafted Biface	Other Biface	Uniface	Utilized Flake	Core	Debitage ≥1/4-inch Count	Debitage ≥1/4-inch Wt. (g)
1		1			1	35	129.0
2						8	21.5
3	2	3	1			118	311.0
4	1						
5	1	1					
6		12		2	2	707	2,560.8
7	1	1				4	36.9
8	1	14		3	1	661	2,974.8
9		1				15	42.1
10	5	4				107	177.7
11		3				118	458.7
12	1	6				200	818.3
13	2	9			1	481	1,478.4
14	1	6		1	3	830	2,474.2
15						38	167.4
16		1				40	117.3
17	2	2				37	264.5
18		2				54	104.3
19						5	77.6
20		4				8	50.7
21		8		2		100	534.8
22		2					
23							
24		1				1	3.6
25		2		1			
26						3	132.9
27	1	2					
28	1	3	1			3	100.3
29	2	4				8	28.2
30	2	1				11	32.5
31	1					12	273.6
32	1						
Subtotal	25	93	2	9	8	3,604	13,371.1
F2						77	78.8
F3	1	1				107	297.1
F3A		1		1		13	90.9
F4						33	30.4
F7						24	25.4
F10						5	2.4
F11						19	33.3
F12						20	40.6
F16		1					
F19	1					81	77.2
F20						106	109.6
F20A						4	3.9
Subtotal	2	3		1		489	789.6
Total	27	96	2	10	8	4,093	14,160.7

Hafted Bifaces

Twenty-seven flaked stone artifacts recovered from Victor Mills have a haft element or portion of a haft element and are thus classified as "Hafted Bifaces." Each of these is shown in Figure 3-4 and data provided in Table 3-9. This modest assemblage is remarkable for diversity in both form and raw material. Formalized hafted bifaces (i.e., those with sufficient formal variation to be classified by "type") have long been drafted into the service of culture history with demonstrable time-space boundaries that are assumed to represent some measure of cultural tradition. Stratigraphic contexts for sequencing forms, and thus "traditions," were revealed in foundational work in the mid-20th century (e.g., Broyles 1971; Chapman 1976; Coe 1964). Since then, field investigations in the region have revealed much greater variation than seen in founding sequences (e.g., Sherwood et al. 2004). Work in the greater middle Savannah River area has taken up this issue and provided sufficient support for archaeological phases that acknowledge not only greater synchronic diversity, but the need to consider how raw material, function, and maintenance affect form (Ledbetter 1995).

The Victor Mills assemblage of hafted bifaces adds an important benchmark for diversity over a relatively short period of time, arguably three centuries or less (~4400-4100 cal B.P.). Based on regional chronology as currently understood, the occupational sequence of Victor Mills coincides with the later ends of the Mill Branch phase of the middle Savannah area (~4700-4100 cal BP) and the Early Stallings phase of the Coastal Plain (~4900-4100 cal BP), as well as the very beginnings of the Classic Stallings phase of the middle Savannah (~4100-3750 cal B.P.). Although we are confident that the Victor Mills assemblage accumulated over this three-century period, it may be disingenuous to call it a single-component site. The site's use over this time may have been specialized (i.e., mast processing) and continuous, but if its assemblage of hafted bifaces is the output of a particular people and their descendants, we would have to consider that these forms lack the sort of time-space specificity of useful diagnostic types. A lot of variation assumed to be sequenced over many centuries may be confined to shorter periods of time and certainly coexist in varied assemblages.

Besides factors other than "tradition" that affect formal variation of hafted bifaces (i.e., raw material, function, maintenance), the social circumstances of activities at Victor Mills likely contributed in ways that are overshadowed by the output of specialized activities. As discussed in Chapter 4, vertebrate faunal remains from Victor Mills include abundant deer bone. As some persons collected and prepared mast for storage, were others out hunting deer? Were these divisions along lines of gender? If so, might we expect differences in the variation of gender-specific technologies (e.g., pottery vs. deer hunting weaponry) if gender divisions extended to rules of descent and post-marital residence, as proposed long ago (Sassaman and Rudolphi 2001)?

We keep these question in mind in the sections that follow and return to address them in the final chapter of this report. Here we aim to describe variation among hafted bifaces in as objective fashion as possible. In keeping with the "lumper" approach advocated by the senior author and others since the late 1980s, we avoid "pigeon-holing" the Victor Mills specimens into particular culture-historical types. Some relevant types are well documented from work in

Table 3-9. Metric and Nominal Data on 27 Hafted Bifaces and Hafted Biface Fragments, Victor Mills (9CB138).

Provenience	Raw Material	Thermal. Alter.	Con-dition	Fracture Type	Max. Length	Max. Width	Max. Thickness	Weight (g)	Blade Width at Shoulder	Blade Length	Stem Width at Shoulder	Stem Length	Basal Form	Basal Width
3A-1	Q	N	1	1	29.9	20.4	8.4	5.3	20.4	21.2	16.4	7.2	X	15.5
3 wall scrape	Q	N	1	0	36.2	25.2	7.7	6.8	25.4	23.4	20.9	12.8	X	
4 floor scrape	MV	N	1	10	54.0	24.7	8.9	11.1	21.8	47.4				
5A-1	Q	N	9	1, 13	35.5	25.8	8.9	7.0	25.8	29.0	19.7	8.9	S	
7A-1	MV	N	1	1	40.3	22.5	7.5	5.9	22.5	32.1	16.1	9.4	X	
8B-13	CPC	Y	3	16	17.8	26.4	8.6	3.4					I	17.5
10A-13	UID	N	1	1, 17	48.2	23.1	11.8	11.2	22.8	35.7	16.1	10.3	X	
10A-14	Q	N	2	4	42.3	30.6	9.3	12.3	30.6		23.4	13.8	S	15.5
10A-15	Q	N	1	0	40.5	21.0	8.9	8.1	21.0	34.0	15.7	5.3	S	11.0
10A-17	CPC	Y	3	5, 11	17.7	22.0	6.3	2.1			13.9	6.7	S	13.7
10B-18	MV	N	2	4	36.4	30.9	11.2	13.5	30.9		17.6	11.7	S	16.8
12A-1	CQ	N	3	1, 4, 11	46.9	53.0	14.2	35.7	52.8		31.0	13.9	S	
13B-6	CPC	Y	5	9	14.9	20.4	7.6	1.9				11.0	X	
13B-7	Q	N	5	9	18.9	21.5	10.1	3.5			19.3	15.8	S	14.5
14A-7	Q	N	1	0	38.6	30.7	10.7	10.9	30.7	23.8	19.8	14.8	S	14.7
17B-6	Q	N	1	1	43.0	24.4	8.7	8.5	24.4	31.3	21.9	13.7	I	17.8
17B-21	CPC	Y	7	5	17.5	16.2	4.8	1.7						
27A-4	MV	N	1	1	37.8	31.2	4.0	5.3	31.2	36.6	18.6	5.0	S	14.6
28A-2	Q	N	3	1, 4, 11	23.1	26.5	8.1	4.5	26.5		14.9	10.2	S	
29A-7	MV	N	3	4	9.6	31.0	8.3	11.5	31.0		15.1	9.3	S	15.1
29A-11	CQ	N	3	1, 12	41.3	32.3	9.4	13.3	32.3		20.7	13.3	S	14.2
30A-1	Q	PD	1	1	52.8	33.0	10.7	16.5	33.0	36.3	23.1	12.3	S	17.6
30A-2	CPC	Y	3	1, 4	18.6	30.4	7.1	5.3			19.4	22.8	S	20.7
31A-11	CPC	N	1	3	52.5	36.2	13.5	21.9	34.8		27.8	19.2	S	12.5
32A-1	Q	N	2	1, 3	38.8	30.4	10.7	10.1	10.7	24.8	22.1	16.1		
F3-6	Q	N	5	1, 9	12.4	17.9	8.4	2.5					S	16.0
F19-BA-1	Q	N	1	0	53.6	26.1	10.9	15.0	25.4	44.4	17.1	9.2	S	17.3

Raw Material: Q = quartz; CQ = cobble quartz; MV = metavolcanic; CPC = Coastal Plain chert; UID = unidentifiable.

Thermal Alteration: Y = yes; N = N; PD = postdepositonal

Condition: 1 = complete; 2 = missing tip; 3 = proximal half; 5 = stem; 7 = lateral.

Fracture Type: 0 = none; 1 = hinge/step/stack; 3 = perverse; 4 = lateral; 5 = crenated; 9 = haft snap; 10 = misc. haft damage; 11 = incipient; 12 = impact; 13 = misc. shoulder damage; 16 = radial; 17 = double patination.

Basal Form: S = straight; I = incurvate; X = excurvate.

the greater middle Savannah, such as those of Mill Branch (Ledbetter 1995) and Paris Island (Wood et al. 1986) phases. Others, like Allendale and Brier Creek, are distinct in form but are not well dated and extend beyond the Coastal Plain province in which they were defined (see Sassaman et al. 2002:17-19 for details). The Savannah River Stemmed type as defined by Coe (1964) is the catch-all type in the greater region for any stemmed biface with a broad-blade; a tapered stemmed form of equal proportions is locally known as a Mack point (Goodyear 2018). Small Savannah River Stemmed, Otarre, and other types have been used to describe the generally smaller stemmed bifaces of Classic Stallings times.

What all these types have in common is a stemmed haft element, although variation in the width and length of stems, along with overall form, is immense. In an effort to reduce this variation to a few metric variables, the relationship of stem length to basal stem width has proven useful (Ledbetter 1995:238). When compared to the width of blades at the shoulder, the ratio of basal width to stem length is able to discriminate among four of the major stemmed biface types listed above at a 67-percent degree of confidence (Sassaman et al. 2002:116). A summary of the data in support of this assertion are presented in Figure 3-5 for area samples detailed elsewhere (Sassaman et al. 2002:112-118). Whereas blade width is subject to attrition from use, shoulders are presumably at or below the end of the haft itself, preventing or at least impeding reduction though edge maintenance. In fact, the cruciform drills of the Mill Branch phase attest to the preservation of shoulder morphology as blades are reduced laterally. Taken together, the three variables of interest—stem length, basal (stem) width, and width of blade at shoulders—are the least subject to modification from the normal attrition of use and maintenance. They are not, however, immune to alteration from fracture and any repairs or recycling that obliterates the original morphology and size of haft elements. Specimens with obvious traces of damage and/or alteration to the haft elements or shoulders are eliminated from the graph of Figure 3-5.

The 12 specimens from Victor Mills with reliable metric data assume a wide range of variation in the ratio of basal width to stem length, but only limited variation in blade width at shoulder, owing to the lack of bifaces with blades greater than 35 mm in width. Comparing the plots of these two variables against the boxed variation of type assemblages, six of 12 bifaces fall within or near the range of the Savannah River Stemmed, albeit at the low end of blade width. As Ledbetter (1995) noted for this type at the Mill Branch site, raw material differences contribute to variation in size, with quartz and chert examples smaller on average than those made from metvolcanic rock. The subsample for Savannah River Stemmed (or the local equivalent, the Mill Branch type) from Hitchcock Woods, which is exclusively made from metavolcanic rock, typifies the broad-blade morphology of this Late Archaic tradition, in this case in excess of 35 mm wide. Again, none of the specimens from Victor Mills meets this criterion.

A single example (17B-6) proximate to the Brier Creek box is made from quartz rather than the more typical Coastal Plain chert of this type. Despite this difference, the basal and stem morphology of this biface is consistent with the type. In contrast, another example from Victor Mills (31A-11) has a much broader blade than is typical of Brier Creek points, plus a tapered haft element that is much longer than it is wide at its truncated base. Still, being made from thermally altered Coastal Plain chert, this example has many of the hallmarks of the type.

Figure 3-4. Hafted bifaces and one biface preform fragment (z) from Victor Mills (9CB138): a. F3-6; b. 13B-6; c. 10A-17; d. 8B-13; e. 3A-1; f. 28A-2; g. 30A-2; h. 12A-4; i. 13B-7; j. 14A-7; k. 3-wall scrape; l. 5A-1; m. 32A-1; n. 27A-4; o. 10A-15; p. 10A-14; q. 29A-11; r. 29A-7; s. 10B-18; t. F19-BA-1; u. 4-floor scrape; v. 10A-13; w. 17B-6; x. 7A-1; y. 31A-11; z. 18A-2; aa. 30A-1; bb. 12A-1.

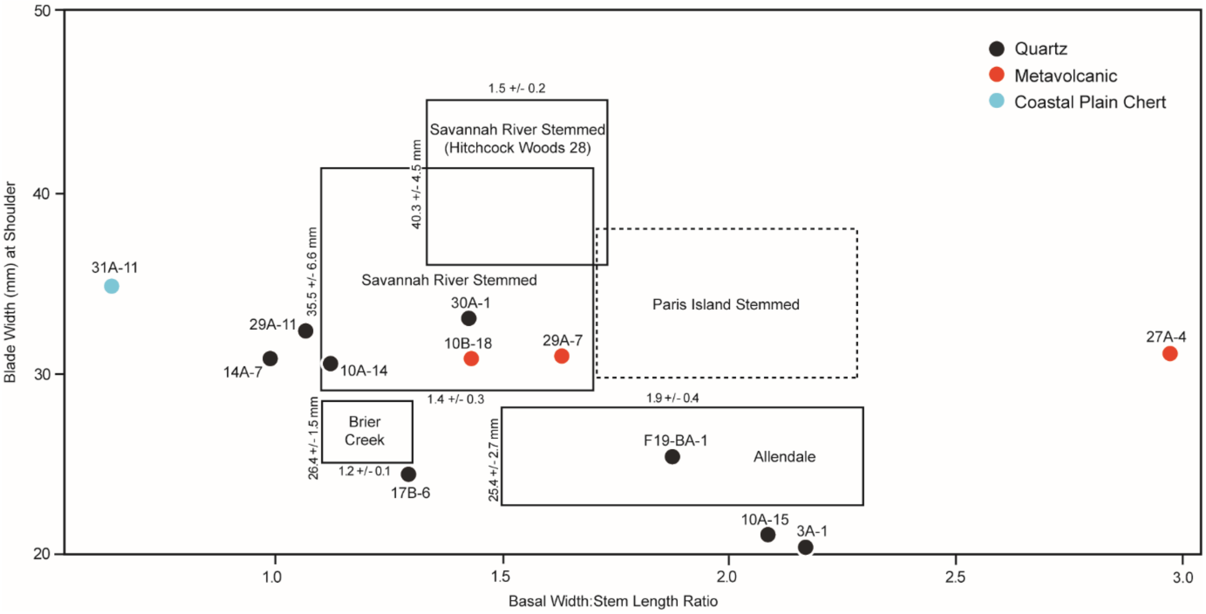


Figure 3-5. Victor Mills (9CB138) stemmed hafted bifaces compared to range of metric variation for four well-defined stemmed biface types for the middle Savannah River region.

One whole biface from Victor Mills (F19-BA-1) fits comfortably in the range of variation for Allendale points. Another two (10A-15, 3A-1) fall just below the Allendale box for being small, as well as narrow. All three were crafted from quartz, which is not unusual for this Coastal Plain-centric type. Assemblage of Allendale points from the Coastal Plain typically include a few quartz specimens (e.g., Sassaman 2006:38) and those from the lower Piedmont usually show a reciprocal pattern. Although none of the Victor Mills examples with an intact haft elements was made from Coastal Plain chert, at least two (10A-17, 8B-13) and possible three (12A-4) made from this material are likely Allendales. All three were thermally altered; in the case of 12A-4, thermal alteration may have been post-depositional.

One other stemmed hafted biface in the plot of Figure 3-5 is a true outlier. With a short but broad stem, 27A-4 otherwise resembles a Paris Island point is its Christmas-tree-like morphology. Made from metavolcanic material, this example has two counterparts with longer stems and nearly identical blade width. These other two would fit the Paris Island type at the two-sigma range of variation, but they would be a few centuries later than the accepted terminus of the phase, ca. 4700 cal B.P. Because Mill Branch appears to have descended directly from Paris Island, ambiguity in form and scale is expected between the two. In general, bifaces got bigger over this history, as did bannerstones (see below).

A few other stemmed bifaces shown in Figure 3-4 could not be included in the metric comparisons because they sport tapered stems with no discernible base dimension. One large example made on quartz (12A-1) may qualify as a Mack point, which is a Coastal Plain type whose Piedmont counterparts are typically made from metavolcanic rock, often flow-banded rhyolite (Goodyear et al. 1990). Three others are small quart points (3-wall scrape, 5A-1, 32A-1) whose tapered stems resemble the Middle Archaic Morrow Mountain type. A fourth tapered stem fragment (13B-6) made from thermally-altered Coastal plain chert might qualify as well. If these are indeed Morrow Mountain points, they were deposited at Victor Mills (a) long before the main occupation spanning 4400-4100 cal B.P.; (b) after scavenging and repurposing by Late Archaic occupants; or (c) by Late Archaic people who crafted and used them thus disrupting the relationship between form and time that is the backbone of Archaic culture-history. Given mounting evidence for morphological variation that is coeval and not diachronic, this last possibility is increasingly likely.

In sum, the advanced morphological variation of this small assemblage of hafted bifaces from Victor Mills overshadows what they have in common, which is relatively narrow blades. Broad-bladed bifaces exist in the assemblage (e.g., 12-1) but in insignificant numbers compared to assemblages of the Mill Branch phase, which commonly have blades in excess of 5 cm wide (e.g., Ledbetter 1995; Sassaman 2006:64-65). Setting aside culture-historical typology for the moment, the matter of function bears relevance. Although all hafted bifaces could be used for a variety of purposes, narrow-bladed blades that are relatively thick in cross-section are well suited to weaponry that is propelled and expected to penetrate targets. The lanceolate morphology of Allendale and Brier Creek points fit this bill whereas the broad-bladed morphology and thin cross-section of many Savannah River Stemmed bifaces do not. The asymmetry that comes from using and resharpening broad-bladed bifaces attests to functions other than projectile. These presumably are multi-function knives. Of course, functional types are not mutually exclusive and bifaces often served different purposes over the course of their lives. Nonetheless, the morphology and pattern of breakage of many of the stemmed hafted bifaces from Victor Mills point to primarily projectile functions.

Other Bifaces

All manner of bifacially flaked stone lacking a haft element is classified as “Other Bifaces.” This catch-all category includes drills; blade fragments of finished tools, many of which were likely hafted; bifacial blanks; preforms in all stages of reduction; and production failures. Table 3-10 provides metric and nonmetric data on all 96 Other Bifaces, which are illustrated and described in the subsections that follow, beginning with drills.

Drills. Four biface fragments are classified as drills because of the narrow morphology of their blades (Figure 3-6). Only one specimen has a basal component, in this case an expanded base (Figure 3-6a), which may have been hafted but need not have been to be serviceable as a drill. The other three specimens are the bits of drills, each about 32 mm in length. Two of the bits express perverse fractures (Figure 3-6b, c) indicative a twisting or rotational motion, the third (Figure 3-6d) has a simple lateral snap. This latter example was made from metavolcanic material; the other three were made from Coastal Plain chert.

Drills may have been used to perforate a variety of relatively soft media (e.g., bone, wood, leather) but they were almost certainly used to drill holes through soapstone slabs. The average width of drill bits measured at points of fracture is 12.37 mm (with a range 11.52 to 13.31 mm). As discussed above, the average diameter of holes in slabs for which such measurement was possible (n = 17) is 12.65 mm. Moreover, the biconical holes of soapstone slabs from Victor Mills indicates drill bits expanded towards the stem or base, like the

Table 3-10. Metric and Nominal Data on 96 Other Bifaces and Other Biface Fragments, Victor Mills (9CB138).

Provenience	Raw Material	Thermal. Alteration	Percent Cortex	Condi-tion	Fracture Type	Max. Length	Max. Width	Max. Thickness	Weight (g)	Description
1A-9	CPC	Y	0	8	16	14.8	21.5	5.9	1.7	UID biface frag
3A-5	CQ	N	0	6	1, 3, 11	29.7	46.2	22.2	23.5	preform frag
3A-13	CQ	N	0	4	4, 11	48.9	30.3	10.0	15.1	preform, less base
3II-8	CPC	Y	0	8	5	16.3	16.0	7.0	1.9	edge frag of probable HB
5A-2	CQ	N	0	4	4	32.8	33.4	10.4	9.2	UID biface tip
6A-6	CQ	N	25	4	3,11	60.7	41.3	17.4	43.3	preform tip
6A-7	CQ	N	0	1	1	58.7	34.3	12.5	27.0	preform, nearly whole
6A-8	MV	N	0	4	4	24.3	18.3	9.3	3.8	UID biface tip
6A-12	CPC	Y	0	7	4, 5	21.5	20.6	7.7	2.7	edge frag of probable HB
6B-5	MV	N	0	4	4	26.8	20.5	6.5	3.1	UID biface tip
6B-6	CQ	N	0	4	3, 11	37.3	25.5	9.8	8.5	preform tip
6B-7	CQ	N	0	4	4, 11	40.1	30.0	9.9	13.5	preform tip
6B-13	CQ	N	0	8	11	19.3	27.3	13.8	5.5	preform frag
6B-13	CQ	N	25	7	11	61.9	25.2	21.2	36.1	preform frag
6B-13	CQ	N	0	4	3, 11	34.3	36.4	9.0	9.3	preform tip
6B-14	CQ	N	0	4	3, 11	18.1	28.5	8.6	3.8	preform tip
6B-15	CQ	Y	25	8	11	50.6	30.4	19.4	24.4	preform frag
7A-4	CPC	N	0	4	14	31.7	12.3	6.4	3.4	drill bit
8A-6	CPC	Y	0	4	3	46.2	20.9	9.8	7.7	preform tip
8A-7	CQ	N	0	6	11	23.4	27.4	10.6	5.4	UID biface frag
8A-12	CQ	Y	0	4	1, 3, 11	87.8	51.8	28.1	124.2	preform tip (early)
8B-9	CQ	N	50	8	11	47.3	29.0	22.1	41.3	preform frag (early)
8B-14	CQ	Y	0	3	5	25.4	45.2	13.5	16.4	preform frag
8B-15	CQ	N	0	4	3, 11	30.2	33.9	12.2	9.7	preform tip
8B-16	CQ	Y	0	4	1,4	41.1	32.0	12.5	16.4	preform tip
8B-17	CQ	N	0	8	4	27.7	31.3	11.3	8.8	preform frag
8B-19	CQ	N	25	3	1,4	52.4	32.9	16.5	29.5	preform, less tip
8B-19	CQ	N	50	3	1,4,11	58.1	46.6	21.5	70.9	preform base (early)
8B-23	CQ	N	0	8	1	20.0	21.7	8.0	3.8	UID biface frag
8B-23	CQ	N	0	3	3, 11	17.7	29.2	8.4	4.7	preform base
8B-23	CQ	N	0	8	11	30.2	23.3	9.8	6.7	preform frag
8B-23	CQ	N	0	6	4, 11	13.4	19.9	7.0	2.5	midsection of probable HB
9A-10	MV	N	0	6	3, 4	22.6	25.4	5.9	4.0	UID biface midsection
10A-16	CQ	N	0	3	4, 11	19.7	36.4	16.5	10.1	preform base
10B-11	CQ	N	0	6	3, 11	21.0	31.6	12.4	6.4	preform frag
10B-11	MV	N	0	6	3, 4	35.7	53.0	6.6	14.4	preform midsection

Table 3-10. continued.

Provenience	Raw Material	Thermal. Alteration	Percent Cortex	Con-dition	Fracture Type	Max. Length	Max. Width	Max. Thickness	Weight (g)	Description
10B-14	CQ	N	0	7	11	12.4	31.0	6.1	2.5	edge frag of probable HB
11B-1	CQ	N	50	8	11	69.4	42.1	26.3	100.3	preform frag (early)
11B-2	CQ	Y	25	1	0	52.5	21.1	11.0	12.4	preform, whole
11B-3	CPC	N	0	3	4	30.1	27.3	8.6	5.4	drill, less tip
12A-2	CQ	Y	0	2	4	40.7	25.3	9.8	12.2	preform, less tip
12A-3	CQ	N	0	4	4	21.9	18.6	7.3	2.2	preform tip
12A-4	CPC	Y	0	8	5	18.7	19.1	9.7	3.9	edge frag of probable HB
12A-5	CQ	N	0	4	1, 11	44.5	26.2	11.1	12.8	preform tip
12B-1	CQ	N	0	2	11	50.9	32.6	11.2	20.7	preform, nearly whole
12B-2	CQ	N	0	3	4	32.7	44.2	13.4	22.4	preform base
13A-9	CQ	N	0	4	3, 11	40.0	27.9	8.0	9.3	preform tip
13A-10	CQ	Y	0	3	3	38.5	32.3	10.2	15.4	preform base
13A-11	CQ	Y	25	4	4	44.5	29.8	11.6	17.5	preform tip
13A-12	CQ	N	0	8	4, 11	29.2	28.2	11.6	9.1	preform frag
13B-7	CQ	N	0	6	3, 4	21.8	31.8	10.5	7.6	preform midsection
13B-8	CQ	N	0	4	3, 11	32.7	24.1	6.3	4.9	preform tip
13B-10	CQ	N	25	3	4	28.2	30.9	13.2	13.0	preform base
13B-11	CQ	Y	0	1	1	67.1	33.8	16.4	32.3	preform, whole
13-Basal-3	CQ	N	0	4	11	62.3	25.0	12.4	16.9	preform, less base
14A-8	CQ	N	0	3	4	44.6	43.5	13.4	33.2	preform base
14A-10	CQ	N	0	6	3, 4	43.7	33.3	9.7	15.6	preform midsection
14A-17	CQ	N	0	8	1, 3	58.3	32.6	14.0	22.1	preform frag
14A-18	Q	N	0	3	4, 11	42.7	38.0	15.9	26.5	preform base
14B-5	CQ	N	0	3	1, 4	46.6	41.3	22.7	44.4	preform base
14B-6	CPC	N	0	4	4	18.9	18.8	5.9	2.5	biface tip; patinated
16C-14	CPC	Y	0	6	5	28.8	18.1	9.9	5.1	preform frag
17B-21	CPC	Y	0	8	5	19.8	19.4	5.8	2.4	edge frag of probable HB
17II-7	CPC	Y	0	8	4	12.0	20.8	9.8	2.1	edge frag of probable HB
18A-2	CPC	Y	0	3	12	53.2	31.4	10.3	16.1	preform tip
18I-6	CQ	N	50	8	11	50.5	30.9	11.3	18.3	preform frag
20A-7	CQ	N	25	4	11	52.5	21.1	11.0	12.4	preform, less base
20A-8	CQ	N	0	1	1	53.9	43.8	20.4	37.5	preform, whole
20A-9	CQ	N	0	3	4, 11	30.8	39.3	15.7	22.3	preform base
20A-10	CQ	N	0	3	4	46.1	33.0	12.8	23.9	preform base
21A-8	CQ	N	25	1	1	83.4	59.0	23.6	124.2	quartz cobble blank
21A-9	Q	N	0	4	1, 11	34.9	46.2	23.4	33.6	preform tip

Table 3-10. continued.

Provenience	Raw Material	Thermal. Alteration	Percent Cortex	Con-dition	Fracture Type	Max. Length	Max. Width	Max. Thickness	Weight (g)	Description
21A-9	CQ	N	0	8	11	34.4	34.3	15.8	17.8	preform frag
21A-9	CQ	N	25	1	1, 11	85.4	67.2	31.3	180.8	preform, whole (early)
21A-9	CQ	N	25	1	1, 11	71.7	48.2	31.0	113.8	preform, whole (early)
21A-9	CQ	N	25	4	1, 11	62.2	52.8	31.4	94.8	preform tip (early)
21A-9	CQ	N	0	3	11	21.8	41.1	16.4	11.4	preform base
21A-10	CPC	N	0	4	16	27.0	15.1	8.2	3.4	UID biface tip
22A-3	CQ	N	0	4	3	52.8	34.6	11.4	22.4	preform tip
22A-3	CQ	Y	25	1	1, 11	91.5	71.3	47.4	296.8	preform, whole (early)
24A-4	CQ	Y	0	6	4, 11	22.5	28.5	7.2	5.4	preform midsection
25A-4	CQ	Y	0	2	11	58.4	32.8	13.0	27.2	preform, less tip
25A-5	CQ	N	0	1	1, 11	82.0	43.3	20.8	72.6	preform, nearly whole
27A-5	CQ	Y	0	3	11	42.6	39.2	13.4	26.5	preform base
27A-6	CQ	N	0	3	11	40.8	35.3	16.2	22.0	preform base
28A-1	CPC	Y	0	4	14	32.2	13.5	7.1	3.1	drill bit
28A-3	CQ	N	0	8	1	41.1	26.1	10.7	11.1	preform frag
28A-4	Q	N	0	4	11	28.6	17.6	5.3	3.3	preform tip
29A-8	CQ	N	0	4	3, 11	48.6	42.1	13.0	29.4	preform tip
29A-9	CQ	N	0	8	1, 11	47.8	30.4	16.6	19.4	preform frag
29A-10	CQ	N	0	4	11	44.7	26.5	13.5	12.8	preform tip
29A-12	CQ	N	0	4	4, 11	27.6	26.1	6.5	4.2	preform tip
30A-3	PS	N	50	6	3, 4, 7	51.4	36.1	13.0	25.5	preform frag
F3-1	CQ	N	0	4	11	47.6	46.9	15.4	37.6	preform tip
F3A-4	CQ	N	0	6	4	15.9	21.5	6.3	2.6	midsection of probable HB
F16-1	MV	N	0	4	14	30.5	10.1	6.3	3.1	drill bit

Raw Material: Q = quartz; CQ = cobble quartz; MV = metavolcanic; CPC = Coastal Plain chert; PS = Piedmont silicate

Thermal Alteration: Y = yes; N = N

Condition: 1 = complete/nearly complete; 2 = missing tip; 3 = proximal half; 4 = distal half; 6 = medial; 7 = lateral; 8 = indeterminate

Fracture Type: 0 = none; 1 = hinge/step/stack; 3 = perverse; 4 = lateral; 5 = crenated; 11 = incipient; 16 = radial; 14 = drill snap; 16 = radial

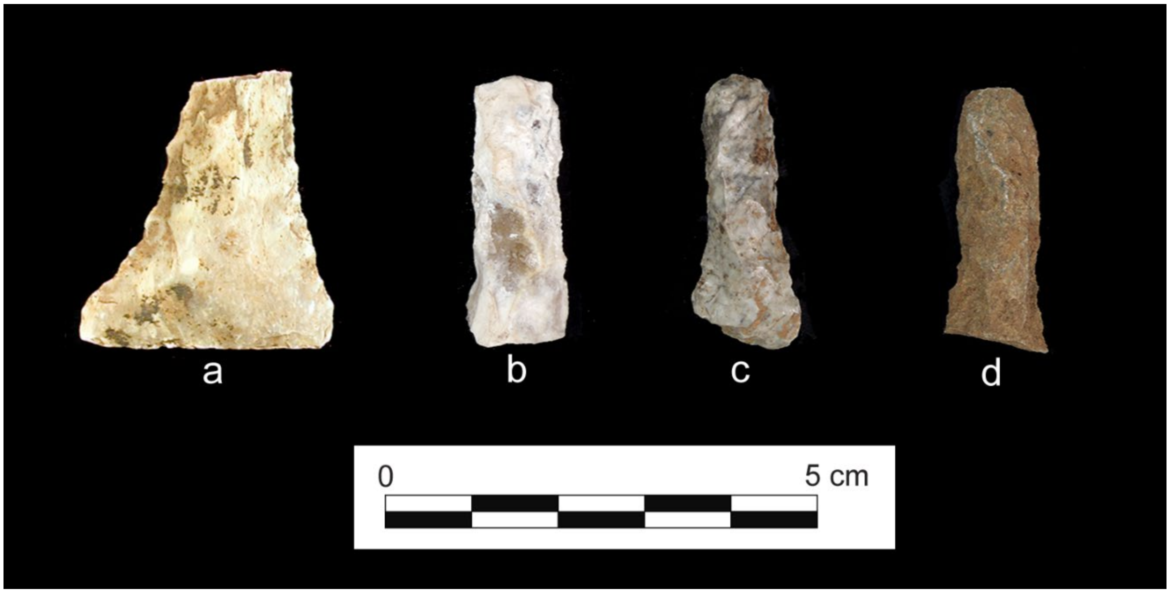


Figure 3-6. Bifacial drill fragments, Victor Mills (9CB138): a. 11B-3; b. 7A-4; c. 28A-1; d. 16A-1.

one shown in Figure 3-6a. In fact, the expanding basal margins of this drill fragment fit comfortably in the biconical holes of many of the slabs (Figure 3-6). Although matching a specific drill to specific slabs is possible given the forensic-like quality of grooves in the walls of holes, it is enough to conclude with confidence that slabs were perforated at Victor Mills with some of the drills that were broken and discarded there.

Figure 3-7. Portion of tapered stemmed drill inserted into biconical hole of one of the soapstone slab fragments from Victor Mills (9CB138).

Biface Blanks and Preforms. The majority (n = 75; 78.1 percent) of flaked stone artifacts classified as Other Bifaces consists of blanks or preforms for making bifacial tools besides drills, and of these, the vast majority (n = 67; 89.3 percent) were made of quartz river cobbles from the nearby Savannah River. Another three preform fragments were made from other sources of quartz, three consist of Coastal Plain chert, and metavolcanic rock and Piedmont silicate represent one example each. In general, preforms and preform fragments are recognized as incomplete tools because edges have not been finalized or because they failed during production, not edge maintenance. In the case of quartz cobbles, the entire production sequence from blank to late-stage preform is represented in the Victor Mills assemblage, attesting to tool production that was fully situated on site. In the section on debitage below we estimate how many of these production efforts succeeded and likely led to finalized tools that were deposited outside the area excavated, including possibly away from Victor Mills. Judging from the number of broken preforms made on quartz cobbles, production failures were common, owing no doubt to the variable quality of this raw material. Preforms made from other raw materials reflect late-stage reduction and production failures for items that were presumably carried to the site in an advanced stage of reduction. Figures 3-8 through 3-10 illustrate many of the blanks and preforms recovered from Victor Mills. Included in Figure 3-10 are several examples of Other Biface fragments with relatively finished edges, generally on tips, some of which were likely derived from hafted bifaces. Fragments that are presumed to be finished bifacial tools are discussed in a separate subsection below.

The production sequence for making bifaces out of quartz river cobbles began with the selection of suitable blanks. Cobble beds in the shoals of the Savannah River must have been abundant and presumably diverse with respect to the size and quality of potential blanks. Unlike chert and other cryptocrystalline raw materials that were drafted into biface making, quartz is not conducive to the production of multiple blanks from a single core. Rather, bifaces were shaped from the removal of waste flakes from cobbles in a circumferential manner. It stands to reason but cannot be proven here that tool makers tested cobbles of appropriate size for internal quality at the locus of selection, that is, at the river. We hasten to note, however, that river cobbles were also collected for hammerstones and groundstone tools, as well as for thermal uses, resulting in fire-cracked rock. Collecting cobbles for various applications could have been either generalized or specialized, but either way, not all cobbles of appropriate size for making bifaces were internally homogenous enough to avoid a large number of production failures.

Based on the size and shape of quartz cobbles at early stages of reduction, cobbles roughly 7-9 cm long, 5-7 cm wide, and 2.5-4 cm thick were sought after. Cortex on these cobbles bears the definitive smoothing of fluvial erosion, as well as the yellow-brown staining of iron-rich water. Fissures in cobbles enabled iron-staining to penetrate well below the surface of cobbles, but there is no mistaking the cortex of river cobbles due to its advanced level of smoothing. Lacking angular platforms for percussion flaking, cobbles had to be struck obliquely along a rounded edge to begin the process of bifacial reduction by removing cortex (e.g., Figure 3-8i, j, o). Small traces of cortex persisted through the reduction sequence, usually at the center of one or both faces of a bifacial preform (e.g., Figure 3-8f, h; Figure 3-9m)—which is hard to reach with flakes struck from sides that stop short due to step or hinge fractures—and occasionally at the distal or proximal ends of preforms (e.g., Figure 3-8e, f, h,

Figure 3-8. See caption on page 32.

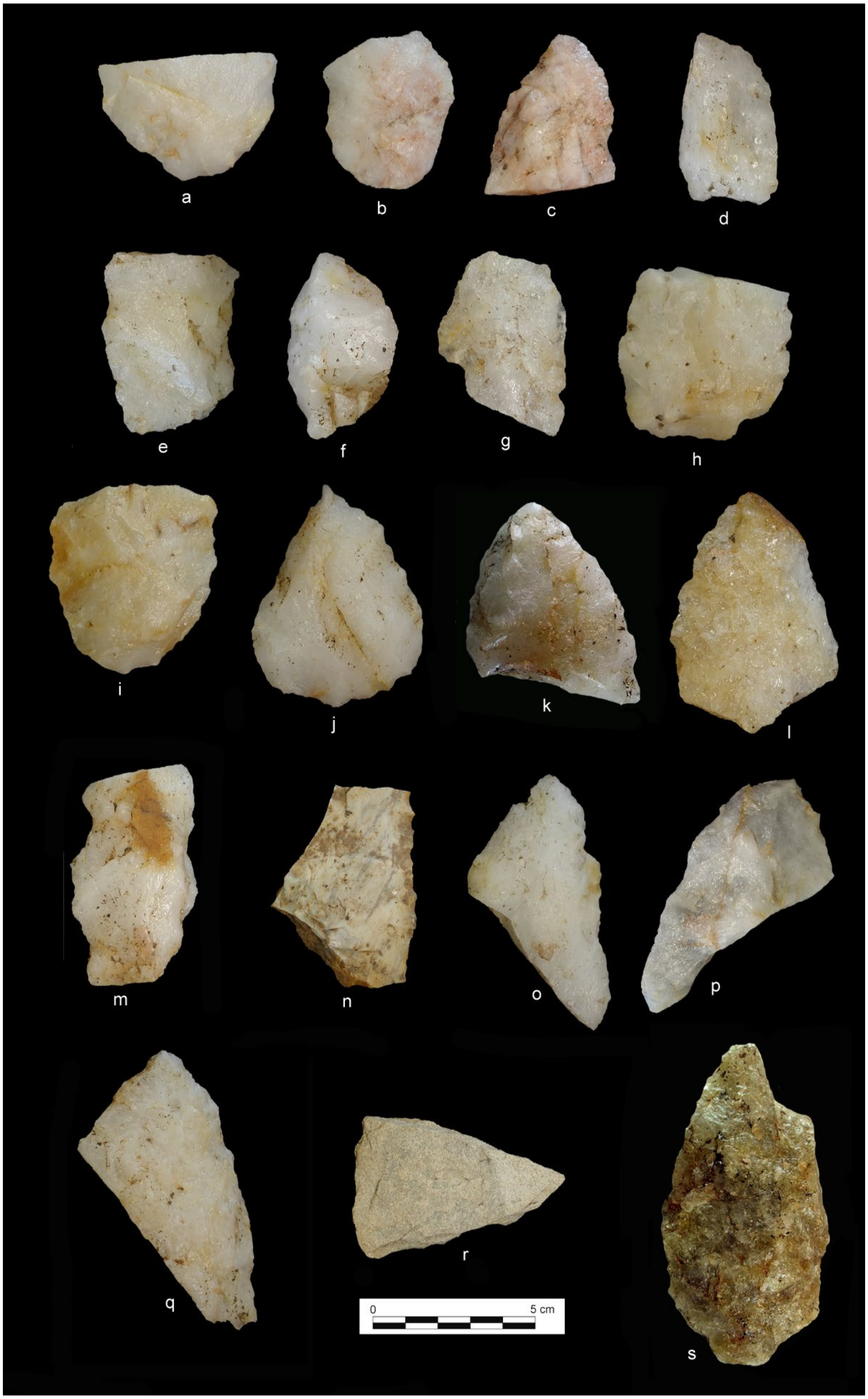


Figure 3-9. See caption on page 32.

Figure 3-10. See caption on page 32.

Figure 3-8. Other bifaces, other biface fragments, and cores (c, e, i, j, k) from Victor Mills (9CB138): a. 6B-13; b. 11B-1; c. 6B-15; d. 8B-19; e. 6B-15; f. 14A-16; g. 21A-9; h. 21A-9; i. 14A-15; j. 14A-13; k. 13A-6; l. 8A-12; m. 21A-8; n. 21A-9; o. 22A-3.

Figure 3-9. Other bifaces and other biface fragments from Victor Mills (9CB138): a. 12B-2; b. 13A-10; c. 8B-16; d. 12A-5; e. 20A-10; f. 29A-9; g. 14A-10; h. 14A-11; i. 14B-5; j. 20A-8; k. 29A-8; l. 6A-6; m. 8B-19; n. 30A-3; o. 22A-35; p. 21A-9; q. F3-1; r. 10B-11; s. 25A-5.

Figure 3-10. Other bifaces and other biface fragments from Victor Mills (9CB138): a. 6A-8; b. 21A-10; c. 6b-5; d. 12A-3; e. 13B-8; f. 29A-12; g. 3A-4; h. 6B-14; i. 24A-4; j. 9A-10; k. 10B-11; l. 8B-17; m. 13A-12; n. 13B-10; o. 13B-7; p. 10A-16; q. 8B-14; r. 6B-13; s. 6B-7; t. 6B-6; u. 8B-15; v. 27A-5; w. 14A-18; x. 20A-9; y. 5A-2; z. 13A-11; aa. 12A-2; bb. 27A-6; cc. 3A-18; dd. 11B-2; ee. 25A-4; ff. 13 Basal-3; gg. 8A-6; hh. 14A-17; ii. 12B-1; jj. 6A-7; kk. 20A-7; ll. 13B-11.

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j; Figure 3-9l). Lacking the isotropic texture of cryptocrystalline rock, quartz cobbles often broke unpredictably, many times along incipient fracture planes that were hydrated and thus iron-stained.

Thirteen (19.4 percent) of the 67 preforms and preform fragments made from quartz cobbles were reddened by heat (e.g., Figure 3-8o; Figure 3-9b, c; Figure 3-10z, aa). Late-stage examples suggest that heat may have been applied to cobbles to improve flaking quality, but an early-stage specimen (blank) resembles many of the cobbles drafted into thermal uses (Figure 3-8o). Given the infrequency of reddening among the majority of bifacially reduced cobbles, thermal alteration of quartz was far from routine.

Failures in the process of bifacially reducing quartz cobbles involved a variety of lateral and perverse fractures, often along incipient fracture planes. The frequency of distal portions of production failures (n = 21) is 50 percent greater than proximal portions (n = 14), suggesting that basal portions were sometimes salvaged for further reduction. Notably, no refits were found among any of the preform fragments.

Limited insight on the intended shape of final products can be gleaned from preforms. Three different forms are evident. One is a lozenge-shaped preform made from relatively small cobbles (e.g., Figure 3-8f, h) whose haft elements are not yet fully revealed but are likely to include tapered stemmed forms like those of Figure 3-4k-m, as well as more angular stems like those of Figure 3-4o-q.

A second form involves larger cobbles of similar morphology to produce broad-bladed bifaces (e.g., Figure 3-8l; Figure 3-9o-q) whose haft elements were most likely large stems. The finished but broken example shown in Figure 3-4bb exemplifies this common Late Archaic form; like some late-stage preforms, this example retains a small bit of cobble cortex, in this case along the basal margin of the stem. As noted earlier, broad-bladed stemmed bifaces are rare at Victor Mills; the preform assemblage corroborates this assessment.

A third form of preform consists of lanceolate blades with unknown haft morphology (e.g., Figure 3-10dd, ff, kk). These are likely to be preforms for quartz Allendale points, an inference further supported by one preform tip made on Coastal Plain chert (Figure 3-10gg). Coupled with the preform tip shown in Figure 3-4z and the collection of hafted biface fragments discussed earlier, this example reinforces that bifaces made on Coastal Plain chert were delivered to Victor Mills in final or near-final form.

Distribution-wise, preforms, preform fragments, and blanks are concentrated in Area C (n = 46), with a lesser cluster in Area B (n = 21). Only seven examples came from Area A, the shell midden.

In sum, evidence for biface production at Victor Mills is dominated by the by-products of reducing quartz river cobbles through circumferential percussion to make at least three types of bifaces, all presumably fitted with a haft element. Production failures were common but basal portions were often salvaged for further reduction. Bifacial preforms made from other raw materials were generally late-stage products brought to the site from elsewhere.

Other Biface Fragments. Seventeen biface fragments have edges that were retouched to the extent that they can be considered "finished" products. None of these items include definite portions of haft elements but we suspect that many are indeed fragments of broken hafted bifaces. Nearly half (n = 8; 47.1 percent) of these items consist of Coastal Plain chert, and six (35.3 percent) are quartz, although none are definitely made from cobble quartz. Two tips and a midsection consist of metavolcanic rock.

Other biface fragments besides preforms are distributed widely across the areas excavated. As a proportion of all artifacts given to this class, fragments of finished bifaces are concentrated in Area A (n = 6), the shell midden. More such items are found in Area C (n = 9), but they are eclipsed numerically by preforms made from cobble quartz.

Little more can be said about this assemblage of bifacial fragments other than to note that they corroborate the pattern of broken haft elements described earlier: bifaces made on nonlocal material arrived at Victor Mills is presumably finished form, where they were used, broken, and discarded. Refits between haft elements and other fragments were not observed.

Cores. Eight artifacts bearing traces of flake removal but not assuming a bifacial form are classified here as "cores" (Table 3-11). Five examples are shown in Figure 3-8 (c, e, i, j, k). All of these items are quartz cobbles that retain cortex; none are thermally altered. In many, perhaps most cases these are likely to have been brought to the site as blanks for biface production, but proved either inadequate for such purposes or simply neglected in favor of other cobbles. Size-wise, these eight partially reduced cobbles have an average length (67.1 mm), width (46.2 mm), and thickness (29.4 mm) that falls within the range of variation for biface blanks and early-stage preforms made from quartz cobbles. These eight "cores" average 103.9 g in weight.

None of them have flake scars indicative of systematic reduction, whether bifacial, unifacial, or otherwise. Rather, if these were intended for flake production, and not some sort of "core" tool (e.g., biface), they might best be classified as amorphous cores. Like the by-products of bifacial cobble reduction, these artifacts are concentrated in Area C (n = 6), with only one specimen each in Areas A and B.

Table 3-11. Metric Data on Quartz Cobble “Cores” from Victor Mills (9CB138).

Provenience	Percent Cortex	Maximum Length	Maximum Width	Maximum Thickness	Weight (g)
1A-6	75	56.8	42.6	33.6	109.2
6B-15	50	49.1	44.6	23.2	63.6
6B-15	50	54.1	34.2	17.6	49.0
8B-8	25	85.8	54.9	39.5	171.0
13A-6	25	72.7	47.0	36.8	113.4
14A-13	25	76.1	53.4	31.5	110.6
14A-15	75	83.1	50.2	32.6	157.8
14A-16	25	59.5	42.7	20.7	56.7

Utilized Flakes/Unifaces. Flakes that were utilized but not technological modified are classified as “utilized flakes” (Table 3-12). The 10 artifacts classified as such are undoubtedly a woefully underrepresentative sample of expedient tools. Macroscopic evidence of the use of an edge for scraping, cutting, whittling, or other purposes will not manifest unless such uses are rigorous and involve materials as hard or harder than quartz. Cobble quartz is not only textured in ways that make use alteration difficult to detect, but it is also very hard. More than likely, scores, perhaps hundreds of quartz flakes were drafted into expedient use but resulted in no macroscopic use alteration. The single example of a utilized flake on material other than quartz is a large metavolcanic flake with a steep edge at the distal end with small step fractures that likely formed from scraping.

Table 3-12. Metric and Nonmetric Data on Utilized Flakes and Unifaces from Victor Mills (9CB138).

Provenience	Type	Raw Material	Thermal Alteration	Max. Length	Max. Width	Max. Thickness	Weight (g)	Edge Angle
3A-3	UNI	CQ	Y	60.7	50.0	21.8	57.3	45
6B-15	UFL	CQ	N	55.1	36.5	15.3	28.6	25
6B-14	UFL	Q	N	23.5	16.6	6.2	2.7	20
8B-3	UFL	CQ	Y	33.2	25.4	7.4	6.3	30
8B-18	UFL	CQ	N	41.2	15.8	7.7	4.5	60
8B-18	UFL	CQ	N	45.0	31.4	11.4	12.5	60
14A-14	UFL	MV	N	69.5	38.0	15.0	44.1	60
21A-8	UFL	CQ	Y	43.1	29.7	12.4	12.8	35
21A-8	UFL	CQ	Y	36.1	22.4	9.2	7.9	35
25A-6	UFL	CQ	N	49.7	30.2	9.4	16.2	25
28A-10	UNI	Q	N	44.0	43.2	17.5	33.3	30
F3A-14	UFL	CQ	N	24.4	19.7	8.0	3.7	20

Raw Material: Q = quartz; CQ = cobble quartz; MV = metavolcanic
Thermal Alteration: Y = yes; N = no

Two flakes in the assemblage exhibit technological modification (i.e., retouch) on limited portions of one face, hence they are classified as “unifaces.” Both were made from quartz flakes, one a large thermally altered flake of cobble quartz. Neither of these specimens is a formal uniface; like the utilized flakes, they both seem to have been expedient tools.

The small and biased sample of expedient flake tools does not warrant further discussion except to note the range of variation in edge angles. Acute angles ranging from 20 to 45 are most common and probably reflect cutting functions. Three utilized flakes, including the metavolcanic flake, have angles of ~60 degrees and likely reflect scraping functions.

Debitage. The total debitage assemblage from excavations at Victor Mills consists of 4,093 flakes ≥1/4-inch weighing 14,160.7 g. An additional 98.8 g of flakes <1/4-inch came from flotation and 1/8-inch waterscreened samples of the shell midden of Area A and features of Areas B and C. Given the prevalence of preforms and blanks made from quartz river cobbles, it is unremarkable that quartz flakes dominate the debitage assemblage, whether measured by count (92.8 percent) or weight (89.5 percent). It is equally unremarkable that a large fraction (40.4 percent by count; 49.4 percent by weight) of the quartz flakes bears traces of cobble cortex. Flakes classified as “quartzite” comprise an additional 4.4 percent by count and 6.5 percent by weight and also have a high incidence of cortex (49.1 percent by count; 67.3 percent by weight). Taken together, quartz and quartzite debitage from Victor Mills reflects the waste by-products of biface manufacture from locally available river cobbles. All other raw materials in the debitage assemblage, in contrast, are represented by small samples (by count): metavolcanic (1.1 percent), Piedmont silicate (0.1 percent), dark chert (0.05 percent), Coastal Plain chert (1.1 percent), and “other” (0.2 percent). Although cortical flakes are not uncommon among these other materials, primary reduction was obviously rare and we suspect that most of this material accumulated through the reduction of late-stage preforms and/or the maintenance and recycling of finished tools carried to the site.

Back in 2001–2002, debitage from Victor Mills was analyzed by Asa Randall and others as part of the NSF-funded project. To collect data on the relative size of flakes across raw materials and provenience, Randall employed a modified mass-analysis method following protocols developed by Ahler (1989). The method involves the use of nested sieves to fractionate large numbers of flakes in mass. Sieves fitted with mesh gauged to imperial measurements conform to the following classes: Size Class 1 = ≥1.0 inch; Size Class 2 = ≥1/2 inch; Size Class 3 = ≥1/4 inch; Size Class 4 = ≥1/8 inch; Size Class 5 = <1/8 inch. Due to variations in recovery methods across proveniences, only flakes of Size Class 3 or larger were subjected to mass analysis. Excluded too were flakes from disturbed levels within units that were “high-graded” by screening with ½-inch hardware cloth.

After they were size graded, flakes were sorted by raw material and presence/absence of cortex. After this final categorization, counts and weights (to nearest 0.1 g) for each of these subcategories were taken (see Appendix B).

Table 3-13 provides the results of mass analysis sorted by Size Class as well as raw material, area within the site, and presence/absence of cortex. This subsample of 3,647 flakes weighing 13,051.1 g comprises 89.1 percent of all flakes by count and 92.2 percent by weight.

Table 3-13. Absolute Frequency and Weight (g) of Debitage >1/4-inch by Raw Material, Size Class, Cortication, and Area, Victor Mills (9CB138).

		------------Area A------------				------------Area B------------				------------Area C------------				------------Total------------					
	Size	Cortical		NonCortical		Cortical		NonCortical		Cortical		NonCortical		Cortical		NonCortical		All	
Raw Material	Class	n	wt	n	wt	n	wt	n	wt	n	wt	n	wt	n	wt	n	wt	n	wt
Quartz	1	3	69.0	1	21	9	413.3	4	94.4	16	573.1	3	73.8	28	1,055.4	8	189.2	36	1,244.6
	2	52	234.9	80	343.7	171	928.3	177	891.7	538	2,495.4	604	2,648.0	761	3,658.6	861	3,883.4	1,622	7,542.0
	3	31	57.7	65	110.1	123	214.1	262	376.4	425	783.7	822	1,356.0	579	1,055.5	1,149	1,842.5	1,728	2,898.0
	Subtotal	86	361.6	146	474.8	303	1,555.7	443	1,362.5	979	3,852.2	1,429	4,077.8	1,368	5,769.5	2,018	5,915.1	3,386	11,684.6
Quartzite	1									1	110.2			1	110.2			1	110.2
	2	6	79.0	6	24.5	6	23.9	13	49.6	38	219.6	26	141.3	50	322.5	45	215.4	95	537.9
	3	7	12.4	15	24.4					22	129.1	23	39.3	29	141.5	38	63.7	67	205.2
	Subtotal	13	91.4	21	48.9	6	23.9	13	49.6	61	458.9	49	180.6	80	574.2	83	279.1	163	853.3
Metavolcanic	1	1	29.7	1	30.7	2	52.5			2	61.1	2	65.7	5	143.3	3	96.4	8	239.7
	2	2	25.9	5	18.5			5	50.3	3	13.8	6	33.5	5	39.7	16	102.3	21	142.0
	3			3	2.4					2	2.7	7	8.5	2	2.7	10	10.9	12	13.6
	Subtotal	3	55.6	9	51.6	2	52.5	5	50.3	7	77.6	15	107.7	12	185.7	29	209.6	41	395.3
Piedmont Silicate	1																	0	0.0
	2			1	2.7					1	2.7			1	2.7	1	2.7	2	5.4
	3									1	0.7	1	0.9	1	0.7	1	0.9	2	1.6
	Subtotal			1	2.7					2	3.4	1	0.9	2	3.4	2	3.6	4	7.0
Dark Chert	1																	0	0.0
	2																	0	0.0
	3			1	1.7					1	1.9			1	1.9	1	1.7	2	3.6
	Subtotal			1	1.7					1	1.9			1	1.9	1	1.7	2	3.6
Coastal Plain Chert	1																	0	0.0
	2	2	8.7	1	12.9	1	16.4	2	7.6			7	21	3	25.1	10	41.5	13	66.6
	3	5	5.1	14	7.5	2	1.9	3	3.5			5	4.8	7	7.0	22	15.8	29	22.8
	Subtotal	7	13.8	15	20.4	3	18.3	5	11.1			12	25.8	10	32.1	32	57.3	42	89.4
Other	1																	0	0.0
	2	1	1.0	1	2.8	1	5.7			1	5.7			3	12.4	1	2.8	4	15.2
	3	1	2.1	2	0.4	1	0.1			1	0.1			3	2.3	2	0.4	5	2.7
	Subtotal	2	3.1	3	3.2	2	5.8			2	5.8			6	14.7	3	3.2	9	17.9
Total	1	4	98.7	2	51.7	11	465.8	4	94.4	19	744.4	5	139.5	34	1,308.9	11	285.6	45	1,594.5
	2	63	349.5	94	405.1	179	974.3	197	999.2	581	2,737.2	643	2,843.8	823	4,061.0	934	4,248.1	1,757	8,309.1
	3	44	77.3	100	146.5	126	216.1	265	379.9	452	918.2	858	1,409.5	622	1,211.6	1,223	1,935.9	1,845	3,147.5
	Subtotal	111	525.5	196	603.3	316	1,656.2	466	1,473.5	1,052	4,399.8	1,506	4,392.8	1,479	6,581.5	2,168	6,469.6	3,647	13,051.1

Only quartz flakes occur with sufficient frequency (n = 3,386) among size-graded flakes to warrant comparisons across size classes and depositional context. Owing to the generally small size of quartz cobbles, however, Size Class 1 flakes are actually few in number (n = 36). Expectedly, the majority (77.8 percent) of Size Class 1 flakes are cortical. Whether cortical or noncortical, quartz flakes of this largest size class are usually thick and thus heavy (34.6 g/flake on average). Also unsurprising is the increase in frequency of quartz flakes across Size Class 2 (n = 1,622) and Size Class 3 (n = 1,728) with a corresponding decrease in average flake weight (4.65 g for Size Class 2, and 1.68 g for Size Class 3) and percent cortical (46.9 percent for Size Class 2, and 33.5 percent for Size Class 3).

As with quartz preforms, quartz debitage is unevenly distributed across the site. By count, 71.1 percent (n = 2,408) of all size-graded quartz flakes came from Area C. The frequency drops sharply downslope: Area B accounts for 22.0 percent of quartz flakes and Area A, the shell midden, only 6.9 percent. Likewise, Area C produced more than half (52.8 percent) of Size Class 1 flakes, and 71.6 percent of cortical flakes of any size. Smaller flakes accompany the large, cortical flakes of Area C in proportionate numbers (70.4 percent for Size Class 2; 72.2 percent for Size Class 3). In short, the high-frequency quartz flake assemblage from Area C reflects a full range of bifacial core reduction, at least to the level of late-stage preforms.

Comparing the Area C quartz flake assemblage to the other two, some trends beyond decreasing frequency are noteworthy. Most notably, the expected increase in frequency from large to small flakes through an entire reduction process—as observed in Area C—is not replicated in areas downslope, particularly in Area A, where Size Class 2 flakes outnumber small, Size Class 3 flakes by 37.5 percent. Evidently the shell midden did not routinely accumulate the late-stage by-products of quartz cobble reduction, adding substance to the inference that this was a secondary midden (see Chapter 2).

Flakes other than quartz are relatively few but those of three raw materials have at least double-digit frequency. Quartzite flakes are the second-most common (n = 163) type, and were likely struck from river cobbles taken from the same source as quartz. Concentrated in Area C, quartzite flakes are on average larger and heavier than the quartz flakes. Those from Area A, however, are among the smallest and lightest, suggesting at least some primary deposition, perhaps from the reduction of only one or two cores, judging from the low frequency (n = 34). Area B has an even lower frequency (n = 19) than Area A, all Size Class 2.

Size-graded flakes of metavolcanic material (n = 41) and Coastal Plain chert (n = 42) are distributed differently than quartz and quartzite, albeit at such low frequency to be misrepresented. Nonetheless, of particular note is the disproportionately high number of Coastal Plain chert flakes in the shell midden (Area A). These tend to be small flakes, even if cortical, and thus indicative of late-stage biface reduction. Being a nonlocal material, Coastal Plain chert was likely carried to Victor Mills as finished products, either late-stage preforms or edge-finished bifaces, as noted earlier. No flakes of this raw material were as large as Size Class 1.

In contrast, flakes of metavolcanic rock include several examples of Size Class 1 flakes and only a few more given to Size Class 3. Although we do not know the provenance of these materials, they presumably came from sources much more proximate than those of Coastal Plain chert. Moreover, sources of metavolcanic rock lend themselves to the production of large blanks. How such factors structured the metavolcanic flake and biface assemblage at Victor Mills is uncertain, but we can assume that this material was of limited consequence given its low frequency.

Two small flakes of dark chert and four medium-small flakes of Piedmont silicate signal late-stage retouch of bifaces that were carried to Victor Mills in near-final or final form but not deposited in the areas excavated. An assortment of nine flakes of "other" raw materials consist of Size Class 2 and 3 flakes distributed across all areas. Corresponding bifaces of these various materials were not recovered.

In sum, the debitage assemblage from Victor Mills attests to the procurement and bifacial reduction of cobble quartz and occasionally quartzite as the primary lithic production activity. The lack of refits among preform fragments attests to an advanced level of recovery from production failures, which makes it difficult to estimate the scale of production. Nonetheless, with a few assumptions about the average size of cobbles and late-stage preforms, we can estimate roughly how many bifaces are accounted for by the entire quartz debitage assemblage. Methods for doing so are outlined in Sassaman (1994).

With an estimate of the average weight of primary cores/blanks and the average weight of late-stage preforms, the expected output of debitage, by weight, is determined by subtracted the latter from the former. In this case, the average weight of cobbles is estimated to be 150 g based on a few near-whole examples in the assemblage, an admittedly tenuous estimate. The estimated average weight of late-stage preforms is calculated at 91.1 g from four whole specimens, again a tenuous estimate given small sample size. Unfortunately, the lack of refits hobbles this method, which was based on a large number of refits (Sassaman 1994). That aside, the differential between the two estimates is 58.9 g. Dividing this into the total weight of all size-graded quartz debitage, which is 11,684.6 g, we can estimate that at least 198.4 quartz cobbles were reduced to late-stage preforms at Victor Mills. Subtracting the 76 quartz biface preforms and fragments recovered in excavation, an estimated 122.4 bifaces were removed from the area excavated. If each of these were successfully reduced to a late-stage preform, the success rate quartz cobble reduction would be 61.7 percent. Given than many, perhaps most, of the broken preforms were salvaged for later reduction, the success rate was likely a bit higher.

POLISHED STONE

Twenty artifacts made of igneous or metamorphic rock exhibit facets of polish from deliberate or incidental grinding (Figure 3-11). None of these items are complete; most consist of spalls that were struck from the body of a larger item, in most cases axe heads (Table 3-14). Four of the larger pieces have morphology consistent with polished stone axes of the region that were grooved either fully or along three-quarters of the circumference of the proximal end

(Figure 3-11p-s). Another large piece (Figure 3-11t) is from a so-called Guilford axe (Coe 1952:304). Flaked-stone axes by definition, Guilford axes are not intentionally polished, but this example from Victor Mills bears minor polishing along the groove, where it was hafted.

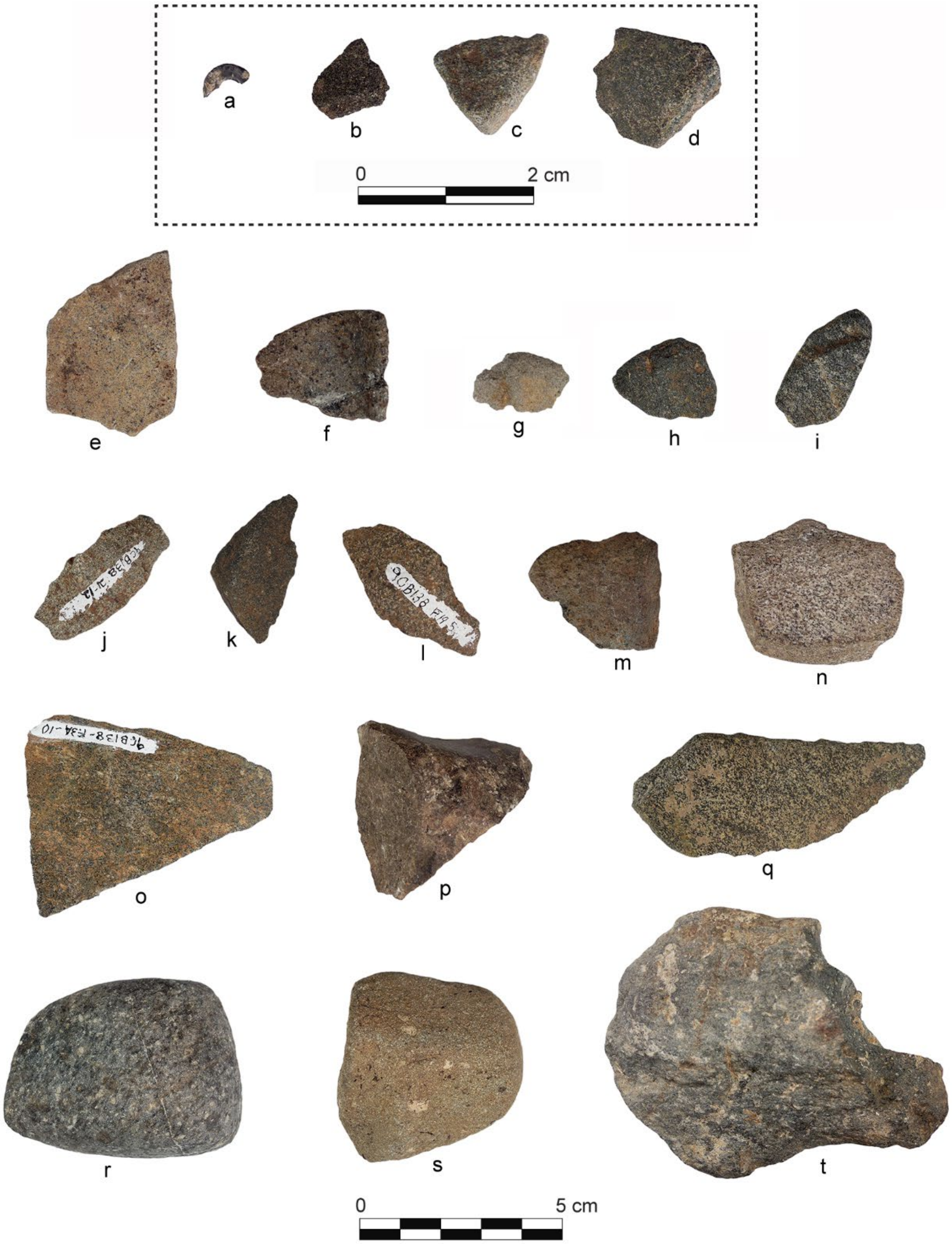

Figure 3-11. Polished stone artifacts from Victor Mills (9CB138): a. 18II-12; b. F. 19-5; c. F. 19-5; d. 3B-3; e. 9A-2; f. 8A-4; g. 17II-22; h. F. 3-5; i. F. 3A-10; j. 21A-12; k. F. 19-5; l. F. 19-5; m. 8B-20; n. 18II-12; o. F3A-10; p. 10B-16; q. 15A-11; r. 16C-9; s. 15A-12; t. 17II-22.

Table 3-14. Metric Data on Polished Stone Items from Victor Mills (9CB138).

Prov.	Class	Length (mm)	Width (mm)	Thick. (mm)	Weight (g)	Notes
3B-3	UID	14.1	14.0	4.5	0.9	small frag.; highly polished
8A-4	B'stone frag.	28.2	27.0	18.9	10.6	frag. of Notched Southern Ovate
8B-20	UID	36.6	29.2	7.1	8.2	prob. axe frag.
9A-2	B'stone frag.	44.2	32.4	8.0	16.9	wing of Notched Southern Ovate
10B-16	UID	48.8	36.5	27.0	49.4	prob. axe frag. with groove
15A-11	Axe frag.	71.1	28.2	15.3	27.8	prob. body (may fit 18II-12)
15A-12	Axe frag.	44.0	44.8	19.2	50.6	3/4-groove frag. w/butt; poss. repurposed
16C-9	UID	58.0	43.9	17.2	62.2	prob. axe frag., butt; or discoid
17II-22	Axe frag.	79.0	62.4	27.8	141.3	Guilford axe, split in half
17II-22	UID	23.6	15.2	3.3	1.0	spall with polished surface
18II-12	UID	40.9	35.7	10.6	19.4	prob. axe frag. with curved pecked facet
18II-12	Bead frag.	5.8	3.0	1.3	<0.1	thin bead frag.
21A-12	Axe frag.	37.8	17.7	7.9	5.5	small frag.; prob. butt; minor impact
F3-5	UID	26.0	22.9	7.4	3.7	prob. axe frag.
F3A-10	UID	63.3	45.3	18.1	48.0	prob. axe frag.; moderate polished surface
F3A-10	UID	32.6	16.9	8.7	5.5	prob. axe frag.; weathered
F19-5	Axe frag.	44.7	19.7	12.9	8.9	small frag.; prob. butt; minor impact
F19-5	UID	37.6	19.4	10.5	5.8	prob. axe frag.
F19-5	UID	14.8	11.0	5.6	0.8	spall with polished contoured surface
F19-5	UID	8.7	8.1	2.8	0.2	spall with polished contoured surface

Five spalls (Figure 3-11g, j, l, m, o) of igneous or metamorphic rock have polished facets and in some cases surface morphology consistent with polished axe forms. Another three (Figure 3-11h, i, k) lack clear facets but likely came from axe heads. Three additional spalls are minute (Figure 3-11b-d) but bear traces of polishing. All told, at least five and as many as 13 of 20 polished stone artifacts from Victor Mills can be classified as axe-head fragments. Notably, none of these items can be conjoined along fracture planes.

Raw material variation among the fragments of axes is marked but most types fit within the expected range of the metamorphosed belts of the middle Savannah River valley. Among the more common rock types are gneiss, diorite, and amphibolite. Variations in the density and size of mafic minerals like amphibole and pyroxene enable discrimination between roughly similar types, and thus offer one means of estimating the minimum number of axes represented by fragments at Victor Mills. Viewed under low-power magnification, only two fragments are similar enough in mineral composition to suggest they came from the same axe head (Figure 3-11n, q). Counting all probable axe-head fragments, the lack of more similarity means that at least 12 axes were in use at Victor Mills over its occupation span.

Spatial patterning among axe-head fragments is nonrandom. All five of the definitive axe-head fragments came from Area A, the shell midden. All but one of the spalls or small fragments came from Area C upslope, several from pit features (3, 3A, and 19). This sharp distinction would suggest that axes were routinely used in the upslope area of large pits and that larger pieces of broken axes were discarded downslope, in the shell midden. The fracture planes of one discarded fragment (Figure 3-11s) bear enough wear to suggest it was repurposed as a scraper.

Bannerstones at Victor Mills are represented by two pieces of polished stone. One item (Figure 3-11f) is the outer edge of one wing of a Notched Southern Ovate, where the notching occurs along the spine. It was made from hard soapstone with abundant chlorite, technically a chloritic schist. The second piece is a wing fragment of a similar form (Figure 3-11e). It too may have enough talc to qualify as soapstone, but it is much harder than the other piece and lacking in chlorite. Notched Southern Ovates are a hallmark of the Mill Branch phase, which is coeval with the early Stallings phase (Sassaman and Randall 2007). Bannerstone fragments of this type and the preceding Southern Ovate of the Paris Island phase occasionally turn up in Early Stallings components of the Coastal Plain (e.g., Stoltman 1974:118), signaling connections between regional populations of distinct cultural identity (Sassaman 2006). Given the general lack of other artifacts of Paris Island and Mill Branch affinity at Victor Mills, these two bannerstone fragments were from objects acquired by Early Stallings occupants of the site and not deposited directly by their Piedmont counterparts.

The final item classified as policed stone is a portion of a minute stone bead (Figure 3-11a). Presumably a disk bead, this stone object is complete enough to estimate an outside diameter of 6.5 mm and a hole roughly 2.0 mm wide. At only 1.2 mm think, the fragment likely exfoliated from a thicker mass, perhaps one of variety of metamorphosed slates (phyllite?) common to the region. Stone beads are rare at Late Archaic sites in the middle Savannah River valley but disk shell beads this size and shape are not uncommon.

COBBLE TOOLS

Among the many cobbles recovered from Victor Mills are 61 that show traces of battering or grinding (Table 3-16). This catch-all category is dominated by cobbles that are small enough to be wielded in one hand and used as a hammer (n = 41; Figure 3-12), or less frequently, a grinding stone, or mano (n = 4; Figure 3-13a, g). Evidence of use for the former group is expressed as facets of impact along lateral edges; the latter entails battering or grinding on one or both faces of a cobble. An additional 10 items consist of slabs of rock too large to be used as hammers or manos, but with traces of battering on one or both faces. Most of these are fragments of slabs that fractured from use (Figure 3-13h-l), although one whole example (Figure 3-14) shows how large (~41 x 41 x 13 cm) and heavy (22.1 kg) slabs can be. In Table 3-16, these slabs are classified as “anvils.”

Ascribing function to cobbles and slabs based on the location and type of use alteration is not without ambiguity. Ten of these various tools (hammerstones, manos, anvils) bear traces of multiple functions, most commonly large hammerstones that doubled as anvils. In addition, six items show ambiguous traces of use and are thus classified in Table 3-16 as “unidentifiable” (UID).

River cobbles much like those selected for biface production were drafted into use as hammerstones. However, unlike the selection of cobbles for bifaces—which was biased towards vitreous quartz cobbles—selection for hammers evidently emphasized grainier quartz, and especially quartzite. Cobbles of the latter type were generally not conducive to bifacial reduction. We can imagine that cobbles collected from the river bed were tested for flaking

Table 3-16. Nominal and Metric Data on Cobble Tools from Victor Mills (9CB138).

Prov.	Class	Condi-tion	Ther. alter.	Raw Material	Max. Dim. (mm)	Length (mm)	Width (mm)	Thickness (mm)	Weight (g)	Notes
4A-3	AN	3	N	SaS	133.2		97.2	36.0	450.6	bifacial battering
10B-8	AN/HS	3	N	MM	92.3	90.5		41.9	303.5	facial battering
18C-6	AN	3	Y	SaS	134.2		99.6	79.5	1,681.4	facial battering
20A-1	AN	4	N	MM	88.6			47.0	367.1	bifacial battering
20A-1	AN	1	Y	SaS	139.3	126.2	76.2	42.9	662.0	facial battering
29A-13	AN/HS	5	N	SaS	79.5		77.8	30.6	156.1	bifacial battering; possible lateral battering one end
29A-14	AN/HS	2	N	QT	113.6	113.6	77.5		313.7	facial and lateral battering; split longitudinally
F19-3	AN	1	N	SaS	560.0	410.0	405.0	127.0	22,100.0	bifacial battering
F20A-10	AN	5	Y	QT	67.1			42.7	125.3	bifacial battering/grinding
F3Mid-8	AN/MT	5	N	SaS	74.2			55.8	190.6	facial and lateral battering; possible facial grinding
1A-10	HS?	1	N	QZ	50.7	50.7	36.0	20.0	56.8	possible lateral battering
1A-3	HS	5	Y	QZ	70.9			41.6	106.4	lateral battering
1A-4	HS	3	Y	QZ	66.8			45.5	169.6	lateral battering
1A-5	HS	5	N	QT	50.9				37.0	lateral battering
1B-3	HS	3	N	QT	80.8		80.8	33.5	169.0	minor lateral battering
2A-2	HS	3	N	QT	56.3			27.8	77.0	distinct facets of lateral battering
3A-4	HS	4	N	QZ	55.2			45.2	89.9	minor lateral battering one end
3A-5	HS	1	N	QZ	53.7	53.2	45.2	34.3	120.6	extensive lateral battering
6A-11	HS	5	Y	QZ	39.7				45.4	minor lateral battering
6B-8	HS	1	Y	QT	67.5	67.5	36.7	23.9	78.8	light battering opposite ends
8A-5	HS	5	N	QZ	45.7			34.0	52.3	lateral battering
9A-4	HS?	4	Y	QZ	69.4			53.0	264.1	possible lateral battering
10A-10	HS	5	N	QZ	63.9				95.9	distinct facets of facial and lateral battering
10B-4	HS	4	Y	QT	60.3			54.6	127.5	lateral and facial battering
10B-6	HS	5	Y	QT	52.8	53.4			53.5	lateral battering
12A-6	HS	3	Y	QT	50.3	50.3		39.4	85.5	lateral battering
15B-10	HS	2	N	QT	71.5	71.5	54.7	47.6	254.6	extensive lateral battering
15B-11	HS?	4	Y	QT	74.4			43.8	210.5	possible lateral battering
15B-12	HS	5	N	QT	41.4			41.4	52.0	lateral battering
15B-9	HS	1	N	QT	47.9	47.3	43.5	29.2	88.4	minor battering one end
15C-5	HS?	3	Y	QT	75.5			50.9	284.6	possible lateral battering
16B-1	HS	1	N	QZ	73.3	73.3	65.6	35.5	207.8	slight battering one end
16C-10	HS	1	N	PO	66.0	66.0	52.4	37.3	172.4	extensive lateral battering
16C-12	HS/MN	4	N	QZ	69.5		69.5	39.8	88.6	minor lateral battering; possible facial battering/grinding
16II-2	HS	3	Y	QZ	79.4			44.8	288.0	lateral battering

Table 3-16. continued.

. Prov.	Class	Condi- tion	Ther. alter.	Raw Material	Max. Dim. (mm)	Length (mm)	Width (mm)	Thickness (mm)	Weight (g)	Notes
17II-2	HS	1	N	QZ	77.6	77.6	60.4	41.4	236.0	minor lateral battering on end
18C-7	HS	1	N	QZ	71.9	71.9	59.2	57.6	290.6	minor battering one end
18C-9	HS/AN	4	N	QT	83.9	83.9		37.9	220.5	lateral and bifacial battering
18II-23	HS	3	N	QZ	55.2	55.2		47.9	118.9	extensive lateral battering
20A-2	HS	2	N	QZ	85.0	82.5		43.4	354.2	minor lateral battering; possible core
23A-2	HS	3	Y	QT	87.9	87.9	57.0		264.6	minor lateral battering
23A-3	HS/CR	2	N	QT	89.2	89.2	68.8	59.1	478.8	flake scars on opposite ends
23A-4	HS	3	N	QT	77.5	74.5		39.8	200.9	lateral and facial battering; pitted face
26A-3	HS	3	Y	QT	68.5	68.5	0.0	46.5	193.3	minor lateral and bifacial battering
28A-5	HS	3	Y	QT	61.7	61.7		31.0	107.8	bifacial battering; pitted
31A-10	HS	5	N	MM	56.1				32.9	lateral battering
31A-9	HS/AN	2	N	QT	92.4	92.4	66.0	46.4	411.4	lateral and facial battering
F2-14	HS	1	N	QZ	75.3	75.3	47.6	32.9	166.7	extensive lateral battering
F2-16	HS	3	N	PO	84.7	84.7		67.6	446.5	lateral and facial battering
F3A-12	HS?	1	N	QZ	106.8	105.0	54.4	35.1	272.6	possibly nonhuman battering one end
F20A-10	HS	1	Y	SiS	94.3	94.3	77.6	53.2	475.0	lateral battering on opposite ends; five refitted pieces thermal fracture
2A-1	MN	3	Y	QT	86.0	85.7		68.0	370.1	facial and possible lateral battering/grinding
10A-9	MN/AN	3	N	QT	77.4		74.6	40.8	231.7	bifacial battering; one concave, one convex
14A-19	MN/HS	3	N	QZ	87.3	85.0		44.3	314.4	minor bifacial battering; one concave, one convex
F2-1	MN	1	Y	SaS	98.6	85.2	85.3	47.2	502.5	facial battering/grinding
10A-11	UID	5	N	QZ	48.9			46.4	57.8	possible lateral battering
10B-7	UID	5	N	PO	83.7				102.4	bifacial battering
18A-8	UID	3	Y	QT	64.4		62.8	40.4	130.5	possible lateral battering one end
18C-8	UID	4	Y	QZ	73.8			54.6	127.4	possible lateral battering
F2-15	UID	5	N	SaS	123.7				142.4	possible facial battering
F19-14	UID	4	Y	QZ	67.8			45.4	206.4	possible lateral battering

Class: AN = Anvil; HS = Hammerstone; MN = Mano; CR = Core; MT = Metate; UID = Unidentifiable
Condition: 1 = whole; 2 = 3/4; 3 = 1/2; 4 = 1/4; 5 = <1/4
Thermal Alteration (Ther. Alter.): Y = Yes; N = No
Raw Material: SaS – Sandstone; SiS = Siltstone; QZ = Quartz; QT = Quartzite; PO = Porphyry; MM = Metamorphic

Figure 3-12. Cobble tools from Victor Mills (9CB138): a. 12A-6; b. 15B-9; c. 3A-5; d. 1B-3; e. 16II-2; f. 16C-10; g. 15B-10; h. 23A-4; i. 17II-2; j. 18C-7; k. 9A-4; l. 15C-5; m. 23A-3; n. 20A-2; o. 21A-10.

Figure 3-13. Cobble tools from Victor Mills (9CB138): a. 10A-9; b. F. 3-midsection-8; c. 18C-9; d. 10B-8; e. 31A-9; f. F. 2-16; g. 14A-19; h. 20A-1; i. 4B-2; j. F. 2-1; k. 20A-1; l. 18B-6.

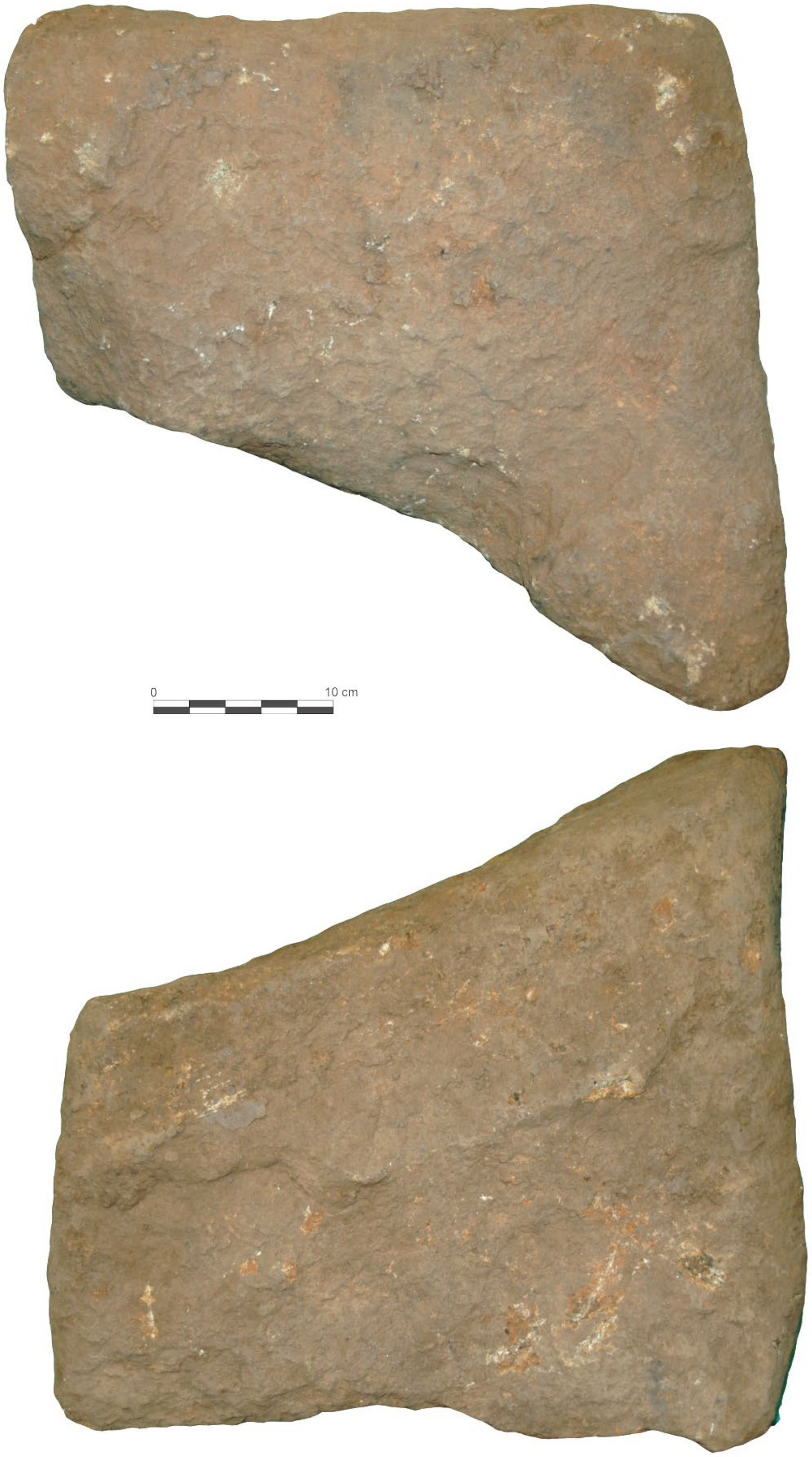

Figure 3-14. Two sides of sandstone anvil/nutting stone pulled from upper fill of Feature 19, Victor Mills (9CB138).

qualities, perhaps at the point if acquisition, and some of those proving untenable for flaking were kept for hammerstones or manos.

The geological source of the sandstone slabs is unknown but not likely far from Victor Mills given the heft of the whole slab recovered from Feature 19. Notably, sandstone slabs and slab fragments show evidence of battering on one or more faces, but no clear signs of grinding. That they were used as anvils and not metates is certain. It follows that some, perhaps most, of the hammerstones were used to process materials on anvils. Cracking hickory nuts is one likely use for anvils, although rock-on-rock impact is not expected apart from occasional errant strikes. It is worth noting as well the lack of well-defined pits or dimples in the surface of anvils. So-called nutting stones of the Archaic period get their name from pits the size of hickory nuts. Such features on anvils may have improved the efficient with which nuts can be cracked, but they are not necessary to accomplish this task.

Besides sandstone, which accounts for six of 10 anvils from Victor Mills, metamorphic (n = 2) and quartzite (n = 2) cobbles were occasionally drafted into use as anvils. Other minor materials in the cobble tool category include two hammerstones and one UID tool made from porphyry, and single examples of hammerstones made from siltstone and a metamorphic material. Of the total 61 cobble tools and slabs in this sample, 22 (36 percent) show signs of thermal alteration, presumably incidental to the uses that resulted in surface attrition.

In sum, cobbles of mostly quartzite and slabs of mostly sandstone were used for activities involving rock-on-rock impact. Smaller hammerstones would have served the needs of quartz cobble reduction for making bifaces and other edged tools, while large hammerstones were better suited for impacting materials on anvils. A few hand-sized cobbles (manos) were used to grind materials on one or more faces, but the vast majority of the cobble and slab tools show impact attrition expected of battering or pounding, not grinding. The assemblage is consistent with expectations for processing hickory nuts or other mast resources that require cracking or pulverizing.

WORKED BONE AND ANTLER

Twenty-nine fragments of bone and six pieces of antler exhibit modifications indicative of various uses. Table 3-17 provides an inventory of these items with details on provenience, taxa, element, and type of modification. Photos of many of these items are provided in Figures 3-15 and 3-16.

The majority of worked bone (73.9 percent) consists of elements of white-tailed deer (*Odocoileus virginianus*), to which can be added the six pieces of antler for a total of 79.3 percent of all worked elements. One additional long bone fragment of an unspecified mammal is also likely to be from a deer. Two elements in the assemblage consist of turkey (*Meleagris gallopavo*), and three additional pieces are marginals from cooter (*Pseudemys* sp.).

Split and ground long bones are common in the Victor Mills assemblage of modified deer bone, as they are in other Stallings-period assemblages from the region. Long bone fragments with morphology are typically metapodials, which often can be attributed to either forelimbs (metacarpus) or hind limbs (metatarsus). Although typologies for split metapodials vary, two basic forms are ubiquitous in Stallings assemblages: pins and awls. The distinction between pins and awls is perhaps only morphological as both involve grinding one end of split bone to a point, presumably for penetrating some softer matter. The difference is that pins, by definition, are ground and often polished along most of the length of the split bone to form a circular or elliptical cross section. Examples of pins are shown in Figure 3-15a, f, g. The small fragment of pin from Test Unit 10, Stratum II is incised and hatched (Figure 3-15a), and another from Test Unit 16, Level C is scored at one end (Figure 3-15f).

Fragments of awls lack the symmetry and formalization of pins and usually maintain some of the morphology of split long bone, such as the medullary cavity, and usually the auricular surfaces of epiphyses, if ends are intact. None of the examples are fully intact, but one from Test Unit 16, Stratum II, made from a deer metatarsus consists of two pieces that nearly articulate (Figure 3-15p). Another example made from a turkey tarsometatarsus is missing only its proximal end (Figure 3-15n).

Table 3-17. Inventory of Worked Bone and Antler from Victor Mills (9CB138) by Provenience, Taxon, Element, Form, and Modification.

Prov.	Taxon	Element	Form	Modification
10II-2	*Odocoileus virginianus*	antler beam	haft	whittled, socketed
9A-1	*Odocoileus virginianus*	antler beam frag.		whittled, possibly socketed
16II-6	*Odocoileus virginianus*	antler beam frag.		whittled
17II-1	*Odocoileus virginianus*	antler tine frag.		scraped
7A-11	*Odocoileus virginianus*	antler tine frag.		ground
17II-1	*Odocoileus virginianus*	antler tine tip		polished
1A-5	*Odocoileus virginianus*	long bone frag.		split and polished
17C-8	*Odocoileus virginianus*	long bone frag.	awl	split and polished
2A-4	*Odocoileus virginianus*	long bone frag.	awl	split and polished
10A-5	*Odocoileus virginianus*	long bone frag.		split and ground
16C-8	*Odocoileus virginianus*	metapodial frag.	pin	polished and scored
10II-2	*Odocoileus virginianus*	metapodial frag.	pin	polished
10II-2	*Odocoileus virginianus*	metapodial frag.	pin	polished
16II-6	*Odocoileus virginianus*	metapodial frag.		split and ground
16II-6	*Odocoileus virginianus*	metapodial frag.		split and ground
15II-5	*Odocoileus virginianus*	metatarsus frag.		split and ground; articulates w/18II-1
18II-1	*Odocoileus virginianus*	metatarsus frag.		split and ground; articulates w/15II-5
17II-7	*Odocoileus virginianus*	metatarsus frag.		split and ground
17II-7	*Odocoileus virginianus*	metatarsus frag.		split and ground
17II-7	*Odocoileus virginianus*	metatarsus frag.		split and ground
16II-8	*Odocoileus virginianus*	metatarsus	awl	split and polished; 2 pcs. articulate
10II-2	*Odocoileus virginianus*	metacarpus frag. (lt., prox.)		split and ground
10II-2	*Odocoileus virginianus*	metacarpus frag. (rt., prox.)		split and ground
10II-2	*Odocoileus virginianus*	metatarsus frag. (rt., prox.)		split and ground; grooved at end
7A-5	UID mammal	long bone frag.		split and ground; scored at end
15II	*Meleagris gallopavo*	tarsometatarsus frag.		cut and ground
17II-7	*Meleagris gallopavo*	tarsometatarsus frag.	awl	split and ground; 2 pcs. articulate
7A-5	*Pseudemys* sp.	marginal		cut and ground; 2 pcs. articulate
7A-5	*Pseudemys* sp.	marginal		cut and ground
17II-7	*Pseudemys* sp.	marginal		ground

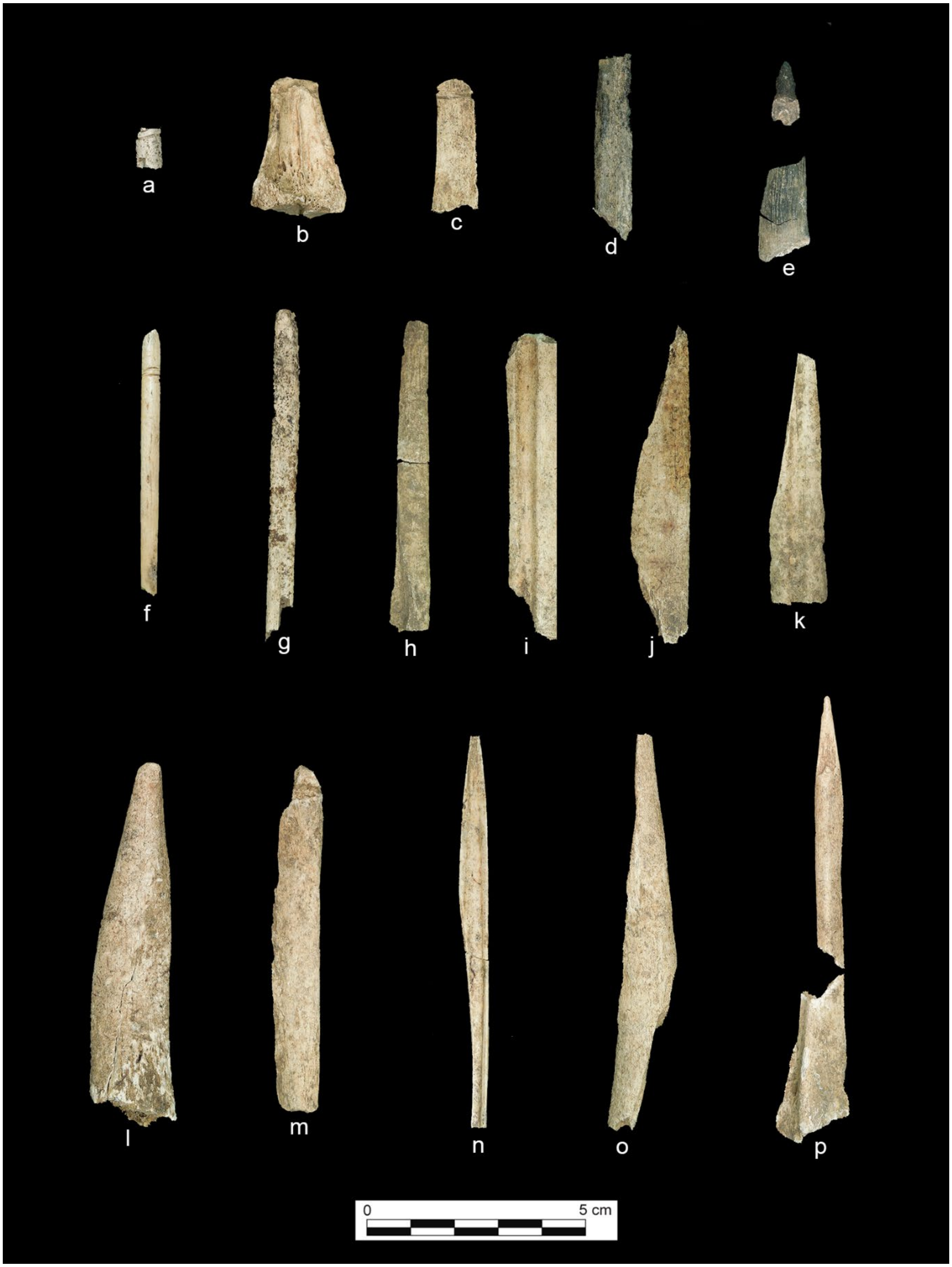

Figure 3-15. Modified bone and antler from Victor Mills (9CB138): a. 10II-2; b. 10II-2; c. 7A-5; d. 2A-4; e. 17II-1; f. 16C-8; g. 10II-2; h. 15II-5, 18II-1; i. 17II-7; j. 17II-7; k. 17II-7; l. 7A-11; m. 10II-2; n. 17II-7 ; o. 17C-8; p. 16II-8.

Figure 3-16. Two views of an antler beam haft from Test Unit 10, Stratum II, Victor Mills (9CB138).

Other notable items among split longbone fragments are a piece of deer metatarsus with a lateral groove at one end (Figure 3-15m), and a unidentifiable mammal longbone fragment that was ground nearly flat and scored at one end (Figure 3-15c).

Modified deer antler fragments in the assemblage consist of three tine fragments (Figure 3-15e, l), two small beam fragments (not shown), and an entire beam that was socketed at the proximal end (Figure 3-16). This latter item is presumed to be a haft. Tissue of the pedicle was whittled away to form a rounded profile, evidently for accommodating a stemmed biface in the socket. Several of the stemmed bifaces in the Victor Mills assemblages could have been fitted to this presumed haft. Rodent gnawing at the proximal end attests to exposure on the ground surface before being encased in shell midden.

Finally, three pieces of carapace marginals from *Pseudemys* sp. (not shown) were cut and/or ground for purposes that cannot be inferred.

In sum, the small assemblage of worked antler and bone at Victor Mills consist mostly of split long bones with ground edges that converge at a point. Whether ground to achieve a pointed end or more fully ground to achieve a uniform cross section along the entire length of the split bone, the intended purpose would appear to be to pierce materials softer than bone. The more-or-less complete antler beam and possibly one other worked piece of antler beam attest to hafting functions, presumably hafting bifacial knives. Uses of other worked bone and antler cannot be inferred from fragments alone.

Compared to larger assemblages of worked bone and antler at Stallings Island, Lake Springs, and other Stallings-era sites in the region, the Victor Mills assemblage is limited in form and presumably function. This limited diversity is affected by, but not determined by small sample size. Rather, the ostensibly specialized nature of the worked bone and antler assemblage is consistent with other classes of material culture reported in this chapter in suggesting that Victor Mills was a place of limited, probably seasonally specific activities.

CONCLUSION

With few exceptions, items of material culture collected from Victor Mills point to a limited array of activities centered on the processing of mast and the manufacture of hafted bifaces from quartz cobbles. The former involved cobble tools for pulverizing hickory nuts, and fiber-tempered basins and soapstone slabs for extracting oils from nuts. The latter involved hammerstones of mostly quartzite for reducing quartz cobbles into bifacial blanks, which resulted in abundant debitage, production failures, and finished hafted bifaces.

One class of material culture informs on activities that go beyond mast processing and biface making. Fragments of polished stone attest to the use of multiple grooved axes in the immediate vicinity of the excavation. Other polished stone fragments came from bannerstones, which are often considered to be spearthrower weights, but in the case of Stallings culture take on proportions that go beyond this mundane use. Much of the biface manufacture at Victor Mills appears to have been geared towards projectile functions, although some of the stemmed bifaces were clearly used as knives, as the antler haft attests. It is worth noting again that biface fragments made from nonlocal Coastal Plain chert show that Stallings groups occupying Victor Mills spent time downriver.

The remains of plant matter and vertebrate fauna reported in the chapter that follows lend credence to the inferences drawn from material culture and the feature assemblage that Victor Mills was a place of seasonal activities surrounding the collection, storage, and processing of mast, as well as a locus for launching deer-hunting excursions in the area that, when successful, returned game to the site for processing and consumption. Notwithstanding a brief visit during the Middle Woodland period during which persons of Swift Creek cultural affiliation made and used a rock-filed hearth, the assemblage of Victor Mills reflects a specialized site of Early Stallings age.

CHAPTER 4
PLANT AND ANIMAL REMAINS

As is usually the case with archaeological shell deposits, plant and animal remains in the shell midden at Victor Mills are reasonably well preserved. The preservation of plant matter and animal bone outside of shell midden is not so good; in fact, virtually no bone and only charred nutshell fragments survived the acidic soils of pit fill and the site-wide upper stratum of clayey loam. Differential recovery methods across contexts adds to the bias of shell deposits, but enough bulk samples of pit fill were collected and processed by flotation to know that choice of screen size cannot alone explain the lack of bone outside of shell midden. To the extent that shell and the bones it preserved constitute secondary midden at Victor Mills (see Chapter 2), the lack of bone elsewhere is perhaps also a matter of patterned practice, as well as taphonomy.

Despite limits to preservation and the sampling biases imposed by recovery methods, the modest but informative assemblage of plant and animal remains reported in this chapter bolsters inferences about specialized site use based on observations of features and material culture. The charred remains of hickory nutshell are direct evidence for the collection and processing of mast. The condition of nutshell attests to pulverization, which implicates the cobble and anvil tools so prevalent at Victor Mills, as well as the technology for indirect-heat cooking seen in pottery and soapstone if by pulverizing nuts the intent was to maximize surface area for water extraction of nut oil by simmering.

The vertebrate faunal assemblage from Victor Mills reflects two major subsistence pursuits: hunting deer and collecting small fish from shallow, near-shore water. The bones of turtles, turkey, and small mammals (e.g., squirrel, rabbit, opossum) accompany the fish and deer bone in lesser frequencies. The invertebrate remains that helped to preserve animal bone consist mostly of bivalve (Unionids) shells, along with aquatic gastropod shells (*Campeloma* and *Elimia)* and those of terrestrial gastropods (e.g., *Mesodon*, *Glyphalinia*, and *Discus*) that bear relevance on local ground cover and the taphonomy of midden formation.

Taken together, the plant and animal remains of Victor Mills provide additional support for three inferences: (1) the place was used to process mast that was evidently stored in pits; (2) it was a base for deer hunting; and (3) beyond consuming deer, groups spending time at this place provisioned themselves with near-shore shellfish and fish. Moreover, plant and animal remains provide the basis for inferring that most of the activities at Victor Mills took place in the fall, most likely late September through October. Short visits to the place to retrieve and process stored mast throughout the winter months cannot be fully substantiated by plant and animal remains, although most of the animal taxa could have been taken year-round.

The sections that follow summarize the plant, vertebrate, and invertebrate remains collected from Victor Mills, each with caveats regarding sample bias. These sections are followed at the end with consideration of the seasonality of site use enabled by these remains and implications for the subsistence economy of Early Stallings communities of the greater area.

PLANT REMAINS

Plant remains from Victor Mills were reported by Beth Auten (2004) in her Masters thesis from the University of Florida. Samples analyzed by Auten consist of both flotation samples and 1/8-inch waterscreened fill from four features (Features 2, 3, 12, and 19) and a bulk sample taken from Stratum II (shell stratum) of Test Unit 18. Reported here as well are the values for wood charcoal and nutshell from all other contexts for which matrix was processed by either 1/8-inch waterscreening or flotation. An inventory of all quantified plant remains by provenience is provided in Table 4-1.

Table 4-1. Inventory of Botanical Remains Identified in 1/8-inch Waterscreen and Flotation Samples of Midden and Features, Victor Mills (9CB138).

	Wood Charcoal	Nutshell		Acorn		Resin/Gum	UID	Other[a]
1/8-inch Waterscreen	wt(g)	ct	wt(g)	ct	wt(g)	wt(g)	wt(g)	ct
TU1 - Str. II	0.1	1	<0.1			<0.1		
TU3 - Str. II	0.4	16	0.3				0.2	
TU 10 - Lev. A	<0.1	3	0.1					
TU10 - Str. II	1.6	17	0.4			0.5	0.2	
TU15 - W1/2 - Str. II	0.2	4	<0.1			0.1	0.1	
TU15 - E1/2 - Str. II	0.2	1	<0.1				0.1	
TU17 - Str. II	<0.1	5	0.1			0.2	<0.1	
TU18 - Str. II	33.0	269	6.3	7	<0.1	3.6	<0.1	8
Feature 2	8.6	148	4.0	2	<0.1	0.6	1.4	
Feature 3 S1/2	2.5	60	1.1			0.3	<0.1	
Feature 3A	1.6					0.7	0.1	
Feature 4	1.5	5	0.1			0.3		
Feature 11	0.6	41	0.9			0.7	0.5	
Feature 12	2.7	147	3.8			1.4	1.5	
Feature 19	5.8	186	7.0			1.8	0.7	
Feature 20A	<0.1							
Midden Subtotal	35.5	316	7.2	7	<0.1	4.4	0.6	8
Feature Subtotal	23.3	587	16.9	2	<0.1	5.8	4.2	
Total	58.8	903	24.1	9	<0.1	10.2	4.8	8
Flotation								
TU10 - Str. II (2.0 l)	1.5	8	0.1			2.3	0.1	
TU18 - Str. II (10.5 l)	2.3	33	0.4	3	<0.1	0.2	0.1	
Feature 2 (10.5 l)	0.3	8	0.1			<0.1	<0.1	
Feature 3 S1/2 (10.0 l)	2.6	52	1.9	2	<0.1	1.0	<0.1	
Feature 12 (10.0 l)	1.7	101	2.0			0.3	0.2	
Feature 19 (8.0 l)	1.2	61	1.4			<0.1	<0.1	
Midden Subtotal (12.5 l)	3.8	41	0.5	3	<0.1	2.5	0.2	
Feature Subtotal (38.5 l)	5.8	222	5.4	2	<0.1	1.3	0.2	
Total (51.0 l)	9.6	263	5.9	5	<0.1	3.8	0.4	
Grand Total	68.4	1,166	30.0	14	0.1	14.0	5.2	8

[a] other = 7 hackberry (*Celtis* sp.) seeds; 1 pawpaw (*Asimina sp.*) seed

By weight, wood charcoal dominates both the 1/8-inch and flotation samples and it is the most common botanical matter in both shell midden and pit features. Charred hickory (*Carya* sp.) nutshell is likewise ubiquitous, although at usually lower frequency than wood charcoal except in two features (Features 12 and 19). In only trace frequencies are charred pieces of acorn (*Quercus* sp.) hull, identified in a few samples analyzed by Auten (Features 2 and 3, and in shell midden). Acorn was likely more common at Victor Mills than these paltry numbers suggest, but given the thinness of its hull compared to hickory nutshell, acorn is not often preserved.

Resin/gum listed in Table 4-1 are by-products of burning wood and thus tend to covary with charcoal weights. Unidentifiable plant remains include a variety of charred tissue, generally minute and lacking diagnostic macroscopic attributes; much of this is presumably incidental to wood burning.

Finally, seeds in the "other" category of Table 4-1 are limited to eight specimens from the shell midden (18II): seven hackberry (*Celtis* sp.) seeds and one pawpaw (*Asimina* sp.) seed. The hackberry seeds could have entered the midden from bird droppings, but the pawpaw seed is almost certainly indicative of human collecting and consumption. Pawpaw is a relatively large, fleshly fruit with seeds up to 25 mm in length. The one from Victor Mills is 8.91 mm long and 5.44 mm wide. Seeds this size and larger would be caught in screens as coarse as ¼ inch, so lack of additional specimens suggests limited on-site consumption. Despite the lack of additional seeds, this instance of pawpaw in the shell midden is consistent with inferred fall occupations of the site based on other lines of evidence.

There are limited volumetric data to compare the densities of charcoal and nutshell across contexts, but ratios of the two by weight offer useful insights (Table 4-2). One obvious pattern from this perspective is that wood charcoal in the shell midden outstrips hickory nutshell nearly 5:1 in 1/8-inch samples and over 7:1 in flotation samples. The ratio of charcoal to nutshell is close to 1:1 in both types of samples from features. This difference is attributed to both a higher frequency of nutshell and a lower frequency of charcoal in feature fill relative to shell midden.

The few reliable volumetric data available corroborate what ratios show: that charcoal and nutshell have a reciprocal quantitative relationship along lines of depositional context (Table 4-2). Charcoal occurs in midden matrix at 0.30 g per liter, and only half that in feature fill. Conversely, hickory nutshell in midden matrix is a mere 0.04 g per liter, and more than three times that (0.14 g/l) in feature fill.

Finally, whether from feature fill or shell midden, hickory nutshell fragments are consistently small, averaging 0.2-0.3 g each across contexts. The comminuted condition of nutshell points to a process of pulverization in which nuts were subjected to repeated crushing. Of course, they exist today because they were charred, which could implicate uses as fuel, incidental disposal in fire, or several other plausible explanations, none of which necessarily derive from the process by which they were pulverized. It is certainly plausible that the bulk of nutshell from the communition of nuts was never charred but instead deposited in pits, the ground, and even the midden, only to disintegrate over time.

Table 4-2. Ratios and Densities of Wood Charcoal and Nutshell in 1/8-inch Waterscreen and Flotation Samples of Midden and Features, Victor Mills (9CB138).

1/8-inch Waterscreen	Wood Charcoal wt(g)	Nutshell ct	Nutshell wt(g)	Average wt(g) Nutshell	Ratio (wt) Charcoal: Nutshell	Density Charcoal wt/l	Density Nutshell wt/l
TU3 - Str. II	0.4	16	0.3	0.02	1.33	-	-
TU10 - Str. II	1.6	17	0.4	0.02	4.00	-	-
TU18 - Str. II	33.0	269	6.3	0.02	5.24	-	-
Feature 2	8.6	148	4.0	0.03	2.15	-	-
Feature 3 S1/2	2.5	60	1.1	0.02	2.27	-	-
Feature 4	1.5	5	0.1	0.02	15.00	-	-
Feature 11	0.6	41	0.9	0.02	0.67	-	-
Feature 12	2.7	147	3.8	0.03	0.71	-	-
Feature 19	5.8	186	7.0	0.04	0.83	-	-
Midden Subtotal	35.0	316	7.2	0.02	4.86	-	-
Feature Subtotal	23.3	587	16.9	0.03	1.38	-	-
Total	58.8	903	24.1	0.03	2.44	-	-
Flotation							
TU10 - Str. II (2.0 l)	1.5	8	0.1	0.01	15.00	0.75	0.05
TU18 - Str. II (10.5 l)	2.3	33	0.4	0.01	5.75	0.22	0.04
Feature 2 (10.5 l)	0.3	8	0.1	0.01	3.00	0.03	0.01
Feature 3 S1/2 (10.0 l)	2.6	52	1.9	0.04	1.37	0.26	0.19
Feature 12 (10.0 l)	1.7	101	2.0	0.02	0.85	0.17	0.20
Feature 19 (8.0 l)	1.2	61	1.4	0.02	0.86	0.15	0.18
Midden Subtotal (12.5 l)	3.8	41	0.5	0.01	7.60	0.30	0.04
Feature Subtotal (38.5 l)	5.8	222	5.4	0.02	1.07	0.15	0.14
Total (51.0 l)	9.6	263	5.9	0.02	1.63	0.19	0.12

In sum, the small but informative assemblage of plant remains from Victor Mills supports the inference that activity at the site included, if not centered on, the processing of hickory nuts. This resource had to be collected in the fall, between late September and early November, but if stored for later use, processing that resulted in pulverized nutshells could have taken place at any time of the year. The single pawpaw seeds also reflects fall harvest, in this case of a fruit that was not likely stored for later use.

The higher density of charred hickory nutshell in pits compared to midden lends credence to the inference that pits were used to store nuts that were processed nearby but not routinely removed to secondary midden. The small size of pulverized nutshell may have precluded the need to dispose of them away from locations of intensive activity.

VERTEBRATE FAUNAL REMAINS

As is usually the case with shell middens, the one at Victor Mills offered good preservation for the bones of vertebrate fauna. In contrast, pit features and non-shell midden contexts at Victor Mills were not conducive to bone preservation. Whether bone was routinely deposited in contexts other than the shell midden is unknown. Acknowledging this potential bias, the sections that follow present the results of two separate analyses. The first is an analysis of bones from fine-screened matrix of the shell midden in Test Unit 18. The second is analysis of bones from all contexts of the site whose matrix was passed through various sized screens, from 1/8-inch waterscreens to ¼-inch and ½-inch dry screens. The results of the former show how small fish dominated subsistence, while the latter helps to amplify the role of white-tailed deer. In either case the accumulation of vertebrate faunal remains, as well as shell from shellfish taxa, was likely incidental to the primary tasks of collecting, processing, storing, and retrieving mast.

Fine-Screened Sample from Shell Midden

A sample of vertebrate faunal remains from the shell midden (Stratum II) of Test Unit 18 was analyzed in 1995 by Rene B. Walker (now Rene B. Whitman) at the University of Tennessee, where she earned a Ph.D. in 1998. The sample included all vertebrate remains from the 10.5 l bulk sample that was processed by flotation, as well as all vertebrate remains from the 1/8-inch waterscreened fill of the shell midden in Test Unit 18. Identified in the sample were 8,767 specimens weighing 494.2 g and representing at least 61 individuals. A species list of this sample is provided in Table 4-3; details on the elements, modifications, and weights of specimens by taxa are given in Appendix C.

The following summary is paraphrased from a letter report from Walker to Sassaman dated March 22, 1995. Of the 8,767 individual specimens (NISP) in the sample, 6,682 (76.2 percent) could be identified to a taxonomic level beyond vertebrata. The vast majority of this subsample (6,381 or 95.5 percent) are from various bony fishes (Osteichthyes). Counted as minimum number of individuals (MNI), fish comprise 82 percent of an inventory of 61 individuals. They are dominated by catfishes (n = 23), sunfishes (n = 17), and suckers (n = 8), followed by single occurrences of freshwater drum and gar. Fifteen of the 23 catfish could be taken to the genus *Ictalurus*, and three of these to the species *I. puntatus*, the channel catfish. Six of the 17 sunfishes could be taken to genus: *Morone* sp. (cf. white perch) (n = 3), *Micropterus* sp. (bass) (n = 2), and *Lepomis* sp. (cf. redear sunfish) (n =1). Seven of the suckers could not be classified more specifically than family (Catostomidae), with the exception being a single redhorse (*Moxostoma* sp.).

Although metric data were not collected on the size of fish, most were obviously very small, even among taxa like catfish, drum, and bass that can grow to large size. The small size of fish suggests capture was by netting, as opposed to spearing or hook-and-line fishing, which were common methods of capture, judging from Stallings technology (Sassaman 2006:116-120; 127). Indeed, large catfish, bass, and other fishes show up routinely at Stallings sites elsewhere in the middle Savannah area.

Elements of turtles (Testudines) are a distant second to fishes in NISP (n = 223) and MNI (n = 4). Among those classified beyond order are single examples of pond turtle (*Emydidae*), softshell turtle (*Apalone* sp.), stinkpot (*Sternotherus odoratus*), and Eastern box turtle (*Terrapene carolina*). Other reptiles in the assemblage are represented by nonspecific elements of non-venomous snakes.

Table 4-3. Absolute Frequency of the Minimum Number of Individuals (MNI) and Number of Individual Specimens (NISP) for Vertebrate Taxa in 1/8th-inch Fraction of Bulk Sample of Shell Midden, Test Unit 18, Stratum II.

Taxon	Common name	NISP	MNI
Osteichthyes	Bony fishes	5,749	
Applodinotus grunniens	Freshwater Drum	6	1
Ictaluridae	Catfish	175	8
Ictalurus punctatus	Channel Catfish	6	3
Ictalurus sp.	Catfish	18	12
Lepisosteus sp.	Gar	9	1
Lepomis sp.	Redear Sunfish cf.	1	1
Micropterus sp.	Bass	5	2
Morone sp.	White Perch cf.	6	3
Moxostoma sp.	Redhorse	4	1
Catostomidae	Suckers	37	7
Centrarchidae	Sunfishes	183	11
Testudines	Turtles	212	
Emydidae	Pond Turtles	4	1
Apalone sp.	Softshell Turtles	3	1
Sternotherus odoratus	Stinkpot	1	1
Terrapene carolina	Eastern Box Turtle	3	1
Colubridae	Non-venomous snake	26	
Aves	Birds	17	
Small bird		1	
Meleagris gallopavo	Turkey	1	1
Mammalia	Mammals	88	
Large mammal		62	
Medium mammal		2	
Medium/small mammal		5	
Small mammal		39	
Virginianus marsupialis	Opossum	1	1
Sylvilagas floridanus	Eastern Cotton-tail	1	1
Sciurius sp.	Squirrel	5	1
Odocoileus virginianus	White-tailed deer	12	3
Unidentifiable		2,085	
TOTAL		8,767	61

A small assemblage of bird bone (n = 19) is mostly unidentifiable to genus or species, save for one element of turkey (*Meleagris gallopavo*).

Mammal bone accounts for 215 specimens, 40.9 percent of which (n = 88) could not be classified beyond the class Mammalia. Another 62 elements were assigned to "large mammal," and 39 to "small mammal." "Medium" and Medium/Small" mammals account for seven elements. Twelve additional elements from three individuals had sufficient morphology to be classified as white-tailed deer (*Odocoileus virginianus*). Single examples of opossum (*Virginianus marsupialis*), Eastern cotton tail (*Sylvilagus floridanus*), and squirrel (*Sciurus* sp.) round out the mammal assemblage.

Vertebrate Fauna from Coarsely Screened Matrix

The recovery bias of passing archaeological matrix through coarse screens—or no screens at all—is well known to archaeologists. In short, coarse screening biases against the bones of small taxa, like the small fish noted above, and towards large taxa like white-tailed deer. There is clear analytical advantage to fine-screening when preservation is good, but time and funds limit the amount of site matrix that can be processed in this manner. Ideally, sites are first sampled broadly before deciding where fine-screening is warranted. In the case of Victor Mills, the discrete shell midden lent itself to fine screening by focusing the sample target on the area of greatest preservation. Still, units dug into the midden could not have been processed exclusively for fine-fraction recovery without sacrificing coverage. In short, with limited means and opportunity, the extent of sampling site-wide is constrained by the amount of fine recovery. This constraint is multiplied in the laboratory, where sorting and then identification of fine-fraction samples demand much time and effort.

The solution to this conundrum is to sample both broadly with recovery methods that do not constraint coverage and more targeted fine-fraction recovery in places of exceptional preservation, in this case the shell midden. This same logic applies to the balance of shell midden matrix not sampled for fine-fraction recovery. In the section that follows, the bones collected from screens of various sizes provide perspective on those animals whose skeletons include elements and fragments greater than ¼-inch in longest dimension. The results show not only greater representation of deer and other terrestrial mammals, but also the presence of a few large, mature fish, at least one which had to be taken in the late winter or early spring. Table 4-4 lists the counts and weights of >1/4-inch bony remains recovered by provenience; raw data by provenience are provided in Appendix C.

As noted, coarse recovery (>1/4 inch) is biased against small taxa, which include members of taxa that are minute even as adults (e.g., certain fishes), as well as immature members of taxa that grow to dimensions sufficiently large for their bones to be captured by coarse recovery methods. Of particular note with the samples from Victor Mills is that no taxa in the 1/8-inch fraction is missing from the coarser samples, even as the small size of fishes in the former is underrepresented in the latter. What this means is that members of fish taxa detected in the 1/8-inch fraction (i.e., sunfishes, catfishes, and suckers) have larger counterparts in the coarser fractions. Some of these larger fish could not have been captured in small dip nets, but rather required hook-and-line, spearing, or fish traps.

Another noteworthy aspect of fish remains in the >1/4-inch sample is that some of the elements of larger fish come from anadromous taxa, specifically shad and sturgeon. It would not be surprising to find young-of-the-year of anadromous fish in the middle Savannah River in the fall and winter, but adults that swam upstream to spawn in the spring returned to the Atlantic Ocean well before then each year. Four cranial fragments from a sturgeon (possibly from the same element) are clearly from an adult. The shad remains (atlases and other vertebrae) are not so definitive as to age, although most likely older than a few months. The inference enabled by the bones of adult anadromous fish is that Victor Mills was occupied at times other than the fall, in this case late winter through spring (i.e., February through May). Additional large fish remains lacking seasonal specificity are attributed to suckers and catfish.

Table 4-4. Relative Frequency of the Number of Individual Specimens (NISP) for Vertebrate Taxa >1/4-inch from Various Contexts of Victor Mills (9CB138).

Taxon	Common name	NISP	%NISP
Actinopterygii	Ray-finned fish	34	3.83
Acipenser sp.	Sturgeon	4	0.45
Alosa sapidissima	American shad	8	0.90
Amia calva	Bowfin	3	0.34
Ictaluridae	Catfish	6	0.68
Lepisosteus sp.	Gar	6	0.68
Moxostoma sp.	Suckers	13	1.47
Centrarchidae	Sunfishes	1	0.11
Testudines	Turtles	27	3.04
Emydidae	Pond Turtles	5	0.56
Kinosternidae	Mud/Musk Turtle	24	2.71
Pseudemys sp.	Cooter	55	6.20
Apalone sp.	Softshell Turtles	11	1.24
Terrapene carolina	Eastern Box Turtle	95	10.71
Aves	Small bird	1	0.11
Meleagris gallopavo	Turkey	19	2.14
Mammalia	Large mammal	1	0.11
Mammalia	Large/medium mammal	42	4.74
Mammalia	Medium mammal	5	0.56
Mammalia	Medium/small mammal	2	0.23
Mammalia	Small mammal	5	0.56
Didelphis virginiana	Opossum	8	0.90
Sylvilagas floridanus	Eastern Cotton-tail	2	0.23
Odocoileus virginianus	White-tailed deer	481	54.23
Canis lupus familiaris	Dog	3	0.34
Castor canadensis	Beaver	1	0.11
Ondontra zibethicus	Muskrat	2	0.23
Procyon lotor	Raccoon	2	0.23
Rodentia	Small rodent	1	0.11
Sciurus niger	Fox squirrel	1	0.11
Vertebrata	UID frags	19	2.14
TOTAL		887	100.00

The sharpest contrast between fine- and coarse-fraction vertebrate faunal remains from Victor Mills is the dominance of white-tailed deer bone in the latter. Deer bone comprises over half of the NISP, and most elements are well represented in the sample of 481 bones (also, most, if not all, of the "large" and "large/medium" mammal listed in Table 4-4 is likely deer). Included among the bones of mature deer are a few elements of immature individuals. Nothing about the assemblage is seasonally specific, but the abundance of deer bone is not unexpected of an assemblage that accumulated mostly in the fall, when hunting success is enhanced by the behavior of rutting.

Other mammals identified in the >1/4-inch samples include all those found in the 1/8-inch sample (opossum, eastern cotton-tail, squirrel), as well as dog, beaver, muskrat, raccoon, and perhaps skunk. The single squirrel element in the coaster fraction is a fragment of left acetabulum that could be identified to species, fox squirrel. This and other small-medium mammal species occur at low frequency, explaining why they would be absent in a column sample in one part of site and why sampling more broadly, even if at coarser recovery, is necessary to accurately assess site seasonality and related variables.

Finally, the turtle assemblage site wide is much more diverse than the fine-fraction assemblage if for no other reason that diagnostic attributes are more readily detected on larger fragments of bone. The bones of Eastern box turtle are especially frequent, and cooter and mud/musk turtle bone are well represented too.

INVERTEBRATE REMAINS

The shell midden at Victor Mills consists primarily of the shells of freshwater bivalves, members of the family Unionidae. Although unionids in the greater middle Savannah River valley include a number of different genera, species in the genus *Elliptio* are especially common in the region (Britton and Fuller 1980). No attempt was made to classify shells to species of this genus or closely related genera, but casual inspection shows little morphological variation among them. Although shells of *Elliptio* can grow up to 140 mm long (Britton and Fuller 1980:7), few of the shells recovered from the midden are greater than 50 mm in length; most are in the range of 25–35 mm long. Rare exceptions are seen in two valves of 85 and 95 mm in length that were hand collected from the shell midden of Test Unit 10. Evidently, the bivalve assemblage at Victor Mills consist of predominately young unionids.

In addition to bivalves, samples of shell midden from Victor Mills contain a variety of gastropod shells, both aquatic and terrestrial. Table 4-5 lists the weights of all shell from shell-midden samples of varying recovery fractions. Represented in these samples are over 125 kg of bivalve shell and nearly 2.8 kg of gastropod shell, the latter divided between aquatic and terrestrial taxa. Among the aquatic snail shells are species of two genera: *Campeloma* and *Elimia*. Although terrestrial snails were not sorted and counted by taxa for this report, the major species belong to three genera: *Mesodon*, *Glyphalinia*, and *Discus*.

Aside from the two flotation samples listed in Table 4-5 (10B and 18II), data on the volume of midden matrix that contained shell are not available and thus of no use in estimating shell density. That aside, weights of shell by gross taxa for the two flotation samples are generally consistent (Table 4-6). By weight, bivalves from the heart of the shell midden occur at a density of 281.5 g/liter, or 98.9 percent of all shell. Bivalve shell comprises the overwhelming majority of the shell assemblages of all samples in Table 4-5, dropping just below 95 percent in only one sample (10A&III), and otherwise higher than 96.6 percent. No samples are devoid of gastropods although the two from Level A (Test Units 1 and 9) are not terribly reliable; the bivalve shell of these two units was not collected and we suspect that some gastropods were also discarded in the field, especially from Test Unit 9, on the eastern edge of the midden. Overall, the fraction of bivalve shell by weight for all reliable samples is 97.8 percent.

Table 4-5. Inventory of Shell by Weight (g) by Taxa and Provenience of Shell Midden, Victor Mills (9CB138).

					--------------------Gastropods--------------------			
Test Unit	Level/ Strat.	Recovery	Bivalve Shell wt.	Gastropod Shell wt.	Aquatic wt.	Terrestrial wt.	*Campeloma* sp. wt.	*Elimia* sp. wt.
1	A	1/8 inch	-	107.6	73.2	34.4	58.4	14.8
9	A	1/8 inch	-	3.7	0.0	3.7	0.0	0.0
10	A&III	1/4 inch	3,073.2	169.8	140.6	29.2	111.1	29.5
10	B	1/8 inch	21,411.3	537.5	364.3	173.2	192.4	171.9
10	B	1/8 inch (Flot.)	705.1	7.5	3.0	4.5	3.0	0.0
15	B	1/8 inch	14,805.6	242.5	91.7	150.8	53.6	38.1
15	III	1/8 inch	287.6	10.1	7.5	2.6	4.6	2.9
16	II	1/2 inch	24,815.2	192.2	64.4	127.8	50.8	14.6
16	C	1/2 inch	2,242.9	63.0	35.4	27.6	20.1	15.3
17	II	1/8 inch	15,765.7	413.7	236.0	177.7	139.2	96.8
17	III	1/8 inch	2,351.6	62.9	40.6	22.3	20.5	20.1
18	II	1/8 inch	35,838.6	908.5	202.1	706.4	74.7	127.4
18	II	1/8 inch (Flot.)	2,813.3	36.0	9.8	26.2	1.4	8.4
18	C	1/2 inch	1,051.7	14.4	7.3	7.1	6.3	1.0
Total			125,161.8	2,769.4	1,275.9	1,493.5	736.1	540.8

Table 4-6. Density of Shell by General Taxa in Two Flotation Samples from the Shell Midden of Victor Mills (9CB138).

Test Unit	liters	Bivalve Shell g/liter	Gastropod Shell g/liter	Aquatic Gastropod Shell g/liter	Terrestrial Gastropod Shell g/liter
10B	2.0	352.6	3.8	1.5	2.3
18II	10.5	267.9	3.4	0.9	2.5
Total	12.5	281.5	3.5	1.0	2.5

Some additional caveats regarding sample bias are worth noting. Most obvious, the three samples that were passed through ½-inch screen (16II, 16C, and 18C) are biased against small gastropods, both aquatic (*Elimia* sp.) and terrestrial (*Glyphalinia* sp., *Discus* sp.). Of course, even the ¼-inch and 1/8-inch fractions are biased against the smallest taxa, none of which are considered to be targeted resources of human consumption. Minute aquatic snails were likely introduced as bycatch, while minute terrestrial snails, like their larger counterparts, were simply attracted to the detritus of midden. Whether large or small, terrestrial snails offer excellent potential as proxies for vegetation cover, solar exposure, and other microenvironmental conditions of the site. This potential is seen in limited work on terrestrial snails from other Stallings sites in the middle Savannah River valley (Snyder 2012), but not yet from Victor Mills. For this purpose, bulk samples of midden that are not fractionated are required, meaning that only the 12.5 liters of flotation samples are eligible.

Leaving aside minute snails and bulk samples, samples of shell midden fractionated no coarser than 1/8 inch provide data across different portions of the midden for relative comparisons. Such comparisons are enabled by various ratios of taxa, such as the weight of bivalve shell to gastropod shell, or the weight of aquatic gastropods to terrestrial gastropods. Table 4-7 provides such data for six different ratios.

Table 4-7. Various Ratios by Weight (g) of Shell Taxa for Samples of Shell Midden at the 1/8-inch Fraction, Victor Mills (9CB138).

	Bivalve: Gastropod	Bivalve: Aquatic Gastropod	Aquatic: Terrestrial Gastropod	Bivalve: *Campeloma*	Bivalve: *Elimia*	*Campeloma*: *Elimia*
15B	61.05	161.46	0.61	276.22	388.60	1.41
17II	38.11	66.80	1.33	113.26	162.87	1.44
18II	40.92	182.41	0.29	507.91	284.62	0.56
10B	40.58	60.21	2.07	113.19	128.66	1.14
15III	28.48	38.35	2.88	62.52	99.17	1.59
17III	37.39	57.92	1.82	114.71	117.00	1.02

A few patterns are worth mentioning. First, variation in the ratio of bivalve to gastropod shell cannot be explained by spatial segregation (i.e., horizontal patches) alone because some samples share the same provenience (cf. paired samples from TU15 vs. TU17). Lenses of aquatic gastropods were observed throughout the excavation of shell midden, but these were generally small and encased within matrices of bivalve shell. Second, two samples from the basal portion of the shell midden (TU15III and 17III) have the lowest ratio of bivalve to aquatic gastropod shell. Whether this is an outcome of taphonomic process or a trend over time for increased collection of clams over aquatic snails is unknown. Third, the lowest ratios of aquatic to terrestrial snail shell (TU15B and TU18II) are due to abundant terrestrial snail shells, not a lack of aquatic snail shells. Given that most, if not all, of the terrestrial snails entered the midden as foragers, their relatively higher frequency signals stable surfaces on which to feed. And finally, although the ratio of bivalve shell to shells of either *Campeloma* or *Elimia* varies wildly across samples, the shell-weight ratio of these two aquatic gastropods varies little.

CONCLUSION

Plant and animal remains from Victor Mills support the inference that the site was used primarily in the fall season, but also during other seasons of the year in limited fashion. If stored at the site, hickory nuts could have been pulverized and processed for oil at any time of the year. But they had to be harvested, dried, and then stored in the fall, when nuts ripen and drop to the ground. These activities presumably account the most prolonged use of the site, coinciding with the rutting season of deer and an effort to take advantage of prime conditions for hunting. The abundance of deer bone revealed in coarsely screened samples of the shell midden attests to successful efforts.

Visiting parties of fall nut harvesters and deer hunters evidently provisioned themselves with shellfish and small fish, as well as venison. The aquatic resources were readily available in the shoals of the Savannah River. October and November are historically some of the driest months in the area, precipitation wise. With lowered river levels in the fall, innumerable pools of shallow water offered access to clams and small fish, the latter perhaps taken with dip nets.

The strongest evidence for visits to Victor Mills during season other than fall are the bones of adult anadromous fish. These are scarce but definitive of late winter or early spring capture, as gravid females swam upriver to spawn. The bony remains of other large fish that occupy the river year round (e.g., catfish, sucker) provide no further insight on season of capture, but they do implicate capture methods other than dip netting.

CHAPTER 5
CONCLUSIONS

Victor Mills is one of many archaeological sites in the middle Savannah River Valley with components dating to the Late Archaic period. Unlike most such sites known to archaeologists, Victor Mills is a more-or-less single component site. A span of intermittent use over as many as three centuries (4350-4050 cal B.P.) resulted in the accumulation of artifacts and features indicative of specialized activities. Summarized in this closing chapter are the various lines of evidence in support of the inference that chief among the specialized activities were the storage and mass processing of hickory nuts. Beyond the remains of hickory nutshell itself—actually only modest in number—are the pits, anvils, hammerstones, pot sherds, soapstone cooking slabs, and fire-cracked rock needed to process hickory nuts in the manner described in ethnohistoric accounts, that is, by pulverizing nuts and extracting their oil in simmering water. Sites at which hickory was mass processed have been documented elsewhere in the Eastern Woodlands (e.g., Stafford 1991), but not with the use of pottery and not clearly associated with storage. Afforded by the clarity of single-componency, the artifact and feature assemblage of Victor Mills provides a rare opportunity to document the organization of hickory oil production. By necessity, hickory nuts were collected in the fall; by choice, they were cached for later retrieval and processing, presumably over the course of the winter and early spring. In its temporal attenuation of hickory use, storage implicates the greater regional landscape of seasonal mobility, a subject bearing relevance in this closing discussion.

Victor Mills also produced the residues of biface production and use apart from the processing and storage of mast. Quartz cobbles from the nearby Savannah River were transported to the site for bifacial reduction. Chief among the intended products of cobble reduction were tips for darts. In addition, some quartz and other raw materials were used to make hafted knife blades, but quartz cobbles in general were not conducive to the manufacture of broad, thin blades. An emphasis on projectile technology seen in the abundance of quartz debitage and production failures is matched by an abundance of white tailed deer remains throughout the shell midden. Fall deer hunting would have been compatible with hickory nut harvest; in fact, the two tasks may have been combined in forays launched from Victor Mills. At a minimum, spatial conformity between the residues of mast processing and biface reduction support the inference that these activities coincided over as much as three-centuries of intermittent use of the site.

The sections that follow address these and other inferences concerning the role of Victor Mills in Early Stallings practices of mast storage and deer hunting. Emphasis here is on the technology of these two pursuits. Put into the regional context of seasonal settlement mobility and intergroup relations, the physical residues of activities at Victor Mills go beyond storing nuts and hunting deer to provide insight on Early Stallings culture more generally.

TECHNOLOGY OF MAST STORAGE AND PROCESSING

Portable material culture conducive to mass processing of nuts abounds at Victor Mills, but we start here with the nonportable technology of storing and processing mast, namely the pits. Uncovered through excavation were 32 cultural features. All but one of these features was a pit; the exception is a Woodland-period hearth emplaced over an Early Stallings pit. Although they vary in size, pits fall into two major shape classes: cylindrical (n = 10) and hemispherical (n =10). Two bell-shaped pits, three shallow basins, and six unidentifiable pits round out the assemblage.

Patterning in the location, morphology, and fill of pits enables a variety of inferences about pit function, all in support of the grand inference that this assemblage resulted from the storage and processing of mast, particularly hickory nut. The cylindrical pits, arguably, were subterranean storage silos, the infrastructure of a mast-storage economy. The smaller, shallower pits were likely necessary to dry nuts for storage and/or process nuts for consumption, a process that implicates not only the anvils and hammers used to pulverize nuts, but also the pottery, soapstone, and fire-cracked rock involved in extracting oil with hot water. In the subsections that follow, reviews of the location, morphology, condition, and fill of pits lends credence to these inferences.

Pit Location

With the exception of the intrusive hearth, the feature assemblage of Victor Mills consists of a series of in-filled pits whose artifacts and radiometric assays are consistent with archaeological traces of the Early Stallings phase. Coded by type in Figure 5-1, pit features are concentrated in the upslope portion of the site investigated by trench and block excavation. Pit features were not found beneath the shell midden of the sideslope to the west, although infilled depressions within the midden attest to limited, shallow digging. Cylindrical pits, which are among the deepest of all features, are upslope from the midden at the highest elevation of our excavations. Hemispherical pits are more widely distributed than cylinders, while basins are restricted to the midslope portion of the main trench.

The respective locations of cylindrical pits and shell midden have practical explanations. All else being equal, upslope locations are better suited to well drained soils, enabling pits to be dug deeper without making them wider, the preference for subterranean storage (DeBoer 1988). Irrespective of drainage, the depth of bedrock and the saprolite of its decompositon sets a limit to digging. At Victor Mills, in the area of pits, the upper mantle of clayey soil and residual parent material was at least 120 cm thick. How this compares to soil depth elsewhere on this or any other nearby landform is unknown, but at this particular place, soil conditions were more than adequate for below-ground storage.

As for the shell midden, its downslope position puts it in a place that would be inconvenient for repeated, intensive activities involving portable equipment like anvils and pots, but convenient for removing the residues of such activities occurring elsewhere. It is worth repeating that the spatial relationship between the midden and the upslope pits is not likely coincidental. Certainly they are coeval in radiocarbon terms, and seemingly interrelated in a functional sense. They also both occupy a position of the northwest margin of a northeasterly oriented ridge nose overlooking the Savannah River floodplain. Neither midden nor pits were detected in reconnaissance survey of the opposite side of the ridge nose.

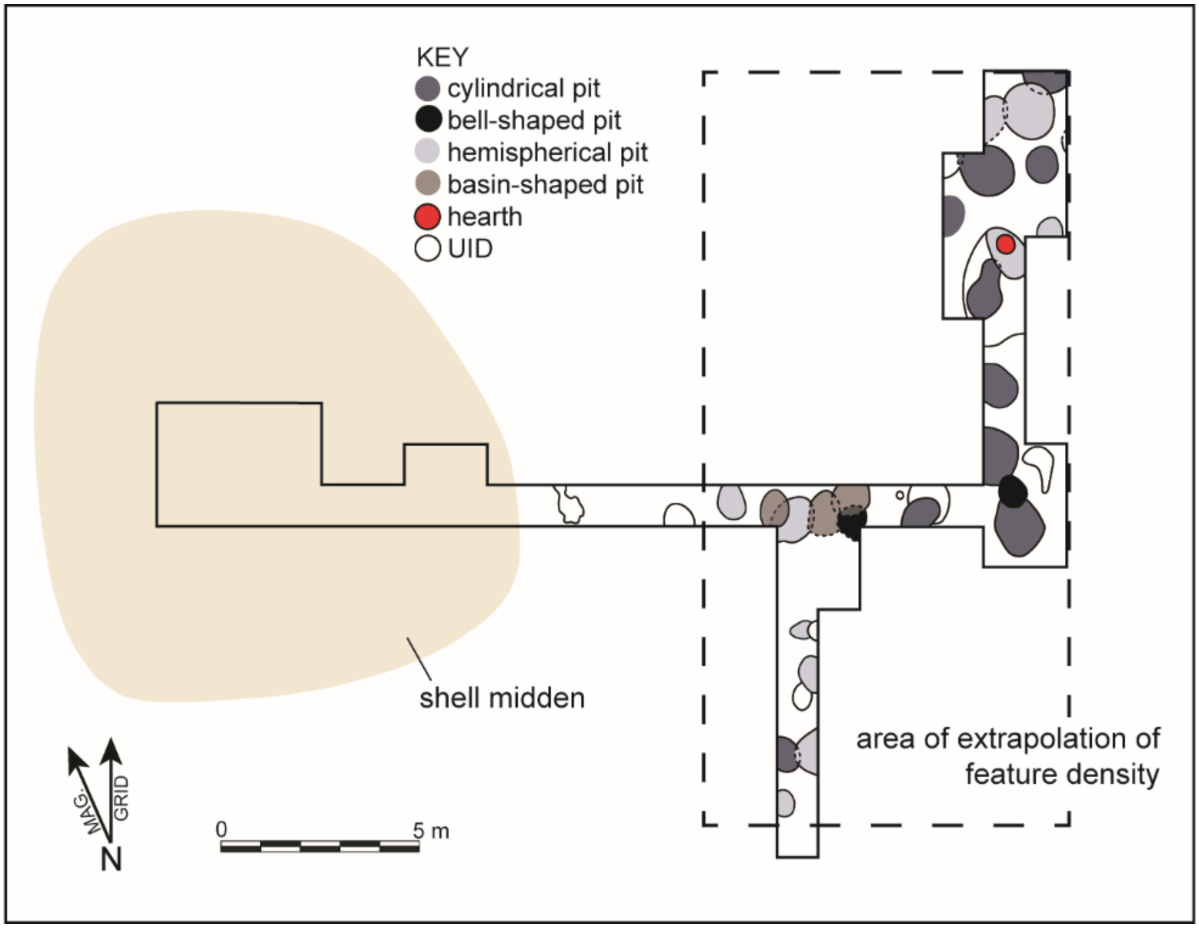

Figure 5-1. Planview of the features of Victor Mills (9CB138), coded by type, with outline of area used to calculate minimum number of features sitewide.

We will never know if the midden and pits came into existence at precisely the same time, but that would seem to be inconsequential to their spatial interdependence. Even if initial deposition of the midden and digging of the first pit were asynchronous in real human time, one appears to have become the spatial anchor for the other. Admittedly, the full extent of pits is unknown; what is known is that pits extend parallel to the slope not far beyond the length of the downslope midden. We also know that pits intercepted the fill of other pits at a rate of 77.4 percent. Pits were dug, used, and backfilled repeatedly in this particular location, as opposed to being sequenced farther along the slope. Occasional discontinuity in use over the years no doubt obscured memories of specific pit locations, but the shell midden would have grown increasingly conspicuous with time, perhaps acting as a mnemonic for pit locations.

While we may never know the full extent of pit features on this landform, we can extrapolate the frequency and density of pits across unexcavated area bounded in all four cardinal directions by known pits, an area 9 x 18 m in plan (Figure 5-1). This amounts to 162 m^2, four times the size of the excavation area yielding pits (~40 m^2). Given the density of 0.775 pits/m^2 (31 features/40 m^2) observed in excavation (minus the intrusive hearth), this extrapolated area is estimated to contain 125.6 in-filled pits (Table 5-1). The 40.5 cylindrical pits of this hypothetical assemblage could not have been in use all at once due to frequent overlap, but we have little basis for estimating how many were actively used at any one time. If, for instance, only four were active at once, the extrapolated assemblage of 40.5 would account for ten sets. Given the investment of time to dig large pits into clayey soil, as well as possibly hardening the lower walls with heat (see below), it stands to reason that pits were used repeatedly before being abandoned. If our hypothetical four cylindrical pits lasted as a set for 10 years, then the total span of using all extrapolated pits in sets of four would be a century. Without taking this further, we should add that the extrapolated number of pits is conservative considering that pits continued beyond the northern and eastern reaches of our excavation, if only by short distances.

Table 5-1. Extrapolation of the Number of Pit Features by Type in Area Bounded by the Extent of Excavation Revealing Pits.

	Cylinder	Bell-Shaped	Hemi-sphere	Basin	UID	Total
Excavated (40 m^2)	10	2	10	3	6	31
Extrapolated (162 m^2)	40.5	8.1	40.5	12.2	24.3	125.6
Percent	32.3	6.4	32.3	9.7	19.3	100.0

Before moving on to evidence for pit morphology, condition, and fill, it bears mentioning that the location of inferred mast storage pits in this particular place almost certainly depended on its proximity to harvestable trees, or at least one tree. Relative to its edible mass, unshelled hickory nuts are heavy. Transporting bushels of nuts from trees to places of processing and/or storage is thus labor intensive. Transportation costs can be reduced of course by locating such activities proximate to harvestable trees. However, apropos the discussion above regarding soil and drainage, not all locations of harvest are conducive to subterranean storage. The same applies to the technology of processing. Access to rock for pulverizing nuts is necessary, as is ample freshwater and fuel. The particular location of Victor Mills meets these criteria, but we are left to ponder the likelihood that nearby stood a productive hickory tree or two. Despite this unknown, the long life span of hickory trees must factor into the logic, as does the likelihood of husbanding by those who come to depend on them. It is certainly within the realm of possibility, if not proof, that Victor Mills and its infrastructure for storing and processing pits was within view of one or more reliable sources of hickory nuts for several generations of benefactors.

Pit Morphology

As summarized by Warren DeBoer (1988), subterranean storage in earth is most effective when the ratio of aperture to volume is minimized. In common terms, the opening to a below-ground vault ought not to be any bigger than is necessary to moves things in and out. A sphere with an opening at the surface fits the bill, but not practical or even possible to construct, or to keep from collapsing. The compromise is a bell-shaped pit, essentially a sphere with a neck that extends to the surface, minimizing the aperature:volume ratio without increasing vulnerability to collapse. No matter the morphology of the upper part of pits, depth in any pit with an aperture too small to allow the human torso to enter would be constrained by the length of the human arm, plus any hand tools (e.g., scoop) that extended one's reach. Open up the aperture to allow the entire human body to enter and deeper digging is possible, as any archaeologist knows.

Were the deep cylinders of Victor Mills bell-shaped pits whose upper margins collapsed over time? The depth of these pits (ca. 100 cm below surface) is consistent with the constraints of a narrow aperture. Recall from Chapter 2 that two other pits have bell-shaped profiles, although they were not as deep (70 cmbs) as those classified as cylinders. Affecting all pits—cylindrical, bell-shaped, or otherwise—is the truncation of profiles at about 20 cm below surface. It follows that any of the pits identified in planview at this depth could have been constricted at the opening. That two of these pits preserved bell-shaped morphology below the depth of truncation suggest but does not prove that the others were bell shaped. As DeBoer (1988) notes, in lieu of bell-shaped pits, deep cylinders serve well the needs of subterranean storage.

Hemispherical pits are another matter. As wide as they are deep, hemispheres are not conducive to subterranean storage, at least not as well as cylinders and bell-shaped pits. Again, the truncation of upper profiles obscures the actual form of hemispheres, but with arcuate walls and relatively shallow depth, these are not likely smaller storage vaults. Rather, it is worth considering the role that these shallower pits played in *preparing* hickory nuts for storage. Given that excess water must be driven from nuts before they are stored, some means of parching would have shortened a process that otherwise would takes days or even weeks, depending on weather. We can only speculate on how hemispherical pits could have served this purpose, but one option was to line them with rock and build a fire on top. Once the fire died out, nuts could have been parched quickly on the heated rocks. Over time the rocks would succumb to heat and break into the fragments that comprise the ubiquitous "fire-cracked rock" of Victor Mills.

Contradicting this supposition is the lack of thermal alteration to the clayey walls of hemispheres. With rock lining the base and sidewalls of pits, perhaps the thermal effects of direct heat were subdued. In contrast, as discussed in the subsection that follows, deep cylinders have clear evidence of thermal alteration.

Pit Condition

Not all of the cylindrical pits that were fully sectioned or augered have as convincing evidence for burning as Feature 3, but all except one (Feature 19) have at least a friable clay base that likely resulted from heat. Feature 3 clearly shows that a fire burned inside the meter-deep pit, leaving behind a hardened clay layer in the bottom half and a thin stratum of charcoal at the base (see Chapter 2). As recounted in Chapter 1, the senior author in 1994 took this condition as tacit evidence for use as an earth oven.

If used as an earth oven, Feature 3, as well as the other deep cylinders, would have accommodated about 840 liters of product on average. Food preparation at this scale would seem to contradict the inference that Victor Mills was a special-use site, not a locus of large-scale and prolonged settlement. Although not out of the question, it is hard to imagine that large quantities of earth-oven-baked food were transported great distances from places of preparation to places of consumption.

The more likely scenario is that fire was used to harden the base and lower sidewalls of cylinders to improve their use as storage containers. Harden clay would presumably be less vulnerable to infiltration of water and pests from without. Such efforts would be an investment in long-term storage, not a matter of convenience. It is hardly inconsequential that the persons who sought to harden clay pit walls with fire were themselves potters. The process and result of applying heat to clay would have been familiar to them.

Pit Fill

Pit features at Victor Mills at not pits at all but rather in-filled pits. Although pit fill may have little to do with the intended use of pits, several attributes of the pit fill of Victor Mills features point to activities involved in the processing of hickory nuts. First, all pits, no matter size and shape, were filled with organically enriched clayey soil. The source of organic matter includes wood charcoal and charred hickory nutshell, but it does not include the shells of mollusks. Given the on-site presence of a shell midden, the lack of shell in pit features is curious. At Stallings sites elsewhere in the region, pits typically contain shellfish shell, often in high density (Sassaman et al. 2016). Mollusks shells of course provide better preservation of other organic matter, such as bone. Thus, the lack of shell in Victor Mills pits may explain the lack of bone in these same contexts. Irrespective of the taphonomic consequences, the absence of shell in pits would suggest that empty pits were not used as receptacles for animal remains.

If large pits were used to store hickory nut, and hemispherical pits were used to process hickory nuts, then the absence of animal refuse, notably shellfish shell, would suggest that such pits were backfilled soon after they were used. In the case of storage pits, backfilling would include both the filling of pits with nuts (which were later retrieved), as well as the filling of empty pits with earth. If backfilling a particular pit with earth coincided with the excavation of a new pit (i.e., the earth removed from a new pit was tossed into an open pit), we may never have seen the outlines of pits in plan for the fill would have been indistinguishable from the surrounding matrix. Arguably, the sequence and spatial relationships among pits was far more complicated because of the high rate of intersecting pits and the likelihood that storage pits went through repeated cycles of filling, emptying, and refilling. No matter the actual circumstances, it is safe to conclude that pits were not left open to become the recipient of the same refuse that accumulated in the shell midden. These two contexts share many of the same constituents, but mollusk shell and animal bone are not among them.

Wood charcoal and charred hickory nutshell were observed in the fill of most pits, as well as the shell midden. As discussed in Chapter 4, the ration of charcoal to nutshell (by weight) is five to seven times greater in midden than in pit fill, reinforcing the spatial segregation of certain activities, in this case processing nuts. We hasten to add that the total volume of nutshell and charcoal from all contexts at Victor Mills is modest compared to sites of intensive nut processing (e.g., Stafford 1991), or even a single stratum of pit fill from Feature 17 at Stallings Island (Sassaman 2006:161). Granted, these variations may say more about the use of hickory nutshell as fuel than it does the role of hickory nuts in Early Stallings diet. More revealing in the fill of Victor Mills pits are the material by-products of nut processing: fire-cracked rock, anvils, hammers, sherds of fiber-tempered basins, and fragments of soapstone cooking stones. These are precisely the sorts of remains we would expect from a process of extracting oil from hickory nuts as described by Bartram (1973:38) in his travels west of Augusta, Georgia. Feature 19 contained an especially evocative assemblage: a 22.1 kg anvil overlaying a large portion of a flat-bottomed basin in fill containing fire-cracked rock, fragments of soapstone cooking stones, and charred nutshell.

But all this goes to the *processing* of nuts for consumption, not *storage*. As DeBoer (1988:4) notes, archaeologists are not likely to find pits filled with stored products, for that would be a "monument to failed intentions." The intent presumably was to remove stores as needed, which evidently was the case at Victor Mills. Nonetheless, as "empty" pits, these features still have good analytical potential: they tell us something about the technology of storage, as discussed above, as well as the capacity for storage, which we can model.

Table 5-2 lists the dimensions of six cylindrical pits for which we have reasonably good plans and profiles (Features 2, 3, 19), or at least good plans with depths estimated by augering (Features 20C, 23, 25). With these figures we can estimate pit volume, shown in Table 5-2 as cubic meters, U.S. bushels, and liters. These pits, on average, could have held nearly 24 bushels or 862 liters of nuts each. Translating volume into counts and weights of nuts requires data on particular species. Those shown in Table 5-2 are not necessarily among the species harvested by Early Stallings people, but "shell bark hickory" is mentioned by Bartram (1973:38) as the preferred species by Creek Indians west of Augusta. Modern analysts consider Bartram's *Carya exaltata* to be a synonym for the more common and widespread shagbark hickory (*C. ovata*), which extends down from the Midcontinent to the Fall Zone of the south Atlantic slope, but not far into the Coastal Plain. Other species of hickory—notably mockernut (*C. tomentosa*) and pignut (*C. glabra*)—are more widespread and extend down into the Coastal Plain and the Atlantic coast. Few data are available to know what species were harvested in the vicinity of Victor Mills over 4,000 years ago. For the purpose of estimating storage capacity, data on shellbark and shagbark suffice.

Dried and unshelled shellbark and shagbark nuts obtained by the second author (Emily Bartz) were counted and weighed for a standard volume of one liter. Shellbark nuts are larger and heavier than shagbark nuts but weight per unit volume is similar, between 700 and 716 g/liter (Table 5-2). With an average pit volume 862.45 liters, pits could have held on average nearly 52,000 shellbark nuts or over 81,000 shagbark nuts, amounting to ~618 and ~604 kg per pit, respectively. Although each pit clearly could hold abundant nuts, it would take four pits filled to capacity to match the 100 bushels stored by each Creek household, according to Bartram (1973:38). Notably, only about 35 percent of raw, unshelled nuts are edible, and that fraction goes way down if only nut oil is extracted. This disparity between stored mass and edible product goes to the issue of transportation costs noted earlier: nearly

Table 5-2. Volume Estimates of Select Cylindrical Pits for Projecting the Volume of Storage for Two Species of Hickory.

	Len.	Wid.	Depth	--------Volume--------			---Shellbark---		---Shagbark---	
Feat.	(m)	(m)	(m)	m^3	Bushel	Liter	ct	wt (kg)	ct	wt (kg)
2	1.00	1.00	1.09	0.86	24.29	855.98	51,358.80	613.31	80,462.12	599.36
3	1.40	1.20	1.05	1.39	39.56	1,394.09	83,645.40	998.87	131,044.46	976.14
19	1.00	0.84	1.10	0.73	20.74	730.88	43,852.80	523.68	68,702.72	511.76
20C	1.30	1.26	0.80	1.03	29.20	1,029.01	61,740.60	737.29	96,726.94	720.51
23	0.90	0.80	0.90	0.51	11.35	510.70	30,642.00	365.92	48,005.80	357.59
25	1.30	0.76	0.80	0.65	18.56	654.04	39,242.40	468.62	61,479.76	457.96
Total				5.17	143.70	5,174.70	310,482.00	3,707.67	486,421.80	3,623.32
Mean	1.15	0.98	0.96	0.86	23.95	862.45	51,747.00	617.95	81,070.30	603.89

shellbark: 60 nuts/liter, 716.5 g/liter
shagbark: 94 nuts/liter, 700.2 g/liter

400 kg of mass in a given storage pit was inedible. It stands to reason that raw nuts destined for storage would not be transported very far from sites of harvest. However, if embedded in other tasks—such as deer hunting (see below)—the costs of transporting nuts are diminished.

In sum, the deep cylinders at Victor Mills were conducive to storage of mast. The volume of storage at any point in time would depend on the number of pits in active use, which we will never know. Bartram provides a useful place to begin modeling storage, but frankly, his is only one brief mention and many centuries removed from the Early Stallings case. It is worth noting that Bartram imagined "shell bark hiccory" to be among the cultivars of a presumed orchard. We can be assured that Early Stallings people targeted favored trees in their range of foraging and perhaps tended to them to improve or sustain production (Abrams and Nowacki 2008), but we do not imagine they raised hickory trees in the fashion of orchards. Clearly hickory nut collecting and use was important, perhaps more important that the oft-used term "staple" would suggest. Too much emphasis has been given to the role of hickory and other mast resources in indigenous diet; we think it worthwhile to consider its role as a delicacy, a status that would help to explain why so much effort was put into collecting, storing, and processing a resource that arguably was unnecessary for sustaining human life in the region.

BIFACE PRODUCTION AND DEER HUNTING

Even if hickory nuts were a staple for Early Stallings people, they were an insufficient source of protein. A more complete and robust source of protein was the meat of white-tailed deer. Without a doubt, Early Stallings people hunted deer routinely, as did most people of the Archaic Period in the Southeast. The remains of vertebrate fauna at Victor Mills attest to this activity in conjunction with all those associated with pits, pots, anvils, hammers, fire-cracked rock, and soapstone. Also attesting to deer hunting, albeit indirectly, is the large assemblage of biface blanks, preforms, spent tools, and debitage. Not all of this assemblage of flaked stone traces to deer hunting weaponry, but much does.

As discussed fully in Chapter 3, the morphology and pattern of breakage of many of the stemmed hafted bifaces from Victor Mills point to primarily projectile functions. The same can be said for the plentiful quartz river cobbles that were reduced first into blanks, then preforms, and finally dart tips. The most isotropic among the quartz cobbles was amenable to thinning for purposes of making edges with acute angles, but in general, this source of toolstone was hard to thin. This limitation would be especially problematic with edge maintenance of knives, when edges grow less acute with each episode of retouch. This is not, however, a liability for dart points whose tip, not edge, is the critical point of contact. A thick, bullet-like cross section is both achievable with quartz cobbles but likely the desired outcome for weaponry that is propelled and expected to penetrate targets.

Exhausted bifacial tools made from Coastal Plain chert likewise include forms conductive to projectile uses and they point to the direction (i.e., downriver) from which persons visiting Victor Mills arrived. That these tool users would endeavor to produce so many bifaces from local toolstone implies that they intended to remain in the area long enough to use them before returning to the Coastal Plain and its more isotropic toolstone.

Deer hunting forays launched from Victor Mills would have been completely compatible with nut harvesting, at least schedule-wise. The rutting season for white-tailed deer in the study area begins as early as late September, coincident with early fall of hickory nuts. The rut can last well into Winter but usually peaks in early November, about the same time hickory nuts have released all of their seed.

Labor-wise, we can imagine the usual sexual division of labor in which men pursue deer and women collect nuts. However, it is worth considering that these two activities were complementary and integrated, not cleanly divided. Despite the argument that proximity to harvestable trees makes economic sense for storing mast, hunters encountering freshly fallen nuts at greater distance from Victor Mills may have opted to transport their find back, especially if they failed to take any deer on any given trip. A skin bag holding a bushel of hickory nuts would weigh about 23 kg (~50 lbs). Add a tumpline and a load of this size could be transported with only modest effort while freeing the hands for carrying weaponry or other items.

The critical assumption with this line of thinking is that the assemblage of mast-related technology and the assemblage of hunting-related technology formed through repeated visits to Victor Mills by parties pursuing both tasks simultaneously. The isomorphic spatial relationship of these two assemblages would seem to support this assumption, but an alternative explanation is that Victor Mills is a palimpsest of activities that took place at different times of the year.

INFERRING SEASONS

That Victor Mills was visited in the fall is certain. To the extent that hickory was stored in pits at the site, they must have been collected soon after they fell from trees. The single pawpaw seed recovered from the shell midden corroborates fall timing directly, while an abundance of deer bone indirectly implicates the fall rutting season.

Just as we are certain that Victor Mills was visited in the fall for tasks related to mast storage and deer hunting, we are certain it was visited at other times of the year to retrieve and process hickory nuts. Evidence in support of visits in the late winter or spring comes from a handful of shad and sturgeon bone in the midden. Both are anadromous fish that historically entered the Savannah River in the late winter or early spring, depending on temperature, and made their way up to the Fall Zone, where the shoals impeded further travel while making them vulnerable to capture. Both fishes continue to use the Savannah River for spawning, although since the late 1930s, their passage farther upriver has been impeded by the New Savannah Bluff Lock and Dam. An Army Corps of Engineers proposal is currently on the table to remove the lock and dam and replace it with a structure that will allow shortnose sturgeon to migrate to pre-1930s spawning grounds (https://www.sas.usace.army.mil/Missions/Civil-Works/Savannah-Harbor-Expansion/SHEP-Fish-Passage/).

The bony remains of suckers (*Moxostoma* sp.) bolster the evidence for spring visits to Victor Mills. Before modern alterations to the river, the shoals of the Middle Savannah were especially conducive to the spring spawning of suckers. Shallow gravel bars are preferred for egg laying, where fast-flowing water provides adequate oxygen for development (Rhode et al. 2009). These same conditions are conducive to spearfishing by humans. While some of the sucker remains from Victor Mills are from young-of-the year that were easy to net in the first fall of their life, others are from adults whose capture likely coincided with spawning season, in the spring.

The ratio of small to large members of any given taxon of fish has potential to refine our inferences about seasonality, but also provide perspective on capture technology relative to changing water conditions. Although the Augusta area today receives at least ~2.5 inches of precipitation per month, the driest months are May and November, the wettest June-August. Contributing to water levels in the rivers is runoff from snow-melt in the Appalachian Mountains headwaters and tributaries of the Upper Piedmont. With multiple modern dams and reservoirs in the Upper Piedmont, it is hard to judge the impact of snow-melt downriver, but it is reasonable to assume that meltwaters raised spring water levels in the vicinity of Victor Mills above those of the fall. We assume that small fish were easy to collect from shallow pools with dip nets when water levels were low. The abundance of bones from small fish attest to the use of some sort of netting technology. In contrast, the bones of larger fish (suckers, shad, sturgeon) attest to deeper water and technology other than dip nets. As noted earlier, spawning fish were likely speared. The hook-and-line technique common to Stallings fishing (Sassaman 2006:116-118) would not be the best approach to capturing fish that tend not to forage while spawning. Incidentally, the remains of largemouth bass (*Micropterus salmoides*) common to Stallings middens elsewhere are completely absent from the Victor Mills assemblage, as are large catfish, even as small catfish are abundant. Adult largemouth bass and catfish were readily taken with hook and line, evidence of which is absent from Victor Mills.

On balance, one could conclude that Victor Mills was occupied year round based on the accumulation of food-related remains from multiple seasons. However, the term "occupied" must be qualified to connote a level of impermanence that precluded the accumulation of midden as diverse as other, nearby sites: Stallings Island, Mims Point, or Ed

Marshall. Rather, as we have argued throughout, Victor Mills was a special-use site with visits in the fall to collect and store hickory nuts and hunt deer, and return trips over the ensuing months, possibly over the ensuing years, to retrieve and process the stores. It remains to be considered what these transient groups were doing when not at Victor Mills and for that we need to consider the broader regional context of Early Stallings mobility.

REGIONAL CONTEXT

In Chapter 1 of this report we posed the question: If Victor Mills was a place of only seasonal activity, what was its relationship to other places on the landscape in an annual round, and how did such relationships change over time? This is a question of spatial organization and movement, all dependent on chronology to establish sequence and contemporaneity.

Figure 5-2 shows the summed probability distributions of calibrated radiocarbon assays for Stallings-era sites in the greater Savannah River Valley region. Two such sites (Ed Marshall and Stallings Island) included preceramic components, and only one (Ed Marshall) has both Early and Classic Stallings components. Focusing on the six sites with Early Stallings components, the Victor Mills distribution falls squarely in a span of ca. 4400-4050 cal B.P. Assays for Early Stallings components at Ed Marshall, Cox/Fennel Hill, and, to a lesser extent, Bilbo, likewise fall within this interval. Assays from Rae's Creek and Rabbit Mount, however, include assays that extend beyond 5000 cal B.P. In the case of Rae's Creek, the greater age estimates suffer from especially large standard deviations (110 years). A similar problem bedevils the assays from Rabbit Mount, but in this case the sample of four includes two obtained recently from the fibers of Early Stallings pottery (see Gilmore 2015 for method) to supplement the two obtained in the 1960s from charcoal at the base of its Early Stallings shell midden (Stoltman 1966). The latter two (uncalibrated) assays of 4450 ± 135 B.P. and 4465 ± 90 B.P. have long-been regarded as the oldest age estimates for fiber-tempered pottery across the American Southeast. After recently receiving the later age estimates on Spanish moss taken directly from Early Stallings sherds (3940 ± 30 B.P. and 3410 ± 30 B.P.), the older assays became suspect. Review of the stratigraphy and artifact assemblage from Rabbit Mount raises the likelihood that charcoal from the base of the shell midden was produced during the prior preceramic phase, known now as the Allendale phase (Sassaman et al. 2002:17-19).

Projectile points of the Allendale phase are not uncommon in the submidden stratum of Rabbit Mount (Stoltman 1974:Plate 35). Trying to reconcile what he called the "submidden industry" with Late Archaic typology in the 1960s, Stoltman (1966:106-110) saw parallels with Stallings stemmed biface technology, but was struck by the narrowness of the submidden blades. Despite the lack of pottery, the submidden assemblage included fragments of soapstone cooking stones, bolstering evidence for Stallings ancestry. In effect, the possibility of Allendale being a direct preceramic ancestor to Early Stallings implies that neither phase is as old as once thought, and that the ancestral industry of relatively thick but narrow projectile points likely continued into the Early Stallings phase, as the biface assemblage from Victor Mills tends to suggest (see Chapter 3).

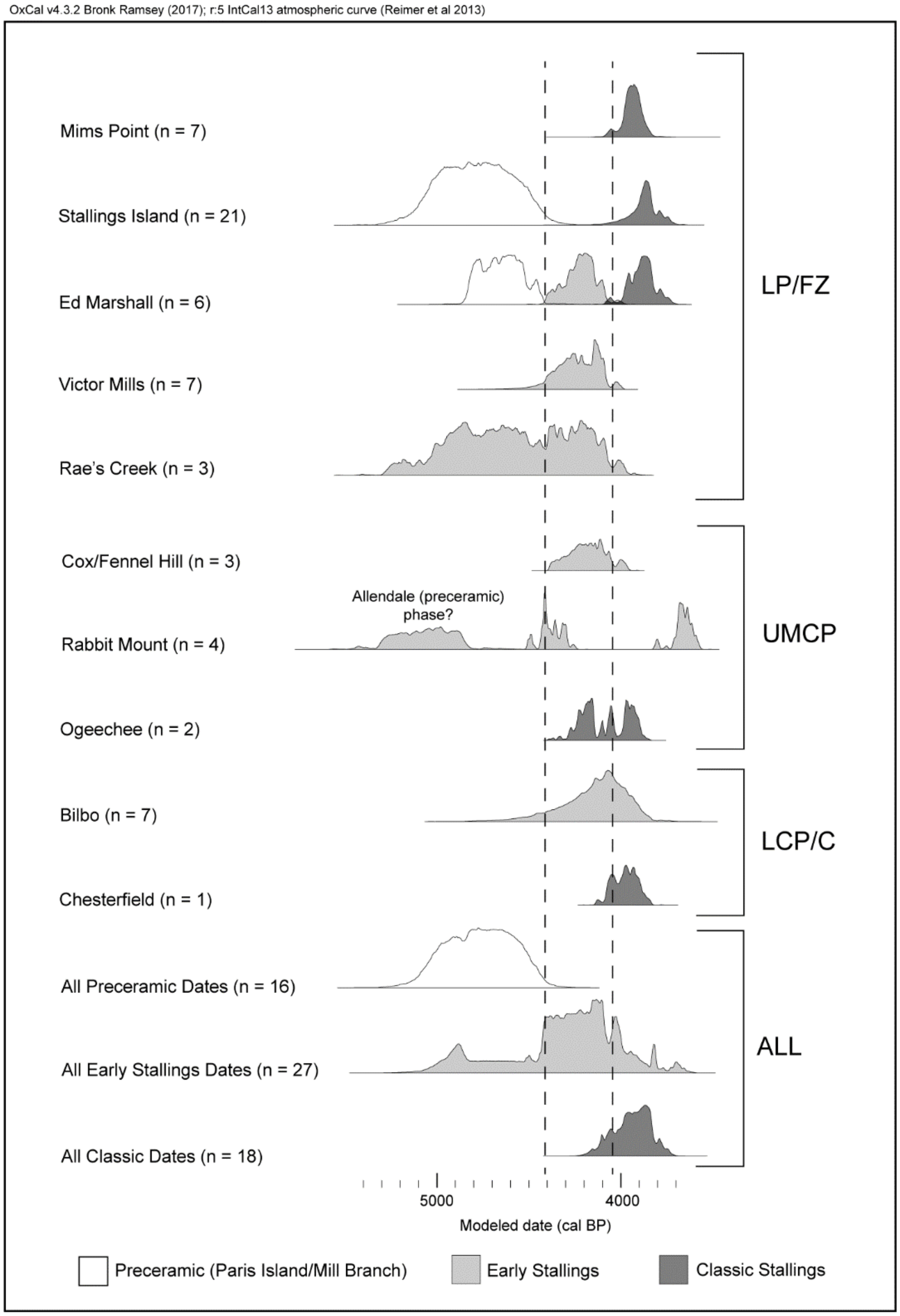

Figure 5-2. Summed probability distributions of calibrated radiocarbon assays from sites in the greater Savannah River Valley divided by physiographic province and coded for the three consecutive phases in question. The dashed vertical lines on this figure mark the beginning and end dates of the Early Stallings phase. Calibration and probability distributions calculated using OxCal v4.3.2 (Bronk Ramsey 2017) and the r.5 IntCal13 atmospheric curve (Reimer et al. 2013). For each site component the probability distributions were calculated as a single phase model using the "sum" function.

For the purpose of the ensuing discussion, the Early Stallings phase is defined as the 350-year period of 4400-4050 cal B.P. Use of Victor Mills spans most of this time, possibly elapsing over two periods of intensive actvity. The Early Stallings components at Ed Marshall and Cox/Fennell Hill closely match the span of Victor Mills, while all others in Figure 5-2 have at least one assay that also fits, but, as noted earlier, other assays with large standard deviations and/or ambiguous associations with Early Stallings pottery. Despite our reassessment of the 1960s assays from Rabbit Mount, the recently obtained fiber date of 3940 ± 30 B.P. (~4450-4300 cal B.P.) is among the oldest reliable age estimates for Early Stallings pottery in the region.

Considering first the 350-period of the Early Stallings phase, which sites listed in Figure 5-2, if any, are possible candidates for home bases from which forays to Victor Mills were launched? The most geographically proximate candidate is the Ed Marshall site, located a little more than one kilometer north of Victor Mills, across the river. Several kilometers downriver is Rae's Creek, followed in the Coastal Plain by Cox/Fennel Hill some 75 km distant and Rabbit Mount, another 20 km farther. At ~180 km from Victor Mills, the Bilbo site near the coast is the most distant.

Judging only from inventories of material culture, any of these five sites could be connected to Victor Mills. Each has plain fiber-tempered sherds from flat-bottomed basins, perforated soapstone cooking slabs, square-stemmed bifaces and other flaked-stone tools, and worked bone and antler. It is certainly reasonable to expect that sites close to one another are more likely to have direct affinity than sites farther apart. It follows that Ed Marshall and Rae's Creek are the most likely candidates for home bases. However, the presence of soapstone at Coastal Plain and coastal sites farther away from Piedmont sources hints at possible long-distant forays to Victor Mills. It bears repeating that worn and discarded hafted bifaces at Victor Mills include several made from Coastal Plain chert.

An additional line of evidence for intersite connections lies in the granular data of ceramic petrography (Sassaman and Gilmore 2021). What these data show is that the pottery from Victor Mills has greater affinity to pottery from Cox/Fennell Hill and Rabbit Mount than it does to either of the more proximate sites. Neutron activation analysis enables us to infer that a few vessels at each site were made on nonlocal clays (Gilmore et al. 2018), suggesting that groups moving along the river traveled at least occasionally with some vessels. A more precise determination of nonlocal clay provenance is not possible, but enough variation exists to suggest that pots were moving in both directions, upriver and downriver.

If indeed groups who spent most of their time in the Coastal Plain at sites like Cox/Fennell Hill and Rabbit Mount were traveling routinely to places like Victor Mills to store and process nuts, ecological limits of mast production in their "homeland" provide one possible reason for traveling. Whereas oak, hickory and other hardwoods occur with appreciable frequency in the Coastal Plain, the quality and density of mast-producing trees is far greater in the Fall Zone and Piedmont. Presumably, this difference carried over to species up the food chain, such as white-tailed deer. The Fall Zone therefore offered opportunities for better returns on subsistence efforts, despite the distance from "home."

Traveling into the Fall Zone and Piedmont to harvest hickory and hunt deer, groups from the Coastal Plain likely had ties to resident populations who spent all or most of their time at sites upriver. These would likely include persons of Mill Branch cultural identity, whose Notched Southern Ovate bannerstones turn up occasionally in Early Stallings assemblages, including Victor Mills. Mill Branch residents of the Piedmont had direct access to soapstone, and have long been considered the suppliers of this material for their Coastal Plain counterparts (Sassaman 1993). With the existence of a Fall Zone site like Ed Marshall, an alternative for supplying soapstone may have been Early Stallings persons apart from those who visited Victor Mills.

With multiple possible communities on the landscape, subterranean storage of hard mast at Victor Mills would seem to comport with the argument of DeBoer (1988), namely, that storage was concealment. His argument is served by a critical evaluation of the connection between storage and sedentism that sees the former as either a consequence or enabler of the latter. DeBoer dismantles this connection by showing that the greatest investments in subterranean storage are found amongst people who leave stores behind at places of impermanent settlement. It follows that subterranean storage conceals stores from anyone who might happen across abandoned sites, or, in some cases, target them for raiding.

Large cylindrical pits have not been documented at Early Stallings sites besides Victor Mils, but they do show up at sites of the ensuing Classic Stallings phase (ca. 4050-3800 cal B.P.). Stallings Island and Mims Point, for instance, each have several large cylinders distributed across spaces that would suggest they were associated with particular households, not an entire community and certainly not a transient community. This change possibly signals a shift from public to private storage, although apropos DeBoer's argument, this change coincides with increased settlement permanence, so perhaps something other than storage is implicated. Indeed, large cylinders at Stallings Island and Mims Point are not only positioned at the presumed front of houses facing a common center (i.e., plaza), they are filled with diverse assemblages of artifacts, shell, vertebrate fauna, and plant remains, what most archaeologist would call "refuse." Whereas this may simply reflect the pragmatics of long-term living, some pits at Stallings Island used for burials and/or structured deposition lend credence to the hypothesis that pit digging and filling was ritualized (Blessing 2015).

In the greater regional context of fiber-tempered pottery in Georgia and South Carolina, only one other site besides Victor Mills has been interpreted as a locus of mast storage. Large pits were documented in the central areas of two shell rings on St. Catherines Island on the Georgia coast (Sanger 2017). Although these pits have many similarities to those at Victor Mills or other sites in the middle Savannah region, the broader context and lack of independent data for mass processing of mast weakens the hypothesis for storage. Notably, the St. Catherines rings lack the lithic tools needed to pulverize hickory nuts. Perhaps wooden tools were used for such purposes, but initial cracking of hickory is challenging without tools harder than wood. Also, the St. Catherines pits were dug into sand, not clay, and thus would not be amenable to repeated use or easy to protect from water and insect infiltration. Above all else perhaps is the difference in settlement permanance: Sanger (2017) views the shell-ring sites as places of year-round settlement; indeed, he views storage as an enabling factor of sedentism. This runs counter to DeBoer's hypothesis, leaving Sanger (2017:68) to offer the possibility that "competition among groups living within the same community" explains subterranean storage.

Assemblages of large pits at shell rings on St. Catherines Island may well be the residues of a mast-based economy, but other uses are possible. Certainly these sites, like Late Archaic across the Southeast, contain traces of hickory and acorn. However, the evidence for storage of mast is limited to the pits themselves. An alternative explanation for the large pits at St. Catherines Island is that they were used to process the abundant oyster and other shellfish whose inedible by-products (shells) comprise the shell rings. In other words, they were earth ovens or steaming pits, not storage pits. As such, they would have been dug, used, and back-filled with each cooking episode, resulting in amalgams of intersecting pits. This is the explanation offered for assemblages of large cylinders at Silver Glen (Gilmore 2016) and Shell Mound in Florida (Sassaman et al. 2020). The scale of food processing at both of these sites is tied to large-sale gathering and feasting, activities commonly asserted to explain the large and formalized accumulations of shell at shell rings (Saunders 2017). Although feasting at shell rings has not been associated with mortuary ritual, a large conical pit in one of the St. Catherines shell rings (McQueen) contained the cremated remains of several humans, along with a copper band tracing to the Great Lakes (Sanger et al. 2018). This parallels the practice of interring persons in the center of a circular village of Classic Stallings age at Stallings Island (Sassaman et al. 2006), but it does not implicate mast storage or the surplus production and social complexity inferred by Sanger and colleagues.

CONCLUSION AND PROSPECT

Victor Mills provides a strong case for mast storage in the Late Archaic archaeological record of the American Southeast. Given the abundant lithic technology for pulverizing matter; the ensemble of pottery, soapstone, and fire-cracked rock for processing with heated water; and the ubiquitous, if not numerous incidence of charred nutshell, the resource most likely collected for storage was hickory nuts. The pits themselves were tools that involved not simply digging, filling, and backfilling, but also alteration with heat to enhance the impermeability of already dense, clayey soil.

As some people harvested hickory nuts and prepared them for storage, others engaged in deer hunting, preparation for which involved the production of projectiles made from quartz river cobbles. These different activities suggest a division of labor, although they were likely more complementary activities, rather than contradictory or separate. Aside from fall activities, retrieval of stored hickory nuts over ensuing months or even years entailed work parties whose primary task was to process hickory with water heated in pots. Provisioning such parties with resources from land and water resulted in the accumulation of a small midden with taxa indicative of seasons other than the fall. However, nothing in the archaeological record of Victor Mills reflects year-round habitation, or any sustained habitation at any time of the year. Rather, and consistent with DeBoer's (1988) argument for storage as concealment, Victor Mills was a place of only transient use.

Lacking more data on sites of Early Stallings age in the greater Savannah River region, we cannot be certain where visitors to Victor Mills resided, how often they moved, and if the

Fall Zone was visited annually or less frequently. We do know that bifaces of Coastal Plain chert were carried to Victor Mills and that soapstone from the Piedmont was delivered to sites in the Coastal Plain. Based on the results of NAA and petrography of Early Stallings pottery from sites across the region, the most likely “homebase” for visitors to Victor Mills was the Cox-Fennel site in the middle Coastal Plain, or perhaps Rabbit Mount farther down the river. The contemporaneous existence of persons of Mill Branch affiliation in the Lower Piedmont and other early Stallings groups in the Fall Zone may explain the need to conceal stores at Victor Mills. Although visitors to Victor Mills may have been on good terms with these resident groups, if they indeed hailed from the Coastal Plain and could not surveil their stores, concealment below ground would ensure that their efforts would not go unrewarded.

The effort to salvage information from Victor Mills before planned development proved worthwhile. The assemblage of artifacts, bones, and plant remains reported here is currently curated for future research at the Laboratory of Southeastern Archaeology, University of Florida, but eventually needs to be moved to a repository in Georgia. In the meantime, additional analyses are underway. At the time of this writing, the second author of this report, Emily Bartz, is exploring the potential for preserved lipids and other biomarkers in the fabric of Stallings pottery. Sherds from Victor Mills are among those in a pilot study that promises to provide direct evidence for the uses to which pots were put. If preserved biomarkers are detected but none consist of plant lipids, we will need to rethink the hypothesized connection between pottery and mast processing. Given the multiple lines of evidence for mast storage and processing available thus far, we suspect that preserved biomarkers in pottery will strengthen the case for mast storage and processing.

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