EARLY GEORGIA

Volume 18, Numbers 1 and 2
1990

Published by
The Society for Georgia Archaeology

Officers of the Society for Georgia Archaeology

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Historic Patterns of Rock Piling and the Rock Pile Problem

Thomas H. Gresham
Southeastern Archeological Services, Inc.

Like spring flowers, the stone mound problem rises to haunt archaeologists working in the eastern United States, predictably after the new round of stone structures has been excavated, contributing data to a growing corpus and an increasingly uncertain final synthesis (Clay 1985:1).

INTRODUCTION

Rock piles, a term that can be broadly applied to a wide array of prehistoric and historic features, have long been of interest to the archeologist and the general public. Rock piles occur in many parts of the world and appear to have great time depth. Since rock piles are often one of the most conspicuous aspects of a past society (the great pyramids of Egypt being an ultimate example), they persistently provoke general curiosity and scientific interest. Although I have not attempted even a cursory cross-cultural review of rock piling or archaeological investigation of rock piles throughout the world, I believe it true to say that most rock piles that have provided evidence of function have been determined to be mortuary or funerary. This is true, for example of the pyramids of Egypt, rock piles in eastern Africa (Stiles and Munroe-Hay 1981) and European rock piles attributed to the Celts. By the late nineteenth century, rock piles were somewhat synonymous with burial cairns in the United States and were a chief focus, along with earthen mounds, of archaeological research (Kent 1884; Thomas 1894; Thruston 1890). Archeological interest in rock cairns continued, sporadically, through the twentieth century and has recently intensified, primarily as a result of federally-mandated cultural resource management practices and Native American concern about the potential desecration of Indian graves.

Many excavated rock piles, however, contained no skeletal

remains or other evidence of burials (Jefferies and Fish 1978:54). Some rock piles have been determined to be of historic origin, constructed by farmers clearing their fields (Webb 1984). Rock piles that are indeed Indian graves or ceremonial markers are important to archeologists mainly for scientific reasons and to Native Americans mainly for spiritual reasons. Since federal agencies are required by law to protect or salvage graves and important archeological sites under their jurisdiction and since rock piles are common and numerous in Piedmont Georgia, it has become increasingly important to determine if rock piles are in fact graves and/or important prehistoric ceremonial markers or simply mundane, historic period piles of discarded rock. Unfortunately, the vast majority of rock piles do not contain clearly associated artifacts or other empirical evidence of their origin. As a result, when rock piles are encountered deductive reasoning is employed to provide a best guess as to the origin of the piles in question. This deductive approach is hampered by a lack of empirical data on rock piles, especially historic period piles. In fact, archeological literature in Georgia dealing with rock piles is virtually devoid of citations to historic rock piling. The primary purpose of this paper is to redress this imbalance by presenting archival, ethnographic and archeological information on historic period rock piling.

The major contributions of this paper are:

1) formally defining categories of piled rock features,
2) discussing uncited or rarely cited studies of rock piles,
3) presenting unpublished archeological data on historic rock piles,
4) presenting documentary and ethnographic data on historic patterns of rock piling
5) introducing new ideas on the historic origin of rock piles, and
6) critiquing some prevalent assumptions on historic rock piling.

This paper will not provide a guide to distinguishing historic from prehistoric rock piles. In fact, if anything it will show that the historic versus prehistoric issue is even more complicated than previously believed.

THE PROBLEM

The "rock pile problem" is actually an evolving, multi-faceted set of issues that has been defined and addressed by several researchers in

the past three decades. In one of the most extensive reviews of stone mounds, Kellar (1960) references over 150 works in 23 Eastern states dealing with prehistoric and protohistoric stone constructions. His work provides more questions and problems than answers, questions such as: What kind of phenomenon is rock piling? Is it socio-religious? When does it first occur and when does it decline? Is it related to earth mound construction? In Georgia, these and other related and intriguing questions have recently been put aside until a much more fundamental problem is resolved, which is the simple question of whether a particular rock pile site is prehistoric or historic. Occasionally this dichotomy is compounded by the possibility of natural origin. In the realm of cultural resource management the prehistoric versus historic issue is often directly related to the fundamental task of assessing site significance. Usually it is either stated (Webb 1984) or implied (Garrow and Chase 1988) that prehistoric rock piles are generally considered significant and historic ones not. The cultural resource management issue of significance, of course, is evaluated in terms of research potential regarding current themes and issues. Historic period rock piles that result from field clearing are somewhat akin to agricultural terraces, fences, and farm roads and, according to most researchers, have little research potential. Prehistoric rock mounds are generally viewed as markers, burials, crematoria, or ceremonial centers that do have research potential. If many of the rock pile sites are prehistoric, then very exciting research avenues dealing with ceremonialism, settlement patterns, socio-political organization and inter-regional interaction are wide open for investigation. Currently, these potentially rich areas of research are limited because of our inability to distinguish prehistoric from historic rock piles.

The historic versus prehistoric problem seems to be confined largely to Georgia. At a symposium entitled " The Stone Mound Problem: Toward Definition and Resolution" held at the Southeastern Archaeological Conference in 1985, most papers focussed on the chronology, nature, and function of prehistoric mounds (cf. Clay 1985; Chase 1985; Niquette 1985; Holstein and Little 1985). From the papers presented and in discussions with the participants it became clear to the author that outside of Georgia, there was seldom ambiguity as to whether a rock mound site was prehistoric or historic. Indeed, this was not even conceived as a problem to some archeologists working in Missouri, Tennessee, and Kentucky (Clay 1985; Charles Niquette, personal communication, 1985). In South Carolina, piled rock features are almost always considered or proven to be historic. At least five rock pile sites have been tested and convincingly argued to be historic (Logan 1979; Drucker and Anthony 1984). I am aware of only one site (Keowee)

that has been tested and shown to be prehistoric (Jefferies and Fish 1978:10). U.S. Forest Service archeologist James Bates, who has surveyed in Piedmont South Carolina for four years, reports that most, if not all rock piles or mounds that he has encountered, are associated with terracing, are linearly arranged or possess other attributes that strongly suggest an historic origin (letter to the author, 1990). He notes that most of these rock piles occur in a certain area of the Piedmont, a factor perhaps related to the occurrence and abundance of rock in that area. Although my familiarity with rock pile research in Alabama is limited, it appears that virtually all reported rock piles and mounds are prehistoric. It is possible that in Alabama historic piles are readily distinguished from prehistoric ones and are not excavated and reported.

A long-recognized problem with understanding rock piles is that the term is used to include a diverse array of features that almost certainly differ in morphology, function, and cultural affiliation. Schnell (1984), for example, addressed this problem and proposed six function-based categories, piles, cairns, mounds, walls, enclosures, and effigies. Few researchers have attempted to formally categorize rock features, but most do recognize that there are many types that probably reflect differences in function and cultural affiliation. Since function must be inferred in many cases it seems best to first sort out rock features by morphology. Based on presentations by Schnell (1984), Garrow and Chase (1988), Webb (1984) and personal experience, I propose the following morphologically-based categories of piled rock features:

1) Rock Piles. These are the most common rock feature in Georgia and are encountered in most large-scale surveys in the Piedmont. They consist of a rounded or conical pile of fieldstone usually not more than 1 m high and 3 m in diameter. These usually occur in clusters (up to 173) and often are associated with other types of rock features, such as mounds or terraces.

2) Rock Mounds. These are large piles of rock, usually more than 2 m high and/or more than 5 m in diameter. They usually occur in small numbers, often on ridge tops, and are often associated with other types of rock features, such as rock piles (Jefferies and Fish 1978). They also can occur singly (Wynn 1980:7).

3) Stacked Piles. These are basically cylindrical stacks of dry-laid field stone that are about the same size as rock piles, although they can be slightly over 1 m high. This type has only recently been described in the literature (Garrow and Chase 1988). They are usually associated with rock piles.

4) Pitted Rock Piles. These vary in size, examples being comparable to rock piles and mounds. They are characterized by a depressed or pitted center. The pitting sometimes appears to be a result of looting, but in other cases they appear undisturbed. They are rare in the literature, but are familiar to most survey archeologists of Georgia. Wynn and Barrett (1981:10-11) do describe one large (ca. 8 m diameter) pitted pile in Jones County. Although only a small sample are known to the author, it seems that they occur singly more often than do rock piles.

5) Rock Terraces. These are low, linear features that usually embellish or supplement an earthen terrace, although examples solely of rock are known (Wood 1983). Terraces usually either follow the contour of the land or span a shallow cove. Some around houses create a terrace.

6) Rock Fences. This is a rare feature type in Georgia and consists of a low (0.2 to 1.0 m high), usually straight line of fieldstones. Ethnographic sources (Wigginton 1974:153) indicate that in the mountains these were located in bottoms along property lines. Rock fences are common in parts of Tennessee and New England. The distribution of rock fences in Georgia is not well known, but White (1972:296) noted that in the 1840s Gwinnett County had a "number of fences made of stone".

7) Rock Walls. These are large (.5 to 1.0 m high, hundreds of meters long), usually snaking or enclosing features that are usually found on mountains or prominent hills. Fort Mountain is the best known and most intact example in Georgia, but several others have been described (Smith 1962; White 1972:113). Some researchers (e.g., Schnell 1984) distinguish enclosing "forts" from non-enclosing walls.

8) Rock Effigies. These are very rare, with the only documented examples being two "rock eagles" in Putnam County (Kelly 1954).

9) Boulder Cache. This is a recently defined and described site type (Braley, *Ledbetter, and Williams* 1985; Ledbetter and Wynn 1988), although examples were investigated earlier (Wauchope 1966:377). It is actually not a totally piled feature, but rather a natural outcrop of boulders with slight cultural modification. Examples often contain burned human remains and late Mississippian artifacts.

Researchers familiar with piled rock features may quibble with these categories or suggest others. For instance, it is not clearly

demonstrable that there is a bimodal distinction in size between piles and mounds. Also, this list does not include unquestionably historic features such as rock chimney piles and foundation piers. Nonetheless, this list is adequate for labeling rock features commonly encountered during archeological survey in Georgia and will be used in this paper. The term "piled rock feature" will be used in this paper to refer to any of the above features.

One common aspect of sites with piled rock features is that they often contain two or more of the above listed types of features. While this adds to the complexity of the rock pile problem, it may also be a crucial aspect to the unraveling of the problem. Every recorded site with stacked piles also contains rock piles (Garrow and Chase 1988; Pharo 1990; Smith et al. 1988). Rock piles often occur with rock terraces (Webb 1984). Rock mounds usually occur with rock piles (Jefferies and Fish 1978). Rock mounds, piles, and terraces can occur together (Wood 1983). Based on scanty literature, it appears that the rock effigies and rock walls do not (or did not) have other, adjacent rock features. It should be noted that rock piles are often associated with earthen terraces.

It is clear to all researchers of piled rock features that the variety of features encountered reflects differing aspects of function and cultural affiliation. No one questions that some are prehistoric and some are historic, or that some are mortuary and others are simple discard piles. The problem is sorting out the types and combinations of types on the basis of cultural origin and function. It is my contention that research in Georgia historically and recently has been biased toward a prehistoric origin for rock features. I believe this is a result of three principal forces, 1) late nineteenth century emphasis on burials and mounds (including rock mounds) coupled with a understandable lack of interest in contemporary or recent historic rock piling, 2) the well documented, influential, twentieth century study of mortuary rock mounds of Woodland and Hopewellian affiliation (such as the Lewis Mound [Kellar 1960], mounds in northwest Alabama [Oakley 1976] and, especially the Tunacunhee mounds [Jefferies 1976] and the Plant Scherer Mounds [Jefferies and Fish 1978]), and 3) the lack of research into and documentation of historic rock piling. I believe the lack of documentation on historic rock piling has lowered archeologists' awareness of historic rock piles and forced most to make unfounded and sometimes incorrect assumptions on patterns of historic rock piling. Even works that have concentrated on historic aspects of rock piling have failed to provide a single citation for historic piling (cf. Drucker and Anthony 1984). This lack of data and awareness has led to incorrect conclusions on the origin of some rock piles and has misguided research

efforts (compare Cridlebaugh 1983 with Gresham 1985a). I believe that one fundamental misleading assumption made about historic rock piles is that they are chiefly a result of farmers clearing their fields of unwanted stones. I believe that ethnographic and documentary sources will show that historic period accumulation or stockpiling of rock as either flagstone or building material could account for many of the rock piles and stacked piles that exist in the Piedmont and Mountains of Georgia.

REVIEW OF RESEARCH ON PILED ROCK FEATURES

This review will be brief as the subject has been covered in several recent works (Jefferies and Fish 1978; Garrow and Chase 1988; Morgan 1989). It will emphasize pertinent works that have not been included in these previous reviews. Thus, this review will gloss familiar works on prehistoric rock features and deal in greater depth with more obscure works. Recent work at historic period rock pile sites in Georgia will be presented in greater detail in a subsequent section. Also, the focus in this review will be on sites and research in Georgia and the Georgia-South Carolina border. The literature reviewed here can be grouped into three categories, 1) eighteenth century ethnography by naturalists and explorers, 2) nineteenth century archaeology, and 3) twentieth century archaeology.

The journals and observations of eighteenth century explorers and naturalists provide clear evidence that clusters of rock piles existed before Euro-American settlement. Interestingly, most of these reports suggest a late prehistoric or protohistoric origin of the rock piles. Most also suggest a commemorative function and construction by slow accretion (one stone at a time by passing Indians). John Lawson (1966) in 1709 noted seven heaps of stone in the Carolinas that, to his understanding, were monuments to slain Indians. His Indian guide added a stone to each pile. James Adair in 1775 noted that often he would see "innumerable" heaps of small stones that, according to tradition, were places where Indians were killed or buried (Williams 1930:193). Again, Adair reports that Indians travelling by would add one stone to the piles. Adair specifically notes that "the Cherokee [sic] continue to raise and multiply heaps of stones, as monuments for their dead ..." (Williams 1930:194). Starr, a Cherokee historian, says that these Cherokee burial customs were abandoned by 1800 (Williams 1930:193). William Bartram (1973:346) in the late 1770s also noted many vast heaps of stone on each side of the road that he assumed were Indian graves. Similar examples are noted by Kellar (1960) for other areas of eastern North America. These eighteenth century observations can be summed as follows:

1) the encountered clusters of rock piles were constructed by Indians;
2) the practice was active, i.e., protohistoric;
3) the number of piles ranged from a few (seven) to innumerable;
4) the rocks were heaped or piled, not stacked; and
5) according to contemporary Indians the function was to commemorate a slain Indian.

Antiquarians and archaeologists of the nineteenth century provide little additional information on these rock pile clusters, but rather seemed to have focussed on larger stone mounds, although their contributions in this area are generally limited to observations. Cyrus Thomas (1894) only mentions several stone mounds in Georgia in his report on mound exploration in the eastern United States. Charles C. Jones (1873:202), who recorded and described various mounds throughout the southern states, observed that rock piles occur in various parts of middle and Cherokee Georgia and attain a height of from three to twelve feet. In a more informative and rarely cited article, Benjamin Kent (1884) describes stone "tumuli" from Putnam County. He alludes to the Eagle Mounds, then briefly describes the contents of several stone mounds in the county. From one set of mounds east of Eatonton human bone and an eagle effigy pipe were reported. From another single mound came a soapstone "finger-ring" and pottery that was not remarkable (Kent 1884:770). He draws attention to the "fact of the existence of human remains under every conical-shaped stone tumulus so far as examined" (Kent 1884:770). He also notes that "all the stone tumuli are on high hills, usually on the highest portion; all the earth tumuli are in the bottom lands" (Kent 1884:1770). Finally Kent (1884:771) mentions several other unexplored tumuli in the county, two of which are single stone mounds and two of which are groups of several stone tumuli. These scanty nineteenth century investigations and observations can be summed as follows:

1) although not explicit, it seems that most rock features described were large (i.e., mounds);
2) rock mounds often contained human skeletal remains and artifacts; and
3) the mounds occurred singly or in small numbers.

It is interesting that virtually all eighteenth century references to piled rock features attribute them to protohistoric practices of marking the location of a slain Indian, while the nineteenth century antiquarian

perspective saw them as burial mounds.

Twentieth century research of piled rock features was sparse in Georgia until Jefferies' (1976) work at the Tunacunhee Site, in the extreme northwest corner of the state. Prior to this, the Rock Eagles in Putnam County were investigated, but not well described, by A.R. Kelly (1954). Smith (1962) produced an extensive comparative review of stone structures in the southern Piedmont, focussing on walls and enclosures (i.e., "stone forts"). He notes that most lack associated artifacts and cannot be reliably dated. Also, it is likely that various piled stone features were discovered and minimally reported (on site forms) during this time. Margaret Russell (1972) excavated three rock piles in Dawson County and conducted limited soil chemistry analysis to determine the presence of human skeletal remains. Her results were inconclusive and essentially uninterpretable, due mainly to a lack of a theoretical base. A relatively great amount of work on rock features was conducted during the early to mid-twentieth century in Tennessee and the Midwest. This work, reviewed by Kellar (1960), emphasized excavation of stone (usually slab) mounds and showed that many (if not most) were Woodland mortuary structures, containing Adena and Hopewellian material with human bone. Many were actually rock-capped earthen mounds.

Jefferies' (1976) excavation of several Hopewellian rock and earth mounds at the Tunacunhee Site and his excavation of several Woodland period rock mounds and piles in Monroe County (Jefferies and Fish 1978) are the first detailed and documented investigations of piled rock features in Georgia. As such they are widely cited, well known and influential in rock pile research. Tunacunhee consisted of four historic period rock piles, three rock-capped earth mounds and one rock mound. Approximately 30 burials, 13 with Hopewellian grave goods, were recovered from the four prehistoric mounds. These rock-capped Hopewellian mounds are virtually unique in Georgia, the Shaw Mound near Cartersville (and also near a rock wall at Ladds Mountain) being the most similar. The Shaw Mound was destroyed in 1940 but according to Waring (1945) contained a burial and grave goods (Jefferies and Fish 1978:8). Similar rock and rock capped earth mounds are known in northern Alabama (Oakley 1976; DeJarnette , Kurjack, and Keel 1973:145), Tennessee (Webb 1938:133-140) and the Ohio Valley (Shetrone 1924).The Monroe County mounds, also known as the Plant Scherer mounds or 9Mo152 and 9Mo153, are much more similar to rock pile sites common to the Piedmont of Georgia. 9Mo152 consisted of three rock mounds (one of which was actually a pitted mound) on a hill top, with at least 52 rock piles on the adjoining, north-facing hill slope. Animal bone (principally deer and turtle) was encountered near the base of the three mounds, but no human remains or artifacts were discovered.

Four of the surrounding rock piles were excavated and found to be devoid of bone, features or artifacts. 9Mo153 consisted of one large rock mound on a quartz outcrop at the crest of a hill and at least 91 rock piles on a southwest-facing hill slope. Five of the rock piles were excavated and none contained any features, bone or artifacts. The large mound contained bone (much of it burned and some of it identified as human), charcoal, and artifacts at the interface of the outcrop and the rock mantle. Artifacts included Savannah River points, a bannerstone, Early to Middle Woodland period ceramics and a ceramic platform pipe. The large mound at 9Mo153 appears to be a Woodland period crematorium, but the function and cultural affiliation of the other mounds and piles is unclear. Jefferies and Fish (1978:54) assume that, because of their proximity to the large mounds, the smaller rock piles date to the same Woodland period.

Most other research on piled rock features has occurred in the past ten years, is not published and is not widely known. This work includes investigations at three rock pile sites in the near vicinity of Clarks Hill Lake (now J. Strom Thurmond Lake). These are the test excavation and soil analysis of five of at least 70 rock piles by Logan (1979), the partial excavation and limited chemical testing of two rock pile sites (one with six piles and one with three) by Cridlebaugh (1983), the partial excavation of at least two rock piles at each of four rock pile sites by Drucker and Anthony (1984), and the complete excavation and extensive chemical testing of seven rock piles at one of the sites tested by Cridlebaugh (Gresham 1985a). Logan (1979) found no artifacts in any of the rock piles and she interpreted the soil chemistry results (no elevated levels of calcium or phosphate) as indicative of a lack of human or animal remains. She cites soil scientist W. H. McKie's letter to her saying "that if human or animal remains (bones) were present in the rock piles, values for calcium and phosphorous many times higher [than were obtained] would be expected" (Logan 1979). Later work (Gresham 1985a) casts doubt on whether elevated levels of calcium or phosphorous in rock piles can be expected to be indicative of skeletal remains. Logan (1979) concludes that the piles represent either farmers land clearing or prehistoric monuments. At one of the rock pile sites tested by Cridlebaugh (1983), she encountered Late Archaic artifacts under one rock pile, quartz debris, and artifacts under several and a fencing nail in another. She concluded that one pile was probably Late Archaic and the others probably Woodland. Her soil testing was inconclusive, but seemed to show elevated levels of calcium at the rock pile/ground surface interface. Drucker and Anthony (1984) found virtually no artifacts within the rock piles they tested, although prehistoric material was rarely encountered underneath, as part of a general lithic scatter. Based on the

distribution of the piles and their familiarity with other rock pile sites (but no cited, empirical evidence), Drucker and Anthony (1984:7-5) suggest that the rock piles are historic and result from one or more of the following:

1) agricultural field clearing,
2) gathering of source material for slope terracing,
3) marking of property boundaries,
4) clearing for timber harvesting, or
5) access road clearing.

Other recent investigations of rock pile and stacked pile sites in Georgia, including Garrow and Chase (1988), Wood (1983), Smith et al. (1988), Garrow (1984), and Webb (1984), are discussed in greater detail in the following section. Garrow (personal communication, 1990) has very recently examined two other stacked rock pile sites, but the reports on these are not yet available.

ETHNOGRAPHIC AND DOCUMENTARY EVIDENCE OF HISTORIC ROCK PILING

This section describes and assesses the effectiveness of three methods of gathering descriptive information on historic rock piling, documentary research, ethnographic analogy, and informant interview. The research was conducted by the author in 1984 and focused on rock piling associated with farmers clearing fields of rock. The results were presented in two papers (Gresham 1984 and 1985b). Each of the three methods has a particular set of advantages and disadvantages, and as a result, their effectiveness is greatest when the results of the three are combined. The principal disadvantages are, for the documentary research, a lack of material pertaining specifically to the southeast and a lack of nineteenth century material in general; for ethnographic analogy, a radical change in land clearing practices, e.g., the use of bulldozers, changes in farm labor economics, and the fact that no virgin land is being cleared; and for informant interviews, some unreliability of data and lack of recall to the nineteenth century.

Documentary research focused on U.S. Department of Agriculture publications and farm journals. Government documents studied include the indexed Experiment Station Record from 1889 to 1944 and the indexed Annual Report of the Commissioner of Agriculture from 1866 to 1928. The Experiment Station Record was especially helpful as it indexed and abstracted a wide variety of farm publications from both government agencies and private sector scientific and farm

journals. The two most in-depth histories of Georgia agriculture (Bonner 1964; Range 1954) were also examined but provided no specifics on land clearing and rock piling. The indexed volumes of the Progressive Farmer (1928 through 1931) were also checked, but no pertinent articles were found. The generally unindexed nature of most farm journals makes their use difficult and time consuming.

The documentary research provided several types of information on rock piling. One of the first results realized was that rock clearing and piling are poorly documented phenomena, which is probably the reason there are few references to historic rock piling in archeological reports. The poor documentation is probably the result of rock piling being a mundane, unscientific, and relatively unimportant task. This characterization is confirmed in the one extensive article on rock clearing in which the authors note that "...stone removal...has been considered a disagreeable job, perhaps unworthy of consideration, and one in which present practices could not be improved upon" (Thompson and Schwantes 1929:3). Many informants interviewed confirmed the unimportance of rock piling with either direct comments to that effect or by lack of recall on many specifics.

A second point of interest was that the four articles on rock clearing that were found all appeared at about the same time, from 1928 to 1930. Of the almost 40 articles on land clearing abstracted in the Experiment Station Record prior to 1928, none dealt with clearing of rocks, virtually all dealing with mechanical and explosive means of tree stump removal. This pattern suggested that rock removal might be a 1920s to 1930s phenomenon, perhaps associated with agricultural terracing, which was ardently practiced in the 1930s. Informant interviews flatly refuted this idea. Most informants stated, although somewhat vaguely, that people have been clearing rocks ever since the land was first broken. Two informants provided anecdotes about relatives clearing rocks in the late 1800s. Informants related that is was just as important to clear rocks when plowing with one mule, "in the old days," as it was when using modern tractors and plows.

Of the four rock clearing articles, two dealt primarily with very large rocks (Josephson 1928a; Blasingame, *Kessler, and Josephson* 1930), a third with mechanical aspects of plowing rocky land (Josephson 1928c), and the fourth dealt precisely and extensively with removing and piling rocks (Thompson and Schwantes 1929). The Josephson (1928a) article concerns farming rocky land in Pennsylvania and provides some interesting data. The cost of plowing under different conditions of rockiness is compared and shows an increase in the cost of plowing rocky land, from $2.33 per acre for clear land to $3.47 per acre for moderately stone fields. If the rate of increase were applied to the other crop

production operations such as cultivation, seedbed preparation, and planting (cf. Josephson 1928b), the total increase in cost of farming moderately stone fields would be $3.31 per acre. The same article provides the cost of clearing fields of rock as being between $35.00 and $53.00 per acre (Josephson 1928a). This requires a 10 1/2 to 16-year payback period, which would seemingly make rock clearing a marginally profitable exercise. The point of this article was not that fields should necessarily be cleared of rocks, but that an engineering solution to plowing rocky land should be sought.

The more extensive article, appearing in 1929, sought to describe and quantify methods of rock clearing, using data derived from experimental farms in Minnesota (Thompson and Schwantes 1929). The article first describes the four most common means of transporting rocks: 1) the specially built low wagon, 2) the dump wagon, 3) the standard farm wagon, and 4) the sled or stone boat. Informant interviews indicate that only the standard farm wagon and sled were common in Georgia. Table 1, a combination of two from the article, shows, in the left hand column, the capacities, in cubic feet, of each of these types of vehicles. The standard farm wagon holds nearly three times the volume of the sled. The two right hand columns compare the amount of stone that can be cleared from fields using the four types of vehicles. Although the dump wagon holds less than the farm wagon, the ease of unloading makes it the most efficient. Similarly, the ease of loading and unloading the low wagon makes it slightly more efficient than the standard wagon. The sled or stone boat is the least efficient, but does have the advantage of being easy to load. The table also shows that it is easier to clear land before it is broken. Other data show that the sled becomes increasingly less efficient as the hauling distance increases, a function of their much greater drag. Sleds would then be best suited for clearing small fields.

Table 1. Data on Hauling of Rock; Hauling Distance is 200 Feet. (from Thompson and Schwantes 1929).

		Cubic Feet of Stone Per Hour	
Vehicle	Capacity ($Ft.^3$)	On Sod Land	On Broken Land
Dump Wagon	20	115.2	83.5
Low Wagon	19	100.0	77.5
Farm Wagon	28	96.6	76.2
Stone Sled	10	68.8	53.3

Additional information is provided in a section on unloading rocks. The authors state that "as a rule it is difficult to build a pile very high because the natural tendency is to spread it over a large area" (Thompson and Schwantes 1929:28). They note that unloading is simplified if a ravine or gully is used. In regard to piling unwanted stones, they note that "the stone pile or several piles placed at random in a cultivated field are familiar scenes" (Thompson and Schwantes 1929:20). This placement of piles in a cultivated field contrasts strongly with the pattern described in informant interviews, where farmers stressed the importance of getting the rocks out of the way, beyond the field edges. It also contrasts strongly with assertions by most archeologists that farmers would not place rock piles in cultivated fields. The article also discussed the costs and benefits of burying unwanted rocks, a practice almost unheard of in the southeast.

The ethnographic analogy phase of my research revealed that farmers today do not make rock piles. If rocks are cleared from fields, they are dumped into gullies along or outside of field margins. Rocks were not systematically removed from three of five fields studied but instead a few rocks were picked up and tossed to the field edges. All three of these fields were small (less than 25 acres) and had few large (greater than one foot diameter) rocks. A fourth field, of unknown size, had rocks removed by hand using a 5 gallon plastic bucket to transport rocks to the edge of the field. The fifth field, about 60 acres in size, had rocks removed using two laborers and a small tractor with a flat bed wagon. This clearing took three or four days to complete and occurred several months after the area had been bulldozed clear. The rocks were off loaded by hand into a gully at one edge of the field. The rocks were all small, none being more than 50 cm in diameter. It is interesting to note that in today's mechanized farming world, rocks are still sometimes cleared by hand and wagon. Although I came across no instances of farmers making rock piles, I did encounter several suburbanites who had made piles, mainly to facilitate yard working.

The third phase of this research consisted of informant interviews with farmers who had cleared land or were familiar with rock piles. Four methods of informant interview were employed: 1) telephone interview, 2) person-to-person interview, 3) mailed questionnaires, and 4) personal interview via a third party using the questionnaire. Telephone interviews were not as productive as personal interviews, but were very time efficient. Telephoning to set up a personal interview was generally counterproductive because the farmer would insist that he was not knowledgeable enough to warrant an interview. Personal interviews, which required driving to farmers' houses unannounced, was very time consuming and often fruitless, although once

contact was made, in-depth results could usually be obtained. Nine fairly extensive questionnaires were mailed to farmers identified by county agents as being elderly and potentially knowledgeable. Only two responses, both rather sketchy, were received.

Because I've interviewed, directly or indirectly, only twelve farmers and because there was a great deal of variability in some of the answers, I cannot yet draw many conclusions from this set of data. I can briefly describe some of the results. Several farmers stated flatly that farmers never made rock piles. Farmers were either too busy to make piles or else used them for fill. Many of the farmers had cleared rocks and made piles but there was strong agreement that piling was uncommon. Most often rocks were placed in gullies, washouts, and especially in breaches of terraces and along terrace edges. When asked about piling, there was also strong agreement that piles were placed along field edges and most importantly, simply out of the way. Although only two informants were specifically asked, both said the rock piles they were referring to no longer existed. Rock clearing was predominantly "winter work" often done by children or whole families. None of the informants recalled hired help clearing fields. Sleds and wagons pulled by mules and horses were used. In addition, two informants said clearing was done solely by hand with no transport vehicles. The smallest rocks gathered were 15 cm or "two-fist size" in diameter.

Two interviews published in the fourth volume of *Foxfire* (Wigginton 1977) provide similar data. One informant relates that fields were not well cleared, that stumps were left, around which rocks might be piled. The other informant told of clearing rocks using a mule and sled and piling them into a rock fence along her property line. Informant interview has been used by the U.S. Forest Service to identify the historic origin of one group of rock piles in north Georgia (Schneider 1977).

In regard to patterns of historic rock piling as a result of field clearing, the data base is too small and contradictory to state firm conclusions. Also, we are hampered by a near void of eighteenth and early nineteenth century data, a period when most initial land clearing would have occurred. However, tentative patterns can be discerned and tested with more informant interview and documentary research. Rock piles were indeed made by farmers when clearing fields, but more often, in the twentieth century, rocks were used to construct or repair terraces and fill gullies. When removed from fields, rocks were usually placed along field edges or fence rows, most often in gullies but also scattered or piled on uneroded surfaces. The pattern of piles occurring randomly within fields documented for the upper Midwest (Thompson and Schwantes 1929) does not appear to be a common pattern in the

Southeast in the twentieth century. The size of rocks removed from fields ranges from large boulders with dimensions of at least 1.5 m to rocks as small as 15 cm or "double fist sized." The most reliable indicators of historic origin seem to be linearity of the piles and association with agricultural terracing.

ARCHEOLOGICAL EVIDENCE OF HISTORIC PILED ROCK FEATURES

Published archeological literature on historic piled rock features is virtually non-existent. This seems to be due to a prevalent concept that historic piles are a result of a very common and mundane practices and as such are not likely to yield significant anthropological information. The main focus in regard to historic rock piles has been distinguishing them from prehistoric ones, which are generally considered more informative and interesting. However, as the practice of determining the cultural origin of rock piles based on undocumented assumptions of what historic piles *should* be like, and not on empirical evidence, rock pile sites proven to be historic take on greater importance as indicators of what historic rock piles *are* like. Undoubtedly, many rock piles encountered during surveys in Piedmont Georgia and South Carolina are associated with agricultural terraces and are readily attributed to the historic period (cf. Webb 1984; Garrow and Chase 1988:42). The origin of some rock pile sites, however, is ambiguous and more intensive investigation (usually excavation) has been conducted to determine their cultural affiliation. Four such sites that produced evidence of historic origin or that are especially pertinent to the rock pile problem are discussed here.

Indian Cove (9Lc24). This site consists of seven, mostly quartz rock piles situated on a hill top and slope overlooking an unnamed creek that flows into Little River in Lincoln County, Georgia (Figure 1). The rock piles were tested by partial excavation and determined to be prehistoric, dating either to the Woodland or Late Archaic period (Cridlebaugh 1983). Subsequent complete excavation of six of the piles and test excavations of surrounding areas, showed that the piles were historic (Gresham 1985a). Piles 1, 2 and 3 were oriented along an old fence line. Piles 3, 4, 5, and 6 were constructed on a linear outcropping vein of quartz, which was heavily utilized as a quarry during the Late Archaic period. Since the piles were constructed on a heavily used prehistoric site, every pile contained prehistoric material (virtually all of which was quartz debitage) at and beneath its interface with the original ground surface. Four of the piles also contained historic material. Most

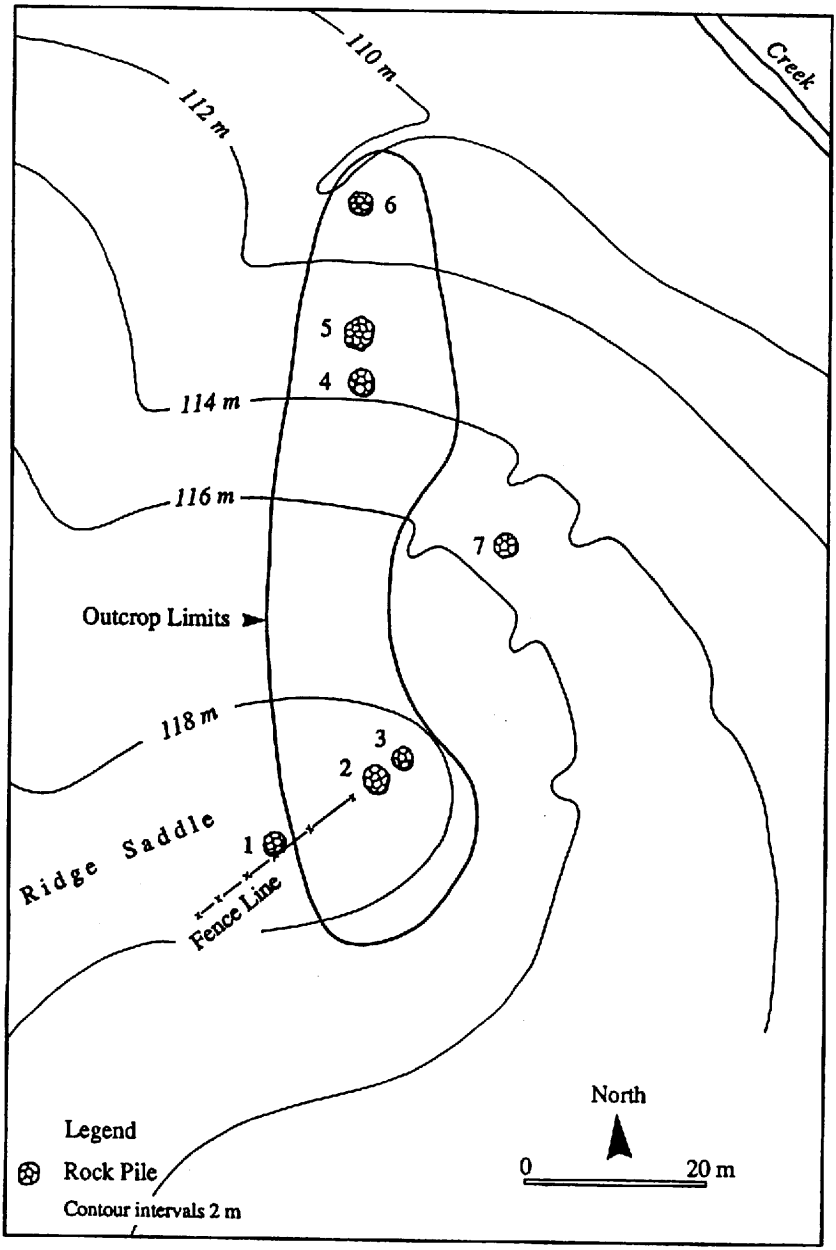

Figure 1. Plan map of Indian Cove site, 9Lc24 (from Gresham 1985a:3).

of this material occurred in an interfacing zone (zone 2) and in the underlying zone 3 (Figure 2). Most of the artifacts were small fragments of creamware, bottle and window glass, pipestems, and metal, which conceivably, could have trickled down through the rock pile to settle near its base. However, one artifact, a late nineteenth to mid-twentieth century plowshare, was found lying flat underneath rock pile 2. This is strong proof of the historic origin of this pile and strongly implies that the other piles are also historic. The historic artifacts from the site suggest the presence of a late eighteenth-early nineteenth century house, while the artifacts in the piles suggest that most (if not all) were constructed later, in the late nineteenth to early twentieth century. One startling discovery was the recovery a small "superball" about 40 cm below the top of rock pile 4. This obviously modern artifact illustrates how quickly an artifact can work its way through a rock pile.

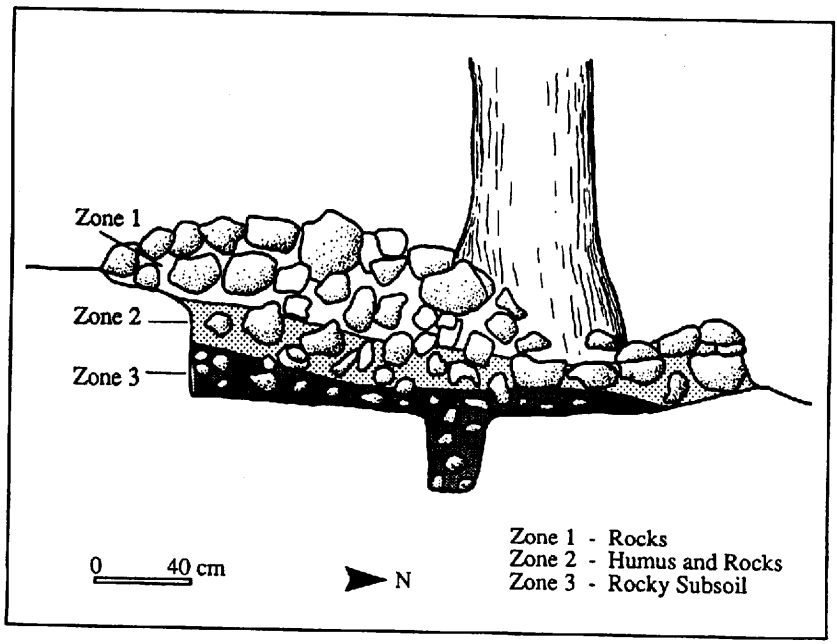

Figure 2. Section of Rock Pile 4, 9Lc24 (from Gresham 1985a:61).

One major facet of the Indian Cove study was soil chemistry analysis to detect deteriorated human skeletal remains. Several attempts with this approach at rock piles had been of small scale and were inconclusive (Russell 1972; Logan 1979; Cridlebaugh 1983). The basic premise is that decomposed skeletal remains would leave elevated traces

of certain elements, mainly calcium and phosphorous. This has been demonstrated at prehistoric burials and occupation areas (Solecki 1951) and at historic period graves (Wood Burns, and Lee 1986). Even though the rock piles at Indian Cove were determined to be historic and not related to burials, 140 soil samples were retrieved from a wide array of contexts and 50 of these were analyzed for pH and the amounts (in parts per million) of 20 elements. The levels of barium, calcium, copper, potassium, magnesium, phosphorus, strontium, and zinc were much higher in soils within the piles than from outlying soils. Since these elevated levels are the indicators of human burial that were sought, and since the piles were shown to be of historic origin and had no evidence of burials, the premise of chemically detecting skeletal remains in rock piles is seriously flawed. Gresham (1985a:100) believes that land snails accumulate in rock piles (numerous examples were noticed, but not quantified at Indian Cove) and could account for elevated levels of certain key elements, especially calcium. Gresham (1985a:104-105) also notes that the increase of key elements from in-burial samples as opposed to surrounding matrix samples at known, historic burials (Wood et al. 1986) is far less than the differences between the rock pile samples and non-rock pile samples at Indian Cove. This also undermines the utility of soil chemistry analysis for burial detection.

9Pi22. This is a large site consisting of about 97 rock piles and stacked piles on both slopes of a mountain cove in Pickens County, Georgia (Figure 3). The site was precisely mapped and two of the rock piles and two of the stacked piles were half excavated (Smith et al. 1988). The site contains nineteenth century house remains (actually labelled as a separate site, 9Pi65), a rock terrace across the cove, and the faint remnants of two small roads (Figure 3). Prehistoric material underneath stacks 38 and 83 was argued to be part of a widespread sparse scatter of lithic material. A rusted piece of curved metal, probably a mule shoe, was encountered underneath rock pile 88 (Figure 3). Smith et al.(1988:52) conclude that the piles are of historic origin, probably related to resource procurement. Other rock piles (usually few in number) were encountered on several other sites in the area. Sometimes they were associated with terraces and house sites, but often they were not. It is not clear if other stacked piles were encountered.

Although not brought out in the report, it is interesting that virtually all of the features north of the cove are stacked piles and virtually all south of the cove are rock piles (Dean Wood, principal investigator, personal communication, 1990). This appears to be closely related to the differing nature of the rock on the two sides of the cove. Tabular rock occurs abundantly on the north slope, while less abundant,

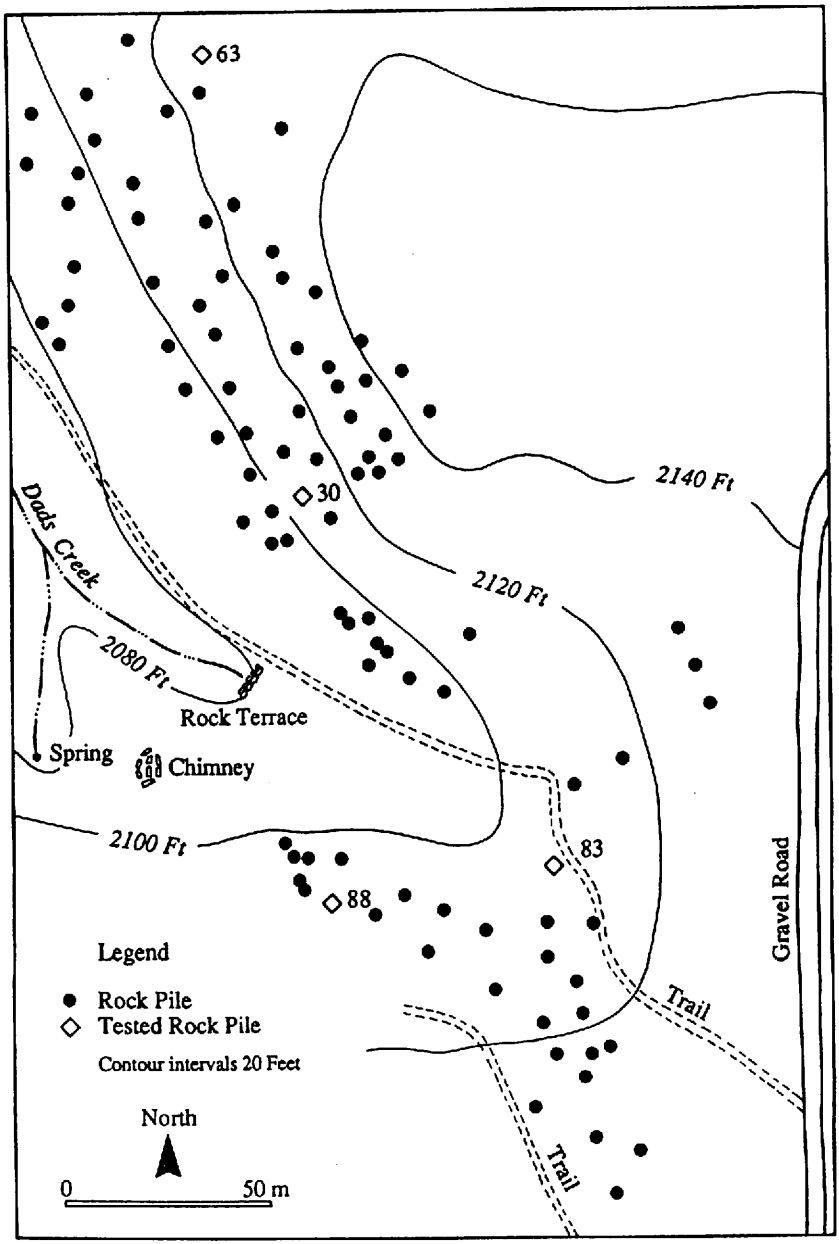

Figure 3. Plan map of 9Pi22 and 9Pi65 (from Smith et al. 1988:49,18).

rounded fieldstones occur on the south slope. The presence of the probable mule shoe under a rock pile does argue strongly for a historic origin of the piles, but only weakly for the stacked piles. An elderly resident of the area who had for years quarried rock for building purposes from a nearby mountain was not aware of such activity specifically at 9Pi22 (Smith et al. 1988:213). He also stated that, when quarried, rock was normally directly loaded onto a wagon or truck.

124-J3A.1. This site consists of 26 rock piles (seven of which are linearly arranged and form a fence of sorts) and four rock terraces (Figure 4). Although not categorically proven to be historic, two archeologists independently concluded they are historic (Webb 1984, Garrow 1984). Webb (1984) excavated two of the piles, including the one closest to the ridge top and thus most resembling the prehistoric mounds at Plant Scherer (Jefferies and Fish 1978). No artifacts or other indications of prehistoric use were encountered in the piles or in shovel tests between the piles. Since the rock terraces are contiguous with obviously historic earthen terraces, they and the line of piles (as if along a property or fence line) were seen as evidence for a historic origin of all the features (Webb 1984:17). As further support of a historic origin, Garrow (1984:2) notes that each pile contained at least one stone that weighed several hundred pounds, that piles are within the earthen terrace system, that another set of smaller piles were arranged linearly, and that there is evidence of stone foundations for two small structures on the site.

Bibb Site (9Mo216). This is one of the most intriguing rock feature sites recorded, in that it contains three feature types, a rock mound, rock piles, and rock terraces, and in various aspects strongly resembles both known prehistoric and historic rock pile sites. The site is only about 2 km from the Plant Scherer rock mounds reported by Jefferies and Fish (1978). The site has only been surface inspected and mapped (Wood 1983), but is known to contain nine rock terraces, about 34 small and large rock piles and one rock mound on the ridge crest (Figure 5). The rock terraces conform to the contours of the ridge and are similar to those at 124-J3A.1 and other sites where a historic origin seems clear. A 1938 aerial photograph shows that the rock terraces may be part of a terracing system that includes earthen terraces on a ridge several hundred meters to the southwest. The rock piles are largely confined to portions of the ridge slope where the terraces end, suggesting that the two are related. The site also contains a house site, represented by a rock chimney base. Finally, the most prominent feature of the site is a rock mound (about 16 m in diameter) on the ridge crest. The mound is partially pitted and has probably been looted or had some rock

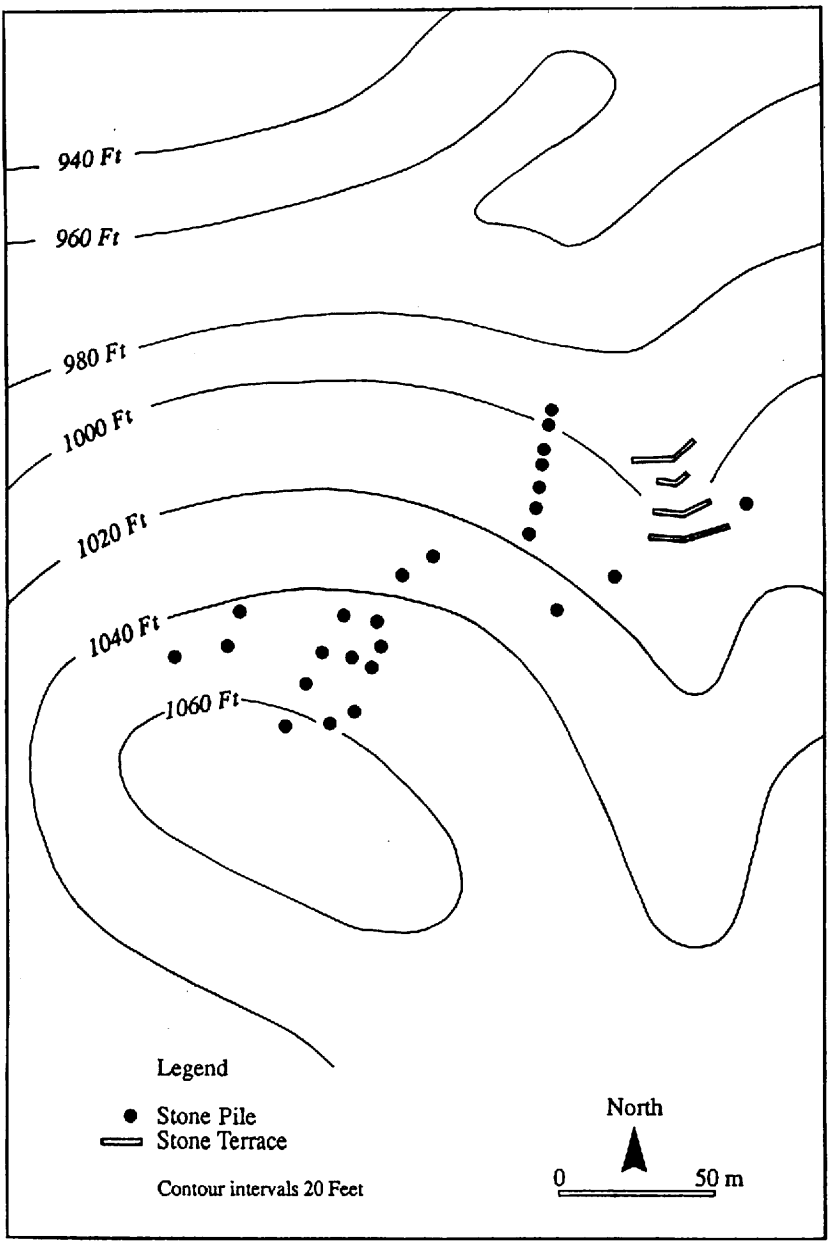

Figure 4. Plan map of 124-J3A.1 (from Webb 1984:15).

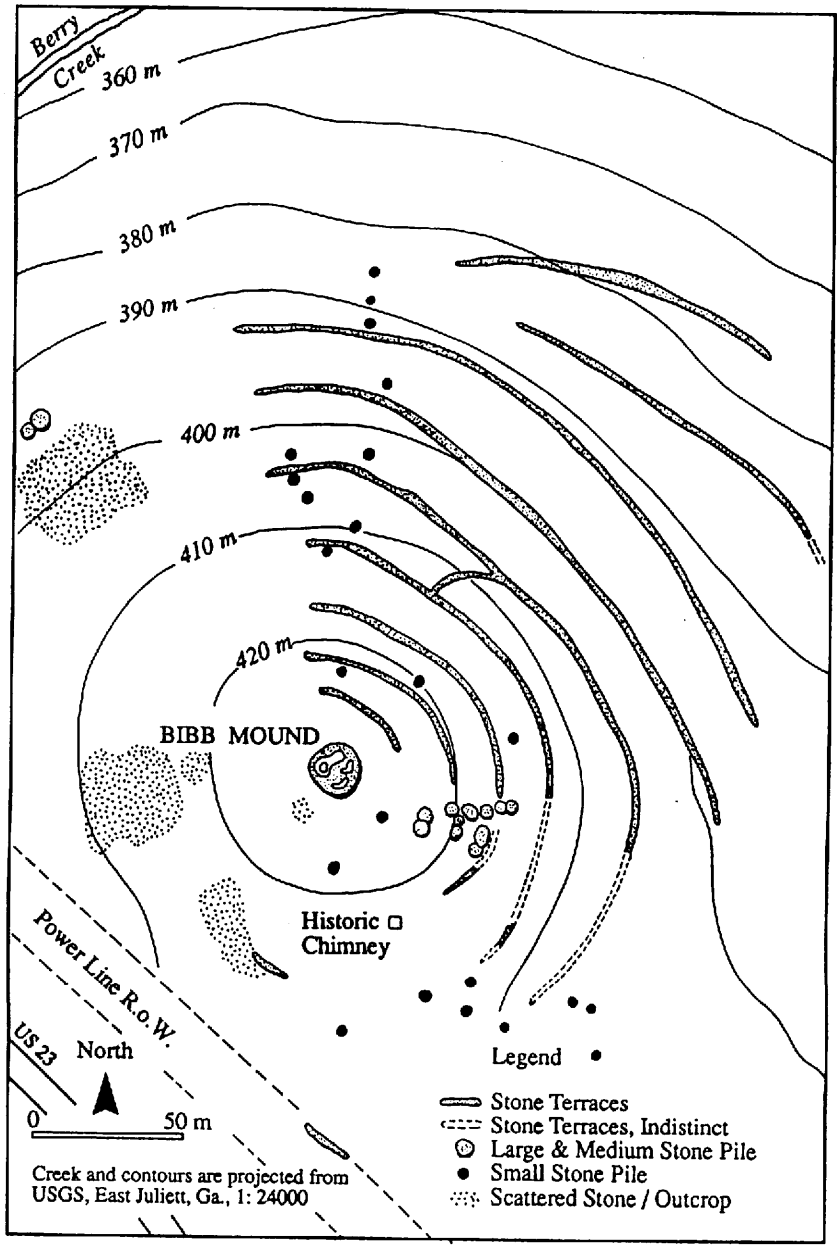

Figure 5. Plan map of the Bibb site, 9Mo216 (from Wood 1983:8)

removed for use elsewhere. This large mound on a ridge crest overlooking Berry Creek is very similar to the situation at the Woodland period sites 9Mo152 and 9Mo153 at Plant Scherer. The Plant Scherer sites contained numerous rock piles on the ridge slope, but no terraces.

STACKED PILES

More so than rock piles, stacked piles have caught the (often intense) interest of the public, as well as archeologists. Recent discovery and excavation of stacked piles in Gwinnett County has received relatively thorough coverage in the local newspapers (e.g. Atlanta Constitution, May 26, 1990). Stacked piles are anomalous to predominant patterns of both historic and prehistoric rock piling, and to date have provided no firm and direct evidence of their cultural origin. Largely because of public interest, two sites with stacked piles, the Parks-Strickland complex, have been put on the National Register of Historic Places and a Woodland period (100 B.C.- A.D. 500) cultural affiliation was identified in spite of the fact that no Woodland artifacts have been found at the site (Morgan 1989). At least three sites containing stacked piles have recently been investigated and described (Garrow and Chase 1988; Smith et al. 1988) and two others have been very recently investigated (Patrick Garrow, personal communication, 1990). Others are known but have not been professionally excavated (Pharo 1990; Ina Wundrum, Emory at Oxford, personal communication, 1990).

The most thoroughly investigated and documented sites are the Parks and Strickland Mound Complexes in Gwinnett County (Garrow and Chase 1988; Morgan 1989). These sites contain 30 and 153 rock features (respectively), with about equal numbers of rock piles and stacked piles. The stacked piles were of varying size, circular to oval in plan, and from about 20 to 110 cm in height (Garrow and Chase 1988:63-67). Excavations in and around the piles failed to provide information on their origin. Garrow and Chase (1988:53) conclude that "[t]he most logical explanation for the origin of the mounds is that they were constructed by prehistoric builders". The logic they employ is seriously flawed and may have lead to erroneous conclusions. The logic consists of relating five observations on the stacked piles to expected and assumed patterns of historic rock piling. All five of these arguments (observation contrasted with expected pattern if features were historic) contain a close variation of the phrase, "if farmers were clearing fields of stone then the piles would be like ...". Since their objective observations do not match their expectations of historic piling, they conclude, by default, that the piles are prehistoric. It is clear that if the assumptions on the appearance and construction of historic piles and stacks are

wrong, the logical argument collapses. I believe that Garrow and Chase (1988:42-44;51-53) failed to adequately consider that rock piles and stacked piles could result from historic practices other than farmers clearing their fields of unwanted rock.

I believe that numerous rock piles and stacked piles in Piedmont Georgia were constructed in historic times in order to accumulate a resource (flat and rounded rocks) for later use or sale. Undoubtedly this rock also sometimes interfered with agriculture and its removal then accomplished two goals. This stockpiling premise has been stated by others (Jefferies and Fish 1978:13; Drucker and Anthony 1984:7-5), but has not been stressed or really investigated. In fact, Jefferies and Fish (1978:13) reject the premise on two grounds; 1) that if rock were being stockpiled for use it would not be left in piles and 2) rock was not widely used in middle Georgia, except for chimneys. Ethnographic and documentary evidence shows that stacked piles of varying sizes were constructed in historic times (up to the present). This evidence is most abundant in north Georgia and bordering regions of North Carolina. Hard documentary evidence for stacking rock in middle Georgia is scant. However, the well documented historic practice of constructing stacked piles in the mountains suggests that at least some of the stacked piles in middle Georgia may also be historic.

Rock occurring near the surface would have been a resource that was useful and readily available. Given the nature of most historic period rock constructions (chimneys, terraces, steps), flat rocks, or flagstone, probably would have valued more than ordinary fieldstones. The uses of rock are not limited to chimneys, but include agricultural terraces, ornamental terraces (enclosing the front yard of a house), foundation piers and walls, steps, and well and spring enclosures. These are all features that are relatively common around many nineteenth century houses in middle Georgia. Their frequency at earlier period historic sites is unclear.

Flagstone is currently gathered and stacked into cylindrical piles in at least three counties in North Carolina: Cherokee, Madison and McDowell. In 1988 I observed workers in Marion (McDowell County) stacking rock that had been brought by truck into cylindrical piles on pallets. The two workers were using a two-pound hammer to roughly shape some of the rocks. When questioned, they said their father gathered and piled rock in remote parts of the county for later transportation and sale elsewhere. Since these men were middle-aged I assume that their father was doing this about 30 to 50 years ago. They could not provide clear reasons why their father stacked the rocks instead of simply piling them or why some stacks and piles were left where gathered and not moved. In 1990 I observed two farms in Madison

County, N.C. that had clusters of stacked piles. Both farms had been in the current owners' families for several generations. One middle-aged owner stated that the piles were formed before his time, by relatives one or two generations removed. This farm contained two clusters of stacked piles, one with about eight stacks adjacent to an old house site (Figure 6) and the other with more (I did not see the second cluster). The other owner, an elderly man, stated that he was responsible for the four or five stacked piles that were in a pasture beginning about 50 m behind his house (Figure 7). When asked why he bothered to stack the rocks, he said that stacks would take up less space and would be neater. Flagstone available today (at specialty stores or larger building supply stores) commonly comes "packaged" in cylindrical stacks that are wrapped in chicken wire and placed on pallets. Rounded cobbles and fieldstone are usually piled.

One informative source on early rock and flagstone gathering in *Georgia is the Geologic Survey Circular 12, The Flagstone Industry of* Georgia, published in 1940 and revised in 1964 (Furcron 1964). This circular first describes various types of flagstone that occurs in Georgia. Besides the more familiar sandstones and slates, Precambrian quartzites, graywackes, schists and gneisses are cited as common over much of the Piedmont and in use locally (Furcron 1964:4). Specific quarries and outcrops of Precambrian rock located in nine counties around and north of Atlanta are described. While the term "quarry" is used, it is clear from the opening paragraph of the circular that these are small scale operations using mostly hand labor. Quarrying is described as " quarried locally ... small scale ... not able to meet the demands of the State ... not maintain[ing] stockpiles to meet demands" (Furcron 1964:3) and " simple, for most work is done by hand " (Furcron 1964:5). It is noted that little flagstone was being produced in 1940 because hand labor is difficult and expensive (Furcron 1964:5). Significantly, this type of quarrying is distinguished from other types of mining in that it "does not injure forest or agricultural land " (Furcron 1964:5). This implies that at least some flagstone gathering or quarrying was done on agricultural land or land that became agricultural. Other statements (Furcron 1964:5) provide more clues as to how rock was gathered and quarried by hand. Quarries are cited as being in valleys and on steep valley walls, where there is minimum overburden. Slabs are between one and six inches thick, with most between one and two inches. Stone is loosened and lifted with crowbars and wedges. Finished edges are made with a three-quarter inch chisel and two-pound rock hammers.

Five statements by Furcron (1964:5) suggest why stacked piles and rock piles may have been made in connection with flagstone gathering.

Figure 6. An Early twentieth-century stacked rock pile in Madison County, North Carolina.

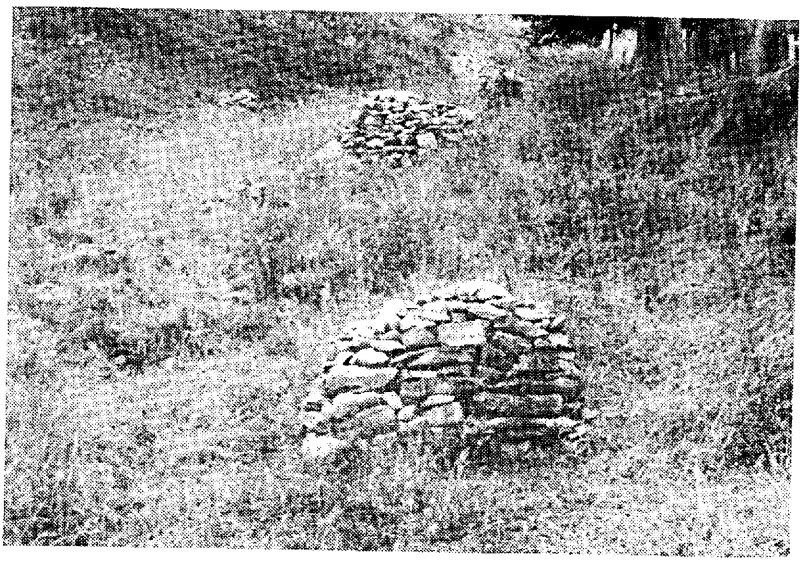

Figure 7. Mid-twentieth century stacked rock piles in Madison County, North Carolina.

> The stone is allowed to dry after it is quarried....In all cases, it should be cured for a day or more before sales, in order to eliminate flawed slabs....Rock that will not satisfy one order is laid aside to await another....There need be no waste in a flagstone quarry, for there is a job for every type of stone which is taken out. Stone which fails to satisfy other markets may be sold as rubble....The rock is sometimes bought by the 'perch' (2 1/4 tons of stone).

This last statement about the perch unit of measure is intriguing because it could explain the stacking of rock. Using figures provided by Furcron (1964:5), a "perch" of one-inch thick Jasper stone would equal 26 cubic feet (0.74 cubic meter), with no air space. Furcron provides no information on the volume of a perch of stone if naturally stacked with air spaces, but an expansion of 10 to 25 percent seems reasonable based on stacks I have has seen. Thus, a perch of Jasper stone would create a cylindrical stack about 1.1 m in diameter and 1.0 m high. In this regard, it must be noted that the size and volume of the stacks at the Parks-Strickland complex are highly variable and clearly do not represent one standard unit of measure.

The salient points of Furcron's report are that quarrying of flat rock and flagstone in Georgia prior to 1940 was small scale, localized, and done by hand. Stone up to six inches thick was recovered by hand from near the surface of slopes. It may have been sorted by quality, thickness or suitability for various uses. It seems that less desirable stone may have been piled or otherwise set aside. The rock was probably piled or stacked to dry. It may have been sold by a standard unit of weight that equaled about 0.9 cubic meter.

If stacked rock piles are the result of historic practices of quarrying flat rock for use or sale, the question arises as to why the stacks were left, often in large numbers. (This same question arises in regard to a historic origin of rock piles). I can provide several reasons that are variably plausible and convincing; the important point is that a perceived weakness in these reasons cannot alone be used to discredit an historic origin. Stacked piles may have been left during historic times because:

1) the rock was inferior and did not sell;
2) other sources of rock, closer to where rock was needed, of better quality or more easily gathered and transported, became available;
3) a specific historic event (an individual cancelling an

order; an owner of rock dying) halted the transport of the material; or

4) the market became saturated over time, especially as brick and other alternative building materials became more available.

As mentioned by Furcron and as can be observed on historic house sites, rock was used for a variety of purposes. Jefferies and Fish's (1978:13) observation that, aside from chimneys, stone was not widely used for construction purposes in middle Georgia is subjective and potentially misleading. It suggests that the gathering and distribution of rock would not have been a major activity in the area. I have no evidence with which to gauge the historic importance of rock accumulation and distribution in the Piedmont during the eighteenth and nineteenth centuries, but some calculations of the stone needed for chimneys alone allows a comparison to the quantities present at the Parks-Strickland sites.

While early nineteenth century chimney bases are regularly recorded in archaeological works, the heights and shapes of stone chimneys in Georgia are poorly documented. The chimney of the two-story Crawford-Long house in Madison County is allegedly reconstructed to original dimensions. This reconstructed chimney is about 2.0 by 1.5 m from its base to about 5 m above ground, at which point it tapers to about 1.0 by 1.0 m for another 5 m. An early nineteenth century one-and-a-half story house in Oconee County has a stone chimney with a base of about 2.0 by 1.5 m that extends to about 5 m in height. It then tapers to about .8 by .6 m for another 4 m. Using these figures as a guide, and accounting for the airspace of the firebox and flue, it can be roughly calculated that these chimneys contain about 18 and 14 cubic meters of stone. If one assumes that 15 percent of the stone on hand was culled and not used (the figure provided by Furcron [1964:7] for flagstone work), then 16 to 21 cubic meters of stone was needed for a large chimney. Using dimensions for a stone chimney on a one-story house in Oglethorpe County and employing similar adjustments for firebox and flue space and waste, a one-story chimney may require about 5 to 6 cubic meters of stone. The ten stacked piles at the Parks-Strickland complex that were classed by Garrow and Chase (1988:63-66) as "stacked, mostly intact" (as opposed to "stacked, scattered) ranged in volume from 1.25 to 5.19 cubic meters and averaged 2.51 cubic meters. Thus, a chimney would require the equivalent of two to eight stacked piles of average volume. A large house with two chimneys and stone piers and steps could require the equivalent of about 20 stacked piles. The 87 stacked piles at the Parks-Strickland complex is the rough

equivalent of forty small chimneys or eleven large chimneys.

In addition to chimneys, stone was used for house foundations, structure piers, factory and mill foundations, bridge abutments, and piers (White 1972:88), and roads (Furcron 1964:4). The hypothesis that large amounts of fieldstones might have been gathered in the nineteenth century for road construction does not seem valid. In the indexed List of Publications of the United States Department of Agriculture (1862-1925), there are dozens of entries under rock and stone related to the use of them for road beds. From the titles and dates (predominantly early twentieth century) most of the articles cited deal with crushed stone and with recognizing proper types of rock for crushing. In a detailed description of the Federal Road through Georgia and Alabama (Southerland 1983), which was largely built and maintained from 1811 to 1836, it is clear that timber, not rock, was used for causeways, bridges, and some road beds. These timbers did rot quickly, leaving the road in a constant state of disrepair.

I wish to emphasize that the preceding discussion is not an argument that all stacked piles in Georgia or those at the Parks-Strickland complex in particular are historic. I am saying that a historic origin is plausible and has not been given adequate consideration. I further believe that empirical evidence gathered so far points more to a historic origin than a prehistoric origin for stacked piles. In summary this evidence is:

1) Stacked rock piles very similar in size and shape to archeological examples are currently made today in western North Carolina.
2) Stacked rock piles very similar in composition and somewhat similar in size and shape were made in remote areas of north Georgia and western North Carolina at least as far back as the early twentieth century.
3) At least one archeological set of stacked piles has evidence of artificial shaping of some of the exterior rocks (Garrow and Chase 1988:41); shaping with two-pound steel hammers occurs today when stacked piles are made (personal observation) and took place in the early twentieth century (Furcron 1964).

COMMON MISCONCEPTIONS

The previously presented data and a few additional observations can be used to examine and refute some commonly expressed (Jefferies

and Fish 1978; Wynn 1980; Cridlebaugh 1983; Drucker and Anthony 1984; Gresham 1985a) assumptions regarding historic rock piling. Expressed in various ways these assumptions can be grouped as follows:

Assumption 1. *This piece of ground is too steep and/or rocky to be farmed; therefore, these cannot be farmer's rock piles.* I believe that archeologists today are poor judges of what was once arable land. There are abundant examples of very steep and rocky land currently in pasture in north Georgia and North Carolina. Anecdotal evidence suggests that much of this steep, rocky land was once plowed by mule. Certainly in other parts of the world, very steep and rocky land is cultivated. It seems clear that such land is marginal for large scale agriculture and is (or was) probably owned and worked by the less affluent.

Assumption 2. *Farmers would not have placed rock piles in the fields that were farmed.* This is certainly not the case in the midwest (Thompson and Schwantes 1929:20) and probably was not the case in nineteenth century Georgia. Bonner (1964) and Range (1954) describe early to mid-nineteenth century farm fields in Georgia as being full of stumps and other obstructions that the farmers must plow around. Mrs. Dickerson (Wigginton 1974) describes plowing by mule around stumps and rocks in Rabun County. However, elderly farmers today insist that removing rocks from fields and getting them out of the way was a prime consideration in clearing fields. This apparent contradiction may be time related, in that removing rocks from fields became more important in the twentieth century when mechanized equipment became more prevalent. Also, when land was first cleared the final extent of cultivated fields may not have been fully envisioned. Rather than move rocks to a current field edge only to move them again when the field was expanded, rocks may have been simply piled or stacked where they were encountered.

Assumption 3. *Rock piles are the result of farmers clearing their fields of unwanted rock.* There are other reasons, chiefly related to stockpiling a resource, why rock piles and stacked piles may have been constructed. This paper has dealt with the fact that stockpiling of rock (often in association with the clearing of fields) has taken place in western North Carolina. Furcron (1964) documents that flagstone was quarried by hand in many parts of Georgia and probably involved the piling or stacking of rock. The stockpiling of rock as a building material can be observed in many developing countries. In most of the cases I have observed, the stockpiling results in numerous small rock piles.

Assumption 4. *Farmers' rock piles are arranged linearly, along*

field or terrace edges. While linearity of rock piles was a valid indicator of a historic origin at one rock pile site, Indian Cove (Gresham 1985a), other rock piles almost certain to be historic (Webb 1984; Smith et al. 1988) are not linear, but are clustered on a ridge slope.

CONCLUSIONS

It should be apparent by now that it is impossible to draw up a character trait list that would reliably sort historic from prehistoric piled rock features, especially in regard to the ubiquitous rock piles. In fact, distinguishing historic from prehistoric rock piles is more uncertain now than prior to the recent set of rock pile excavations. This is disturbing to land managers who must protect important sites and to researchers who wish to study Woodland period settlement and ritual. A few general conclusions, most of which are not especially new, are presented below:

1) It appears that morphologically identical rock features, especially rock piles, may have been constructed during at least three major culture periods, for very different reasons. If various ethnographic sources are to be believed, protohistoric Indians such as the Cherokee were making rock piles to mark the location of a slain Indian. Jefferies and Fish (1978:54) conclude that the rock piles at the Plant Scherer sites would be expected to be Woodland, based on their proximity to the definitive Woodland rock mounds. A function for the piles is not suggested, but spatial distribution was seen as potentially significant. Finally, some rock piles are clearly historic, the result of mundane clearing of fields.

2) Sites can contain rock features dating to two cultural periods and relating to two functions. The clearest case of this may be at Tunacunhee, where some rock piles were determined to be related to historic field clearing and some to Woodland burial practices (Jefferies 1976). The Bibb site (Wood 1983) seems to be strong candidate for multiple origins. The mound closely resembles those at Plant Scherer and thus is probably Woodland, while the terraces are almost certainly historic. The rock piles seem to be related to the terraces and may also be historic. This is intriguing because if the piles at the Bibb site are historic, then the similar rock piles at the Plant Scherer sites may also be historic.

3) Most historic period rock piling (and perhaps stacking) in Georgia probably took place when lands were first cleared and settled, in the late eighteenth and early nineteenth centuries. Consequently, informants and farm journals are not likely to provide much information on rock piling. Also, rock piling, either for clearing or stockpiling purposes, was probably a simple, mundane task that did not generate much written documentation.

4) Determining the cultural origin of a particular rock pile site based on pattern recognition is tenuous at best and can be very misleading. Patterning and randomness are somewhat vague terms in connection with the distribution of rock piles on a site. Garrow and Chase (1988) see zoomorphic and other patterns at Parks-Strickland, but I do not. Also, while zoomorphic patterns would suggest an aboriginal origin, other patterns, such as circles would not.

5) Most rock mounds investigated in Georgia appear to have evidence of prehistoric (usually Woodland period) origin. These include four mounds at Plant Scherer (Jefferies and Fish 1978), four at Tunnacunhee (Jefferies 1976), several in Putnam County (Kent 1884), the Shaw Mound at Ladds Mountain (Waring 1945), and one at Camp Glisson (9Lu1) (Kelly and Beam 1956). However, at least one rock mound (Wynn 1980) has been tested and found to contain no evidence of origin. In contrast, rock piles either have no evidence of origin or are historic. Of the twenty-three rock piles that have been excavated in Georgia that I am aware of, none has produced firm evidence of prehistoric origin, but two (Smith et al. 1988; Gresham 1985a) have produced firm evidence of historic origin.

Although I have suggested that the issue of a historic versus prehistoric origin of piled rock features has become more clouded with recent research, it still seems that only through more documentation and excavation will the issue ever become clearer. However, it is doubtful that we will ever develop a reliable checklist of traits that can readily identify all prehistoric and historic piled rock features. I do believe that many rock piles and perhaps some stacked piles will be shown to be prehistoric and that research into them, perhaps along the lines of ritual precincts as defined by Clay (1985), will be informative to various aspects of

Woodland period settlement, social organization and ceremonialism. Also, in spite of the effort devoted to this paper, I view the study of historic period rock piling not so much as an important realm of study, but mainly as a means toward the goal of reliably distinguishing them from prehistoric features. Toward the ultimate goal of understanding prehistoric societies as reflected by piled rock features, I suggest that research into rock features continue much in the manner as it has recently, but with a renewed emphasis on obtaining empirical evidence of origin. Specifically, the following are measures that can be taken:

1) Continue to record (sketch mapping on surveys, transit mapping during testing) rock feature sites.

2) Continue to test excavate rock piles and stacked piles. Although the overwhelming majority of excavated piles have been devoid of artifacts and features, some do contain empirical evidence of their origin.

3) Continue to deed and record search tracts of land containing piled rock features. While often futile, this can lead to convincing evidence of origin.

4) More fully document patterns of historic rock piling, especially from early to mid-nineteenth century periodicals.

5) With experimental procedures, try to determine if the shaped rocks found in some stacked piles were made with a steel hammer or a hammerstone.

6) While focussing on gathering empirical evidence, continue to explore and debate theoretical alternatives.

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