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ABSTRACT

Saltville Valley is an important source of information about the environmental history of the Middle Appalachian region, especially for the past 15,000 years. The Saltville River coursed the valley until about 13,500-13,000 yrs BP, at which time it was diverted by headstream piracy and replaced, in Saltville Valley, by Lake Totten. At site SV-2 (=44SM37), three horizons dating from 14,510 ± 80 yr BP to about 13,500-13,000 yr BP document the presence of pre-Clovis people in Saltville Valley and provide insight into their lifeways. At 14,510 yr BP, pre-Clovis people appear to have butchered and processed hide, meat, bones, and tusks of a mastodon *(Mammut americanum)* and to have utilized parts of the skeleton of a musk ox *(Bootherium bombifrons)*. Five hundred years later, at 13,950 ± 70 yr BP, human presence is suggested by unlikely arrangements, associations, and modifications of lithics, including flakes of chert that resemble biface reduction flakes. A midden dating from about 13,500 to 13,000 yr BP constitutes the youngest of the three pre-Clovis horizons recognized to date at SV-2.

SV-2 is one of the few and most complex pre-Clovis archeological sites in North America, and because it is a wet site, it contains a relatively extensive amount of organic information. Evidence suggests that the pre-Clovis people who visited Saltville Valley in 14,510 yr BP had a diversified ivory, bone, and lithic technology — possibly including a biface technology. These people appear to have been mobile hunters and gatherers who regularly visited and exploited the riparian and littoral zones in Saltville Valley where they utilized diverse faunal resources ranging from large mammals to small mammals, reptiles, amphibians, fish, and mussels.

INTRODUCTION

Saltville Valley (figures 1 and 2) is one of the earliest sites of record of late Quaternary vertebrate fossils in the United States (Jefferson, 1787) and remains an important source of information about the late Quaternary history of eastern North America (Ray, Cooper, and Benninghoff, 1967; McDonald and Bartlett, 1983; McDonald, 1984a, 1984b, 1985a, 1985b, 1985c, 1986, 1990, 1996a, 1996b; Delcourt and Delcourt, 1986; Holman and McDonald, 1986). Saltville Valley is now known to contain a record of lotic and lentic sediments that is nearly continuous for the past 15,000 years, that extends sporadically to at least 27,000 yr BP, and that possibly dates to as early as the Sangamonian Interglaciation (i.e., to ca. 100,000 yr BP). In addition to the geomorphic and hydrologic history recorded by these sediments, they also have provided depositional environments that have preserved a rich and diverse record of the plant and animal life of the region — especially that of the past 15,000 years, including documentation of how the regional biota has changed during that period.

The presence of humans in the Middle Appalachians is one facet of the biological history of the region that is documented in and near Saltville Valley. Although relatively little work by professional archeologists has been conducted in Saltville Valley or its immediate vicinity (Wedel, 1951; Holland, 1970; Michlovic, 1975; Egloff, 1981), there is a rich tradition of amateur interest in the archeological resources of the valley and, as a result, there is strong material evidence in the form of fluted projectile points (McCary, 1955, 1983, 1984, 1986) that humans have been in and around the valley since the time of the Paleo-Indian fluted point tradition, which was in place by circa 11,500 yr BP. The date of 11,500 yr BP is the lower, or older, limit of the generally accepted range of appearance (11,500 to 11,200 yr BP) of the Clovis *(s.l.)* culture, one typical material element of which was the fluted projectile point (Bryan, 1991; Stanford, 1991; Anderson and Sassaman, 1996; Goodyear, 1999a). Clovis *(s.l.),* in turn, was widely accepted as the earliest manifestation of human presence on the North American continent for decades (Bryan, 1991). Increasingly, however, the "Clovis first" concept is fading and, as it wanes, the term "pre-Clovis" is coming into use as an expedient label whose exact meaning(s) are not always clear or, at least, are not always clearly stated. In this paper, we use "pre-Clovis" solely in a temporal sense to mean before the generally accepted time of Clovis — that is, before 11,500-11,200 yr BP. We accept the evidence and reasoning that multiple cultures probably

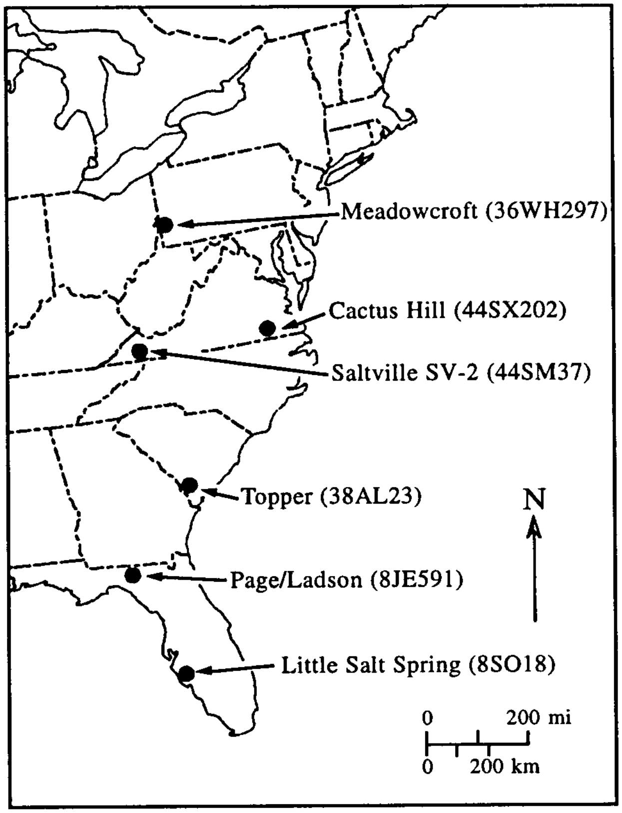


Figure 1. The location of Saltville and selected other sites in the Middle Atlantic and Southeast regions of the United States with putative pre-Clovis horizons.

existed in the Americas before Clovis time (Bryan, 1991; Goodyear, 1999a; Dillehay, 1989, 1997, 2000), and we allow that Clovis itself might eventually be found to predate the currently recognized 11,500 yr BP benchmark.

By the 1970s, investigations at a small number of archeological sites in the Western Hemisphere started to produce evidence suggesting strongly that humans had reached both North America and South America before Clovis time. This was not the first time that such a concept had been voiced, but it was the beginning of the modern movement that has resulted in what is now the rapidly growing acceptance of evidence that pre-Clovis and para-Clovis people were present in the Americas. Foremost among these sites was Monte Verde in the Province of Llanquihue in southcentral Chile, for it was Monte Verde where the quality of excavation, quantity of

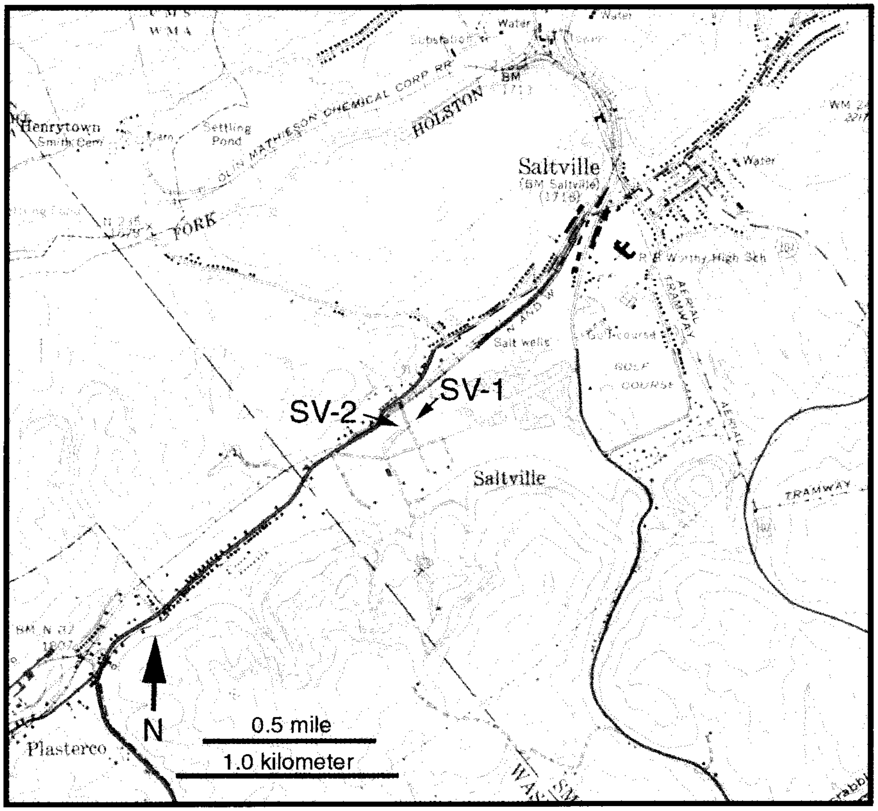


Figure 2. Saltville Valley and the location of sites SV-1 and SV-2 in the southwestern part of the valley. This area falls on parts of the Glade Spring and Saltville quads, USGS 1:24,000 series.

evidence, depth and breadth of analyses, and perseverance of the principal investigator finally resulted in the formal critical acceptance by a large number of North American archeologists of the evidence documenting that humans were in the Western Hemisphere before Clovis time (Dillehay, 1989, 1997; Adovasio and Pedler, 1997; Meltzer et al., 1997). In North America, it has been suggested for some time that the sites yielding the earliest, most abundant, and diverse evidence of the fluted point tradition were in the eastern United States and that the tradition might have originated in this region (Mason, 1962; Bryan, 1991; Stanford, 1991). Since 1975, however, evidence from Meadowcroft Rockshelter in Pennsylvania has been interpreted to suggest that humans were present in eastern North America prior to Clovis time, and perhaps to as early as about 20,000 yr BP (Adovasio et al., 1975, 1980, 1999). The pre-Clovis record at Meadowcroft has been vigorously challenged by critics (e.g., Haynes, 1980; Mead, 1980), and vigorously defended by the investigators (e.g., Adovasio et al., 1980, 1999). Other sites in the southeastern United States have yielded evidence of human agency from before Clovis time, the most widely accepted of which include Cactus Hill, Virginia (McAvoy and McAvoy, 1997); Little Salt Spring, Florida (Clausen et al., 1979); Page/Ladson, Florida (Dunbar, et al., 1988, 1989); and Topper, South Carolina (Goodyear, 1999b) (Figure 1).

Until the 1980s, all evidence of Paleo-Indian presence from in and near Saltville Valley consisted of fluted projectile points that were either collected on the surface or from subsurface contexts that were either not documented or, if documented, had not been dated (McCary, 1984). Among the reported subsurface finds of fluted projectile points from the valley was the basal portion of a broken fluted point (Figure 3) collected by Rufus Pickle in a stratum of sand and gravel exposed on the side of a drainage ditch on the floor of Saltville Valley (Pickle, 1946). This stratum is considered tentatively to be either Unit W3 or, more likely, W4, sands and gravels emplaced by the Saltville River which are now known to date to a minimum of about 13,500 yr BP (McDonald, 1984b) (tables 1 and 2). Although Pickle's fluted projectile point could have been introduced to the gravel layer by geoturbation or bioturbation, processes known to have occurred in the valley, his report is commendably clear in describing the typical stratigraphy of the valley bottom sediments and it provides provocative early evidence suggesting that humans could have been present in Saltville Valley before Clovis time.

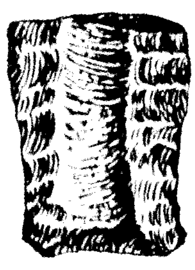


Figure 3. The basal portion of a fluted projectile point Rufus Pickle reported finding in fluvial gravel in Saltville Valley (from Pickle, 1946).

Table 1. Stratigraphic units represented in Saltville Valley at SV-1 and SV-2 (cf. figures 4, 5, and 8).

Unit[1]	Description at SV-1	Description at SV-2
H1	Historic surface on lentic mud, ranges from 13 to 88 cm in thickness, transition from H2 is clear	Not present in excavated area; removed in 1964-1965 by bulldozing
H2	Lower, middle, and upper Holocene lentic mud, up to 174 cm in thickness, medium-gray with streaks of dark humic material, boundary with W1 is abrupt.	Present in northern and western part of site where bulldozing was less extensive, up to 60 cm in thickness, boundary with W1 is abrupt.
W1	Transitional from latest Wisconsinan to Holocene, organic-rich mud/soil/peat, 6 to 15 cm in thickness, very dark brown peaty paleosol and peat through dark reddish-brown peaty mud, radiocarbon dated at 10,050 ± 110 BP (Beta-5056, on soil) and 10,690 ± 130 BP (Beta-5055, on peat); paleosol and peat lie abruptly to clearly above unit W2 with the mud less distinctly separated from the underlying W2 due to geostatic shearing.	Present across most of site, 5 to 14 cm in thickness, usually as peat or peaty mud, boundary with W2 is abrupt to clear.
W2	Late Wisconsinan lentic mud, 58 to 120 cm in thickness, medium-gray with frequent streaks and splotches of dark humic material; upper 45 to 70 cm oxidizes rapidly when exposed to the atmosphere but lower zone does not, boundaries with underlying W3 and W4 are sharp to abrupt. Began to accumulate about 13,500 yr BP.	Present across most of site, up to 92 cm in thickness, uppermost of three discernible levels medium gray with very dark brown to black humic staining common to dominant, middle of three levels oxidizes rapidly when exposed to atmosphere, lowest of three levels does not oxidize visibly. Lower two levels pinch out to north and northeast where they are intertongued with colluvium eroding from nearby bedrock sources, boundaries vary from abrupt to clear.

Table 1 (continued).

Unit[1]	Description at SV-1	Description at SV-2
W3	Late Wisconsinan fluvial sediment series consisting of more-or-less well sorted silts, sands, and gravels to 15 cm in thickness, occupying the terminal channel(s) of the Saltville River, radiocarbon dated at 14,480 ± 300 yr BP (Beta-5701, on woody twigs), boundaries with W4 or P1 are sharp.	Fluvial sediments deposited by the active stream represented as sands and fine gravels occurring (a) as a sand lens across the flood channel, (b) as freshly scoured angular clasts of bedrock, primarily in and adjacent to the flood channel, and (c) as sand and fine gravel in the lowermost part of the flood channel, east of the pedestal, where the channel rejoins the channel of the terminal Saltville River. Colluvium from nearby bedrock sources was entering the riparian/ littoral zone during this final phase of the Saltville River. The boundaries of all facies are sharp to abrupt.
W4	Late Wisconsinan fluvial lag gravels up to 15 cm in thickness, lying almost without interruption across stream-scoured upper surface of bedrock, boundary with P1 is diffuse.	Lag gravels lying atop the pedestal but absent as a relic stratum in the flood channel.
P1	Upper Mississippian Maccrady Formation underlying the entire floor of Saltville Valley, surface conditions vary from intensively scoured near the terminal channel of the Saltville River to pockets of deeply (> 1 m) weathered rock, fluvial and Quaternary-age fossils sometimes imbedded up to 30 cm in the weathered clay.	The Maccrady Formation underlies SV-2, surface conditions ranging from thoroughly scoured bedrock to deeply weathered pockets and curtains of plastic, sometimes pliable but tightly cohesive members.

[1] The named units are representative of the bedrock-fluvial-lacustrine sequence of sediments that typify the floor of the southwestern part of Saltville Valley. The column described here for SV-1 is a synthesis of exposures at SV-1 itself and in cross-valley trenches that were studied in 1982 and reported in McDonald, 1985a, 1985b, 1985c. The sedimentary equivalents of the named units described here for SV-2 are preliminary and general, and will be presented in greater detail in McDonald, n.d. Boundary terminology follows Dackombe and Gardiner (1983) and color terminology used in this table is based upon the *Munsell Soil Color Charts*, 1975 edition.

Excavations at Saltville since 1980, and particularly since 1992, have produced additional evidence that humans were in the valley since at least 14,500 years ago (McDonald, 1990, 1996a, 1996b; McDonald and Kay, 1999). This evidence includes lithics that are allochthonous to the watershed of the Saltville River and bone that has been modified by strongly patterned repetitive abrasion. Flakes of chert from and after about 14,000 years ago are morphologically similar to biface reduction flakes.

At present, there is materializing a critical mass of evidence sufficient to persuade a growing number of scholars from diverse disciplines that the Americas indeed might have been populated by humans prior to Clovis time, that these human colonists might have multiple geographic and ethnic origins, and that these dispersing colonists might have reached North America at different times and by different routes (e.g., Nichols, 1994; Dillehay, 1997, 2000; Dixon, 1999; Gruhn, 1999; Stanford, 1999; Schurr, 2000; Stanford and Bradley, 2000). The willingness of archeologists to increasingly accept the pre-Clovis occupation of the Western Hemisphere, in turn, creates a situation where numerous sites probably will be put forth as supporting the new model(s), and will require intensified and diversified critical analyses of the evidence on a scale not heretofore experienced simply because the evidence deserving of scrutiny very likely will, in most cases, be relatively scant and potentially diverse, and might not conform to existing cultural inventories or material and behavioral typologies currently accepted as typical of North American prehistory.

The information presented in this paper is but one result of a broad study of the paleoecology of Saltville Valley and its environs that was begun in 1980. Nearly twenty sites have been investigated during the course of this study, but most excavation activity has taken place at sites SV-1 and SV-2, both of which consist of late Wisconsinan stream and riparian contexts overlain by latest Wisconsinan and Holocene lentic contexts. Most artifacts of pre-Clovis affinity that have been identified and recovered from Saltville are from our paleoecology site SV-2, the southward extension of archeological site 44SM37 (McDonald, 1985b), but evidence of possible pre-Clovis human agency in the form of chert and modified bone and tusk is known from SV-1 and yet other probable pre-Clovis artifacts are known from at least one private collection. The purpose of this paper is to provide a summary of our current thoughts resulting from the excavation of the pre-Clovis levels of SV-2, to put on record a list of those objects and features we currently are analyzing as probable or possible evidence of pre-Clovis presence at SV-2, and to provide a detailed description of one of the more important artifacts from the site, a bone tool (VMNH 721) that dates from the oldest pre-Clovis level at SV-2 and thus establishes the earliest documented presence of human agency in the valley. Results of our excavation at SV-2 will be treated more thoroughly in a book now in preparation (McDonald, n.d.), but the growing interest in and acceptance of pre-Clovis archeology makes a summary of that work desirable at this time and the attention that the bone tool is attracting requires that detailed information about its provenience and modification be made available. All dates presented herein are as radiocarbon years before present. Portions of the information about the pre-Clovis occupation of Saltville Valley included here have been presented elsewhere in the form of conference papers, short notes, or abstracts (McDonald, 1990, 1996a, 1996b; McDonald and Kay, 1999; McDonald et al., in press).

ENVIRONMENTAL CONTEXT

Geographic Setting

Saltville Valley (Figure 2) is in the Appalachian Ridge and Valley Province in southwestern Smyth and northeastern Washington counties, Virginia. The valley is shaped roughly like a scalene triangle, with the longest side of the triangle forming the northwestern edge. The floor of the valley, that portion lying below 1740'/530 m elevation above sea level, measures about 8000'/2.4 km in length and 2750'/0.84 km in greatest width and encompasses about 1 km^2 of generally level surface. About 20% of the floor of the valley is now covered with standing water, an artifact of the industrial extraction of salt brine during the later 19th and earlier 20th centuries.

The perimeter of the valley is marked abruptly on all sides by relatively high relief. A scarp rises some 400 to 600'/122 to 185 m above the valley floor on the southeast side and becomes a series of separate and somewhat lower peaks on the northeast side which crest at 300 to 400'/90 to 122 m above the valley floor. The northwest side of the valley is bounded by a wall of southeasterly dipping limestone that culminates in gently rounded knobs some 200'/60 m above the valley bottom. A break in this limestone at the northern tip of the valley forms the Saltville Gap, a narrow defile leading 2300'/0.7 km northwestward from Saltville Valley to the North Fork of Holston River.

Table 2. Radiocarbon dates for late Wisconsinan to earliest Holocene sediments in Saltville Valley.

Lab #	^{14}C yrs BP	d ^{13}C	Material	Provenience and Significance
Not given[a]	9,930 ± 190		Bulk mud	W1 Dates low water phase
Beta-5056[b]	10,050 ± 110		Paleosol	W1 Dates low water phase
Beta-5055[b]	10,690 ± 130		Peat	W1 Dates low water phase
A-2985[b]	13,130 ± 330	-24.8%	Wood	W2-P1 boundary Dates early lacustrine deposits
SI-641[c]	13,460 ± 420		Tusk	Probably W2[d] Dates earliest lacustrine deposit
Beta-65209[e]	13,950 ± 70	-27.3%	Wood	W3 Dates last high-water event recognized for Saltville River
Beta-5701[b]	14,480 ± 300	-25.02%	Wood	W3 Dates waning phase of Saltville River
Beta-117541[f]	14,510 ± 80	-22.9%	Bone	W3 Dates waning phase of Saltville River

a Delcourt and Delcourt, 1986. This date is from SV-1.

b McDonald, 1984b. These dates are from SV-1 and allied trenches.

c Stuckenrath and Mielke, 1972.

d All proboscidean remains recovered at Saltville since 1978 have been found in units W2 (rarely), W3, W4, and (embedded in) P1. The dated specimen was incomplete, suggesting that it was found in units W3, W4, or P1.

e McDonald, 1996b; Wisner, 1996. This date is on the middle pre-Clovis horizon of SV-2.

f McDonald and Kay, 1999. This date is on VMNH 721 from the oldest pre-Clovis horizon recognized to date at SV-2.

Site SV-2 is located in the southwestern part of Saltville Valley at an elevation of ca. 1720'/524 m asl along the north side of an artificial reservoir created by Olin Mathieson Chemical Corporation in 1964 and 1965. The geographic coordinates of the site are approximately 36° 52' 19" N, 81° 46' 27" W, and it is located on the Glade Spring quadrangle, USGS 7.5' series (Figure 2).

General Surface Geology and Geomorphology

Saltville Valley is a typical Appalachian strike valley that lies on the upper limb of the recumbent Greendale Syncline (Figure 4). The southeast pitching axis of the 170-mile-long Greendale Syncline is near the surface at Saltville and roughly parallels the surface trace of the Saltville Thrust Fault which lies alongside much of the southern and eastern edges of the valley. The northwestern edge of Saltville Valley is defined by the folded and partly recumbent Upper Mississippian Little Valley, Hillsdale, and Ste. Genevieve/Gasper limestones. Overlying the Saltville Thrust Fault are gently dipping strata, largely dolomites, of Cambrian and Ordovician age. The leading western edge of this thrust sheet is represented by the steep scarp and peaks which form the southern and eastern edges of the valley (Butts, 1940; Cooper, 1966; Conners, 1986).

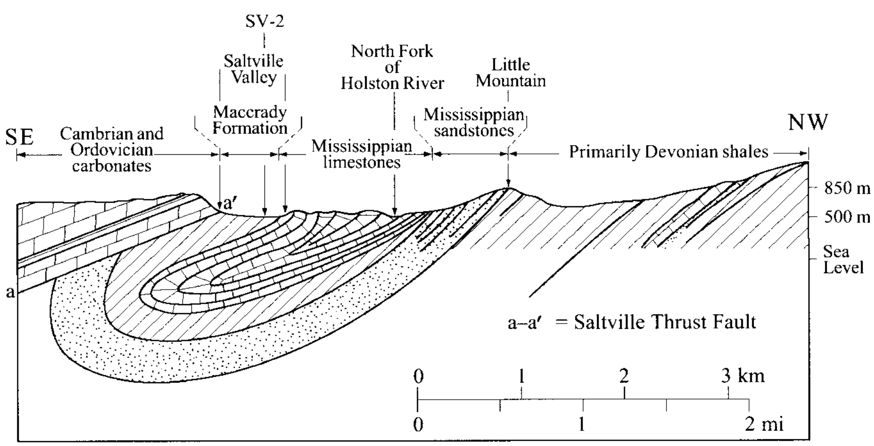


Figure 4. This diagram illustrates the basic geology of Saltville Valley and the regions that border it to the north and south. The transect lies approximately on the border of Smyth and Washington counties (modified from Cooper, 1966). The Greendale Syncline lies north of the Saltville Thrust Fault.

Saltville Valley lies entirely upon the Upper Mississippian Maccrady Formation, a highly variable sequence of shales, siltstones, and minor sandstones and limestones that incorporates significant quantities of gypsum, anhydrite, and halite. Much of the valley, including the area in which SV-2 is located, is underlain by the upper plastic shale members that are composed chiefly of illite and, less extensively, montmorillonite (Cooper, 1966). These shales are variously colored, ranging from grays and greens through yellow-browns to rose-browns and maroons. According to Cooper (1966: 15), "These shales have unusual or rather remarkable physical properties, the most pronounced characteristic being the tendency to disintegrate and flocculate on contact with water." The gypsum, anhydrite, and halite were also soluble, although variably so. The tendency for members of the Maccrady Formation to disintegrate or dissolve with relative ease accounts for the excavation of the valley — and for the value of many of these strata as distinctive geomorphic markers as will be demonstrated in the research reported below.

During the late Wisconsinan, until about 13,500 yr BP, Saltville Valley was coursed by the lower part of the Saltville River, a permanently flowing stream of modest size that originated to the east of Saltville Valley in that part of Rich Valley lying immediately north of today's Virginia Highway 107. The river entered Saltville Valley at its southwest corner, flowed north through the valley to its northern corner, then entered Saltville Gap and emptied into the North Fork of Holston River. Geomorphic and stratigraphic evidence indicates that, during the late Wisconsinan, the Saltville River had scoured at least half of the width of the upper (southwestern) end of the valley below 524 m to bedrock, and that in the southwest end of the valley the river was cutting laterally to the north, when it ceased to exist around 13,500 yr BP. Prior to and during the final millennium of its presence in Saltville Valley, the stream appears to have experienced an increased volume of flow, at least periodically, most likely a result of the increased precipitation that has been postulated for the region between 16,000 and 12,000 yr BP (Mills and Delcourt, 1991). Evidence of this higher energy includes intensified lateral scouring, accelerated downcutting, a dramatic increase in the size and number of boulders in the channel, and increased evidence of periodic high-water events. Intense rilling and the accelerated influx of colluvium further attest to the presence of periodically intense storms. The upper portion of the Saltville River was pirated by the lower portion of today's McHenry Creek — yet another suggestion of increased volume of runoff and the consequent acceleration of headwater erosion by the responsible tributary of lower McHenry Creek. This piracy might have begun before 14,500 yr BP because colluvium appears to have been aggrading at SV-2 by this time, and was completed by 13,500 yr BP. The upper portion of today's McHenry Creek is the ancestral upper Saltville River.

Following the final capture of the upper Saltville River, the Saltville Gap became blocked and this resulted in the development of an upland lake — Lake Totten — over much of the floor of Saltville Valley (McDonald, 1984a). This blockage most likely resulted from mass wasting along the steep walls of the gap, events that would be expected consequences of the increased precipitation the region was experiencing. Sedimentary evidence reveals that the lake formed immediately after the river stopped flowing through the valley and quickly reached depths of, at minimum, about 5 m. After forming to this depth, the lake level subsequently was lowered to at least a depth of 3 m, then again quickly raised to or beyond the 5 m level — all during a period of discernible precipitation, rilling, sheet erosion, and deposition of colluvium in the riparian-littoral zone. The next major low-water phase that has been identified came at about 10,000 yr BP and apparently lasted for a few centuries before the water level again rose (McDonald, 1985a, 1985c).

The deposition of sediment within the lake occurred most rapidly during the early millennia of the lake's history, then slowed as the surrounding slopes became more stable. Most of the infilling sediments were insoluble fines eroding from the surrounding carbonate rocks or the extensively weathered Maccrady beds near the surface on the northwest side of the valley. Lesser contributions of more coarse sediments consisted of sand and fine gravels carried in from the surrounding carbonates by small streams and surface runoff, and colluvium, ranging from fines to boulders, that is especially prominent along the southeast side of the valley below the scarp of the thrust sheet. Table 1 and Figure 5 describe the typical stratigraphy of the valley bottom.

SITE SV-2

SV-2 is located on the north side of an artificial reservoir created in 1964 by the Olin Mathieson Chemical Corporation (Figure 2). This reservoir was located atop the channel of the extinct Saltville River, the lowest point in the bedrock surface along a northwest-southeast transect of the valley, and was enlarged by bulldozing the overlying lacustrine muds and some of

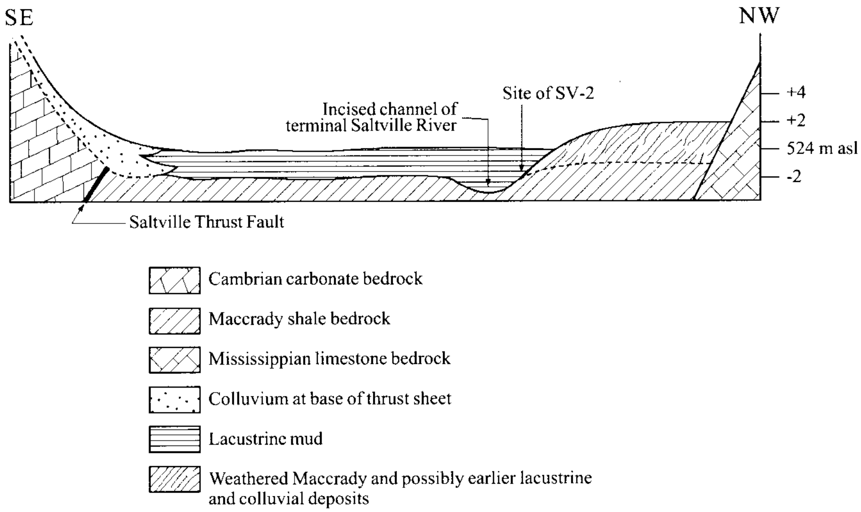


Figure 5. A generalized transect through the major unconsolidated sediments filling Saltville Valley (modified from McDonald, 1984b).

the stream gravels radially up-slope and outward from the pond area. The sloping sides of the resulting bulldozed surface exposed fluvial and lacustrine sediments *in situ.* During the excavation of SV-2 from 1992 to 1997, the clearly sorted, distinctively colored, tightly packed, and sharply bounded naturally bedded muds, sands, and gravels were readily recognizable and separable from the surface occurrences of disturbed, relocated, intermixed, disintegrating and weathered muds and gravels that had been displaced or exposed by the heavy equipment in 1964 and 1965. The objects and features described in this paper were excavated from sediments that were situated north of the graded surface and clearly had not been disturbed by the earth moving activity of 1964 and 1965.

SV-2 includes that area within grid cells 45 to 85 W and 10 to 35 S of the Saltville Valley Grid established by the author in 1982. Parts of SV-2 were excavated each year from 1992 to 1997 by the Virginia Museum of Natural History under the direction of the author and with the support of primarily volunteer crews. The initial investigation of SV-2 took place in June, 1992, when a trench 13 m in length and 0.6 m in width was cut to bedrock by backhoe parallel to the channel of the Saltville River for the purposes of (a) exposing the local stratigraphic section, (b) exposing the bedrock surface, and (c) exploring for concentrations of botanic and faunal remains. A concentration of proboscidean ribs and an associated tool-like sliver of sandstone (VMNH 719) located in lacustrine muds near the southwestern end of this trench were interpreted as possible evidence of human agency, and suggested that the area immediately to its west should be investigated more extensively. This was done, and this area became the center of excavation activity from July, 1992, through August, 1997 (figures 6 through 9).

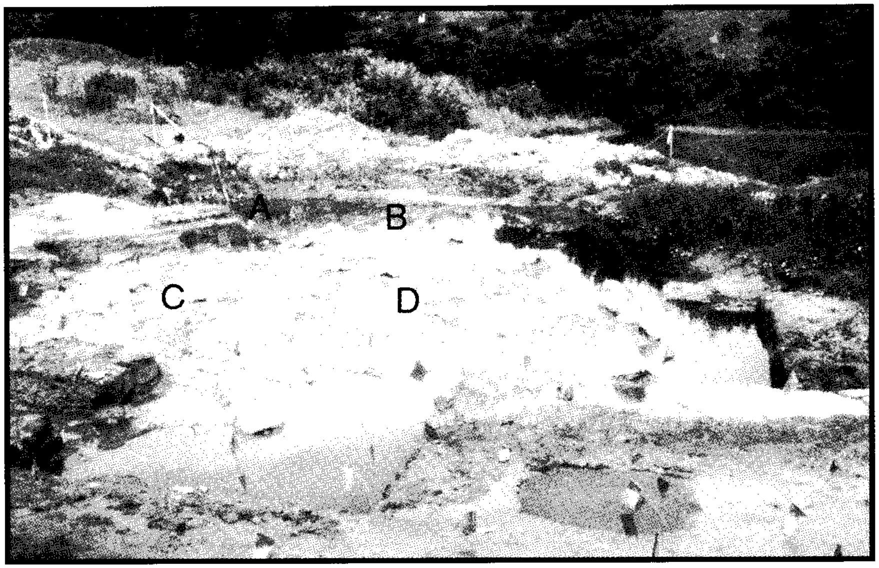


Figure 6. SV-2 immediately before excavation began in the summer of 1994, looking to the east across the pedestal. Water has just been pumped from the site sufficient to lower the water level to near the brim of the terminal channel of the Saltville River, visible to the right. The drained area constitutes the upper surface of the pedestal. The mastodon butchering (A) and tusk reduction (B) areas occupy the left and right parts, respectively, of the eastern end of the excavated area shown here. The cooking area (C) is to the left while the boulder-strewn hide, meat, and bone processing area (D) occupies the right part of the pedestal (see also Figure 7).

Beginning with the exploration of the western section of SV-2 in 1992 (57-68W, 18-27S), the area to be excavated was planed by bulldozer to a predetermined level, typically 0.3 to 0.6 m above the uppermost target horizon. The site grid, in one-meter squares, was then extended over the cleared area (Figure 7). Stratigraphic sections along the north and west high walls were measured and described, and more detailed descriptions were made of lower stratigraphic sections throughout the site (Figure 8). The massive muds were removed in controlled increments by shovel, and more detailed work was conducted by trowel, brush, dental tools, dissecting needles, and air brushes, as required. Representative samples of unconsolidated sediments were collected and wet-screened. Location information was recorded to the centimeter within a three-dimensional Cartesian grid coordinate system. In all, 196 m^2 were excavated to bedrock during the six years of work at this site.

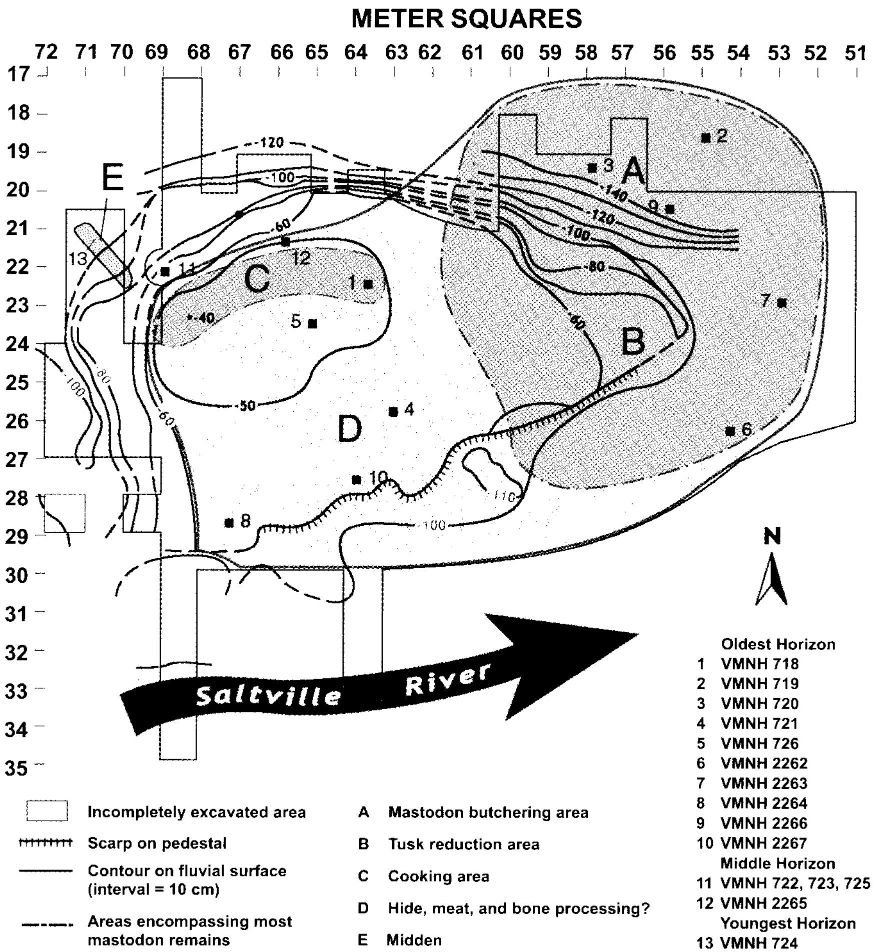


Figure 7. Plan view of the excavated area of SV-2 as of August, 1997, with contours showing the bedrock surface as of ca. 14,500 yr BP and the location and areas of pre-Clovis horizons, features, and artifacts shown.

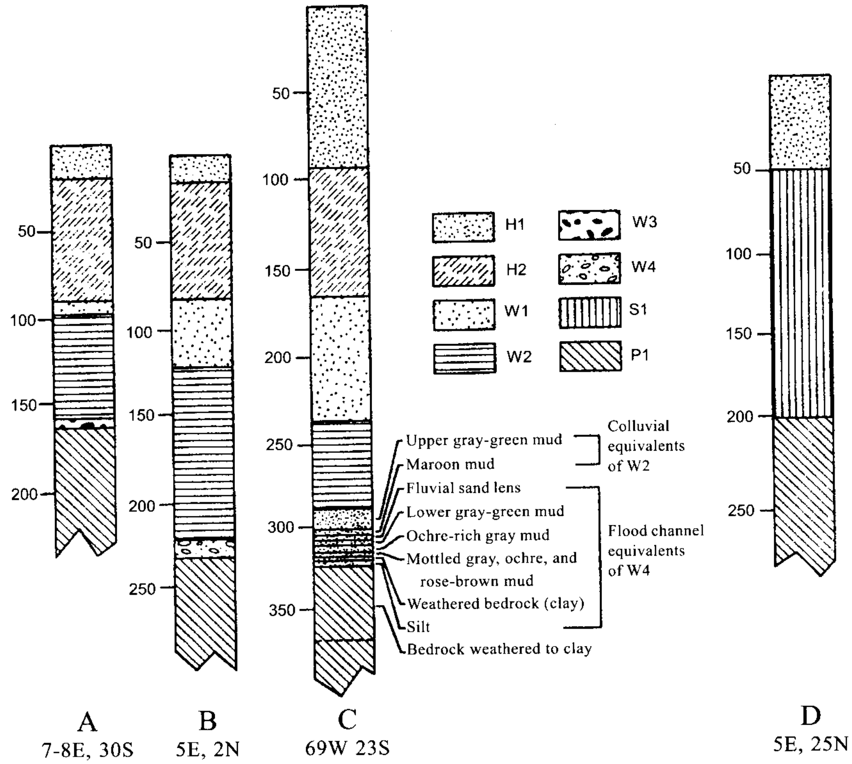
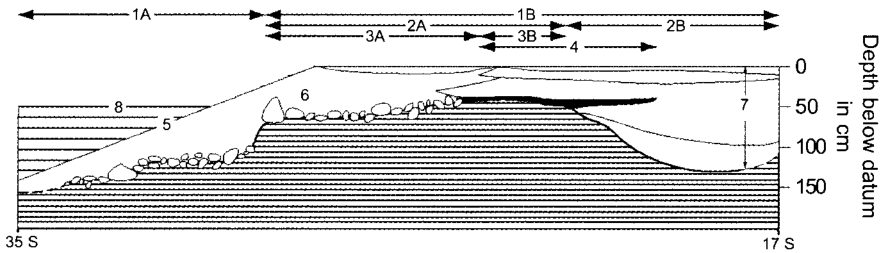


Figure 8. Stratigraphic section at SV-1 (columns A, B, and D) and SV-2 (column C). All columns extend from the local surface down. Columns A, B, and C have been adjusted arbitrarily so that the upper surface of Unit W1 shares a common plane in the illustration. Column B is over the terminal channel of the Saltville River at SV-1, and column C is over the flood channel of the Saltville River at SV-2. Column D illustrates the great depth of weathered bedrock (P1) and the mantel of what is possibly an earlier lacustrine deposit (S1) that occurs in the northern part of the valley where the Saltville River had not recently scoured before its capture.



1A River channel
1B Floodplain of terminal stream
2A Bedrock pedestal
2B Flood channel
3A Gravel/boulder zone of pedestal
3B Sand/gravel zone of pedestal
4 Fluvial sand lens (shown black)
5 Surface graded in 1964 and 1965
6 Lacustrine mud
7 Colluvium
8 Approximate level of pond surface, 1992

Figure 9. Stratigraphic cross section along grid line 69W in SV-2. Note especially the transition from massive lacustrine mud to the south to layers of colluvium in the north. It is the distinctly colored layers of colluvium which provide such clear stratigraphic control in what was the riparian zone of the terminal Saltville River at the time it was being frequented by pre-Clovis people. The oldest pre-Clovis horizon was situated upon the gravel/boulder zone and sand/gravel zone of the pedestal (zones 3A and 3B in this diagram). The middle horizon occurred within the fluvial sand lens (zone 4 in this diagram). The midden that formed the youngest horizon occurred to the west of this cross section in squares 70–72W21–24S at depths of 58 cm below datum at its northwestern end to 75 cm below datum at its southeastern end.