

OVERVIEW OF THE HUMAN USE OF CAVES IN VIRGINIA: A 10,500 YEAR HISTORY

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The human utilization of caves within the Commonwealth of Virginia began early in prehistoric times and has extended to the present. Such use often has focused on the exploitation of removable resources; knappable lithic materials for the production of stone tools is an important prehistoric example. During historic times, the mining of saltpetre dominates although other natural resources also were removed.

The human interaction with caves, however, extends well beyond raw material extraction into the realm of ceremonialism and supernaturalism. Within a Virginia context, Native American use of caves includes both human interments and the codification of symbols. Cave burials have long been known and appear to include attitudes of elaborate ceremonialism as well as less intricate body disposal systems. The mud glyph cave phenomenon has been recorded in Virginia with incised designs and anthropomorphic figures apparently mediating between the sacred and the mundane. Such symbols have roles in rites of passage.

Historic use usually is framed in a more functional light. While resource extraction is an obvious utilization realm, the historic use of caves for other purposes is prevalent and includes resort recreation, scientific study, aesthetics, and general exploration. Caves can be discussed in terms of modern symbols and ceremonialism.

North America was devoid of humankind for the vast majority of its evolution. Although several archaeological resources show promise of an earlier occupation of the New World, current scientific evidence strongly confirms dates in the range of 9500 BC. As this migration of the new species came across the Bering Strait Land Bridge, which was exposed at the end of the Late Pleistocene, it was likely not until circa 9200 BC. that the first human set foot within the Commonwealth of Virginia (Gardner, 1989). In a turbulent period of climatic change and species extinctions, the Paleoindians (as they are called) focused their concerns on subsistence activities and the procurement of lithic resources for stone tool production that led to settlement patterns centered on the jasper of the Flint Run area of Shenandoah and Warren Counties, the cherts of the Williamson Site area in Dinwiddie County, and game rich areas such as Saltville in Smyth County and the Dismal Swamp in Virginia Beach. This early smattering of humans was busy in gathering food, dealing with the climatic and environmental changes of the end of the Ice Age, and producing the repertoire of tools necessary for such activities. No ties between Paleoindian peoples and cave resources has yet been established.

As the climate settled gradually into the warmer Holocene, and the human population during the Archaic Period (8500-1000 BC) increased, more extensive and intensive use of the environment was made (Barber, 1992). Caves were still not broadly sought out, but the use of rock shelters and cave

entrances for shelter increased through the period. During the Woodland Period (1000 BC - AD 1650), people added intensive gardening to their repertoire of gathering and hunting, eventually resulting in increased sedentism, major village complexes, and the social stratification of some societies. More intensive use of caves developed during this period for the ceremonial pursuits of mediating with the spirits and/or the disposal of the dead, whether expedient or with more elaborate after-life concerns (Clark, 1978).

The Native American cultures of the Americas were subject to European impacts, which severely altered social trajectories, territories, material goods, health, and demographics. Cave utilization by these new emigrants from across the Atlantic included a plethora of historic uses such as onyx extraction, water sources, food storage, moonshine stills, transient hunting and gathering camps, and animal enclosures. Ironically, old graffiti are protected from new graffiti. The historic extractive industry focused on the removal of saltpetre.

As an overview document, this paper presents resource types with illustrative examples. Caves are discussed as prehistoric encampments including rock shelters, prehistoric burial caves, glyph caves, and historic saltpetre mines.

PREHISTORIC ENCAMPMENTS

Cave entrance ways and rock shelters provide protection from the elements in an energy cost-effective manner. This

was not lost on the prehistoric Native Americans of Virginia, and these geomorphological features were occupied from Early Archaic times (ca. 8500 BC) to the European Contact Period (ca. AD 1650). Although there were disadvantages, such as the sharing of the occupiable space with other animals, and lessened mobility necessitating longer trips to water and other resources, the ease of occupation and protection from the elements apparently outweighed such inconvenience. From an archaeological standpoint, cave entrance ways and cliff-base rock shelters have unique attributes that make them particularly important in understanding the past. If they were continually occupied, they may preserve relatively undisturbed cultural deposition that can span thousands of years. In addition, due to the general protected nature and dryness, many botanical (plant) remains are preserved that would completely decompose in open-air sites. Although burials are sometimes included in the fill (e.g., Geier, 1980), these interments often derive from other habitation sites and do not necessarily involve the same activity sets as burial caves.

DAUGHERTY'S CAVE

The excavation of Daugherty's Cave is likely the most important contribution to understanding culture history in southwestern Virginia. Daugherty's Cave is a northeast-facing cave entrance with a high roof and accommodating space. In addition, a circa 50°F (10°C) air current continually moves through the cave, keeping it cool in summer and warm in winter. During excavation by Benthall (1990) in the late 1960s, 300 square feet of the cave entrance floor area was removed, including 44 cultural features. These included charcoal pits, refuse pits, hearths, ash pits, and stone-filled pits. The distribution of features included pits and hearths in the upper levels, and only hearths in the lower levels. Six hundred eighty-one pot sherds were recovered including Late Woodland shell-tempered ceramics (N=67), Late Woodland sand-tempered ceramics (N=17) and Early to Late Woodland limestone-tempered ceramics (N=697). Lithics included 9,256 artifacts of local cherts, rhyolite, ferruginous quartzite, silicified limestone, and steatite. Dominated by projectile points, 15 identified types were present from the Early Archaic Kirk corner-notched, through Middle Archaic Cedar Creek points, Late Archaic Savannah River points, and Late Woodland triangular arrow points. Other lithics included graters, knives, scrapers, blanks, and flaking debitage. Faunal remains were dominated by white-tailed deer, black bear, and elk (as per estimated meat totals), but also included beaver, river otter, raccoon, turkey, passenger pigeon, and various other small mammals and birds, snakes, toads, and fish. Archeobotanical remains included corn, hickory nuts, walnuts, and hackberry seeds. Overall, Daugherty's Cave offers great insight into Native American lifeways.

The greatest contribution from the excavations of Daugherty's Cave, however, is the undisturbed stratigraphy, which allows the sorting of cultural activities by time period. Ten stratigraphic zones were noted within the circa 7.5 feet of

natural and cultural deposition. At the bottom of the column were two sterile levels, one of brown sand and shell overlain by a level of rock fall. Above this sterile base were the following deposits (Benthall, 1990:92-96):

Zone J - 0.2 - 0.5' (6.096 - 15.24 cm) thick dark grey ashy level. One Kirk Corner-notched point and one unifacial side-scraper were recovered indicative of the Early Archaic with a radiocarbon date of 7840±400 BC obtained. Activities during this period included hunting, hide-working, and stone tool reduction. The occupation is seen as a short-term occupation, transient camp.

Zone I - 0.4 - 1.2' (12.192 - 36.576 cm) light yellow, tightly consolidated clay which contained no artifacts.

Zone H, G, and F - Zone H and F consisted of 0.5' to 1.0 - 1.1' (6.096 to 30.48 - 33.528 cm) of dark gray to black ashy fill interrupted by Zone G, a sterile stratum of yellow to brown fill. These occupation zones were marked by Middle Archaic Cedar Creek points. Activities during this period included hunting, gathering, and shell fish harvesting.

Zone E - 0.2' - 0.8' (6.096 - 19.507 cm) of sterile orange clay.

Zone D and C - Zone D was a 0.2' to 0.9' (6.096 - 27.432 cm) yellow-orange clay containing gravel under Zone C a 0.4' to 0.7' purplish-brown fill. Savannah River points of mostly grey silicified limestone were recovered from this level. Dating to the Late Archaic (3500 - 1000 BC), on-site activities included hunting, hide processing, woodworking, lithic reduction, and food processing.

Zone B - 0.5' to 1.0' (15.24 - 30.48 cm) of yellowish-orange clay with evidence of Early Woodland occupation of circa BC 500 to AD 1. With influences from East Tennessee, Long Branch fabric-impressed Long Branch Series pottery was recovered in this zone. Pits begin to appear and triangular and notched projectile points were collected. During this period the site functioned as a temporary food procurement camp.

Zone A - 1.5' to 3.0' (45.72 - 91.44 cm) of light to dark grey ashy fill with artifacts dating to the Middle and Late Woodland Period. Ceramics of the Wright Checked Stamped and Mulberry Creek Plain mark the Middle Woodland. Activities during this occupation included hunting, butchering of animals, hide working, general food processing, and lithic reduction sequences.

The Late Woodland Period was represented by a food procurement station. Seen as a support settlement for a large palisaded village, activities at Daugherty's Cave focused on the production of meat to augment the horticultural diet of corn, beans, and squash. Activities included hunting, food production, wood and bone working, butchering, and lithic reduction.

The stratigraphic sequence of the occupation of Daugherty's Cave allows for the understanding of cultural change through time. Beginning 10,500 years ago with an ephemeral hunting camp and ending possibly 350 years ago with a very different secondary camp focused on providing

protein to a major village, the entrance deposits document evolving cultures of the area.

COEBURN EXCHANGE ROCK SHELTERS

Another study that lends insight into the understanding of the past is the study of the prehistoric occupation of rock shelters in Wise County, Virginia (Barber, 1980; 1985). The study area is a 1700 acre tract along the Guest River in Wise County under management by the USDA-Forest Service, that was proposed for exchange out of federal control. Under the National Historic Preservation Act of 1966 (as amended), such a transfer of potentially significant archaeological resources out of federal control would be seen as an adverse impact. In order to determine the cultural resource base, archaeologists undertook a Phase I archaeological survey in the late 1970s, with limited Phase II testing in 1981 and 1983 (Rogers, 1982; Barber, 1985).

Of interest here are the 34 prehistorically occupied rock shelters. Located along the tributaries of the Guest River in a dendritic drainage pattern, the Lee Conglomerate sandstone cliff line concavities proved attractive to both historic and prehistoric populations. Evaluation of the details of occupation for the shelters is based on examination of looters' backfill, limited subsurface testing, intensive Phase II evaluations, or some combination of these.

One of the more important aspects of the study relates to the change in land use through time. During the earliest occupation during Early Archaic times (8500 - 6500 BC), the shelters were sporadically used as transient camps with more complex base camps located elsewhere, probably along the more productive and varied flood plains and terraces of the Guest and Clinch River drainages. This pattern of limited use continued through the Middle Archaic (6500 - 3500 BC) and Late Archaic (3500 - 1000 BC) Periods, with a total absence of occupation during the Early Woodland Period (1000 BC - AD 500). A transient use of the area returns during the Middle Woodland Period (AD 500 - AD 1000).

The most frequent and complex use occurred during the Late Woodland Period (AD 1000 - AD 1650) when sites seem to have been both base camps and transient camps. During a period of major occupation in large villages on the flood plain, the rock shelter forays were likely aimed at the exploitation of game animals. Again, the acquisition of protein in the form of meat was needed to augment the horticultural diet. As village populations grew, environmental stress may have been brought to bear on the river systems, and the availability of prime food animals moved to the hinterlands. This would be reflected within the Coeburn Exchange by the presence of fragmented task force groups at both base camps and more satellite transient camps.

An alternative can be put forth for the added complexity of sites in the Coeburn area. This would relate to the establishment of a more complex, regional political system. If a chiefdom developed further to the south in Late Woodland times (or during the coeval Mississippian of that area), people in this

headwater locale may have felt some direct or, more likely, indirect impacts. Based on the distribution of ceramics (Holland, 1970; Barber, 1985), it appears that Wise County was on the periphery of such developments. What may have developed in the area would have been a buffer zone or game reserve function where groups hunting deer may have exploited the area using the convenient rock shelters for camps.

Hence, the rock shelters occupied during prehistoric times offer a unique vehicle for understanding cultural change through time. Although disturbed by looting, the information they contain can be coupled with studies such as the excavation of Daugherty's Cave in order to develop an understanding more regional in scope. As a footnote, due to the significance of the cultural resources within the project area, the tract remains under federal control.

BURIAL CAVES

A number of caves in Virginia, particularly in the southwest corner along the Powell, Clinch, and Holston Rivers, have been used during prehistoric times for the disposal of the dead (e.g., Caldwell, 1951; Newman, 1951; Holland, 1970; Clark, 1978). Burial techniques in limestone caves vary across space and possibly across time. Interments run the gamut from disposal from above into relatively deep, vertical-drop caves to elaborate interments involving controlled placement with numerous and exotic grave goods. Scientific understanding of cave burials is severely impaired by the frenzy of uncontrolled looting of these resources. The condition of most of these cave burials at present consists of looters' pits and scattered human bones with any artifact contents removed for sale.

Although the burial cave phenomenon can be seen across southwestern Virginia, there do appear to be differences when moving from west to east. In the far southwest corner of Virginia, these natural burial chambers likely relate directly to the Dallas culture and people, who entered the area during Mississippian times. To the east, however, the cave interments of Smyth and Washington appear to be under Mississippian influence but not of Mississippian culture. In this area, cultural complexity may also have been at the chiefdom level with differential distribution of wealth items. Access to exotic and energy-expensive Mississippian trade items may have been tied to the exploitation and controlled distribution of Saltville salt (Barber & Barfield, 1991). In any case, the local populace adopted numerous traits from east Tennessee, among which may have been cave burial concepts. The intervening area may be transitional, involved with cave burial but lacking the wealth of the eastern group.

What is apparent is the geographic space between the burial cave in Page County and the remainder of cave interments. Located well over 200 miles northeast from its nearest counterpart, the 5+ burials at 44PA4 (Manson & MacCord, 1952) represent a cultural anomaly.

BULL THISTLE CAVE

Of the current total of 37 known burial caves in Virginia, only three remain relatively undisturbed by looters. Prime among these is Bull Thistle Cave, a vertical shaft pit cave (Willey & Crothers, 1986). The cave was first noted by a group of cavers in early 1985. The existence of the burial cave was reported to the local Crab Orchard Museum and subsequently the Virginia Department of Historic Resources, which, in turn, contracted with the Midsouth Anthropological Research Corporation of the University of Tennessee. Their task was to map the cave, determine the extent of surface material, identify human skeletal material and artifacts, and make management recommendations.

The cave is within the Ridge and Valley Province at the headwaters of the Clinch River. Entrance was limited to a 65-foot drop, and the cave proved to have a length of 575.2 feet (175.32 m) and a vertical extent of 119 feet (36.27 m) (Willey & Crothers 1986:1, 16). The cave was divided into a main room containing the talus slope of soil and debris from the entrance above, a smaller western alcove, and a lower eastern room containing a stream. Cultural material was confined to the main room and alcove. The distribution of skeletal material suggests that the corpses were cast down or lowered into the pit from above, with a likely original position just to the east and below the apex of the cave's talus slope. As decay of the flesh advanced, gravity moved the skulls downslope, with most crania moving to the base. Although some bones were moved up into the western alcove above the level of the talus, rodent activity is a likely explanation for this anti-gravity phenomenon. The skeletal material, however, remains *in situ* in the sense that only natural movement has occurred, with relatively little recent human alteration.

Due to the research design that specified only surface material was to be examined, and due to the nature of deposition on and within the talus slope, numerous human bones and individuals remain buried within the soil matrix. On the cave floor surface, ninety-one human elements were noted. These elements were from all parts of the body, with a minimum number of eleven individuals determined. The count included 2 children, 1 adolescent, and 8 adults. Of the adults for which sex could be determined, 2 males and 2 females were present. When statistically compared with the nearby skeletal sample from the Crab Orchard Village Site, there appears to be no difference in the age distributions. Hence, there was no age-determined preference towards cave burials (Willey & Crothers, 1986).

A single artifact was recovered from the Bull Thistle Cave by the initial cave group (Willey & Crothers 1986). This was the stem and part of the bowl of a smoking pipe tempered with crushed mussel shell. The bowl is set at an obtuse angle with the stem and resembles an alate-stemmed tube or modified tube pipe, a type common in southwestern Virginia (Willey & Crothers, 1986; Gunthe, 1965). This style of pipe dates to late prehistoric times and is probably the result of interaction with the Mississippian cultures of east Tennessee (Egloff & Reed,

1980; Holland, 1970). Willey and Crothers (1986) use the pipe's association with the skeletal material to date the cave burial period to between AD 1300 and AD 1600.

Willey and Crothers (1986:30) indicate that "Bull Thistle Cave is remarkable." If anything, this is an understatement. The cave contains human remains and fossilized behavior that lend insight into regional cultural patterns that have been lost on at least 36 other sites.

MUD GLYPH CAVES

Two mud glyph caves have been discovered in Virginia, both at the headwaters of the James River. Access to these resources is restricted, and locational data are protected by the owner and/or manager. In comparison to most of the burial caves, the glyph caves are horizontal features relatively easy to enter without the necessity of vertical techniques. The caves' histories involved previous flooding, mud deposition on the side walls, and finally stream migration where the water disappeared but the mud remained. The final element was discovery and use by Native American cavers, who took full advantage of the subterranean *tabula rasa* afforded by the mud-coated passage walls. A C14 date from one cave suggests an early Late Woodland use (ca. AD 900-1000), while the use of the second cave dates slightly later in the range of A.D. 1200 - 1450. All carbon samples were the result of charcoal collection from the remnants of pine torches used by the artists and possible entourage.

The glyphs are fairly extensive, overlapping in some cases. They are simple in execution in the sense that the mud was easily incised with either finger or sharp object. The artistic execution and symbolic messages, on the other hand, are highly complex. Included are renditions of 3 to 4 parallel serpentine lines, circle mazes, chevrons, relatively parallel straight lines, ovoid eye motifs, zigzags, meanders, anthropomorphic figures, torch jab marks, and gouge damage (Tolley, personal communication; Faulkner, 1994). Although some of the glyphs may date to the Late Archaic, most were likely initiated during the Late Woodland Period. Reminiscent of glyph caves in East Tennessee and the symbolic renditions in the Mississippian Southeast (Faulkner, Deane, & Earnest, 1984; Faulkner, 1986; Muller, 1986; Henson, 1986), the glyphs are absolutely out of place at the headwaters of the James River. Whether brought to the area by some wayward emissary, compassless wanderer, or powerful ideation, the symbols and messages are not consistent with the current understanding of the Late Woodland of the region.

HISTORIC SALTPETRE MINING

The removal of nitrates or saltpetre from cave deposits within the karst areas of the Ridge and Valley Province of Virginia has been important since colonial and national times. During the Revolution, War of 1812, and the Civil War, blockades hindered the importation of foreign gunpowder and

spurred the acquisition of domestic saltpetre, which was processed and blended with charcoal and sulphur to produce gunpowder. The production of saltpetre from composted beds, from the walls of old cellars, from stables, and beneath houses and barns was important in colonial times, but production from cave deposits eclipsed the other sources in Virginia and other southern states by the time of the Civil War (Paepe & Hill, 1981). As outlined by Faust (1964), the saltpetre processing included mining the "cave earth" and placing it in vats, puddling it with fresh water for several days, and allowing it to drain. Potash salt was added to the leachate water exchanging potassium for calcium, and the amalgam underwent fractional crystallization yielding potassium nitrate. Further processing and blending with charcoal and sulphur produced gunpowder.

Saltpetre mining and processing left significant evidence of these historic events, with the identification of 88 saltpetre caves in the Commonwealth (Hubbard, 1995). Excavations, mattock marks, old sediment levels on walls, piles of hand-picked stone along passage walls and in alcoves, piles of sieved clay clasts and small stones, and tally marks quantifying production are some of the remaining evidence of mining. Path modifications include stone and cut clay steps, plank ramps and bridges, and demountable and notched log ladders. Tools left behind, including winches, scraping paddles, pry bars, bag-mouth-spreaders, grapples, torch stubs, vats and vat fragments, troughs and trough fragments, and kettles, are dwindling in numbers as visitors remove, trample, and burn these artifacts (Clark, 1978; Faust, 1964; Hubbard 1995).

CONCLUSION

Although this paper has been confined to resources found within a Virginia context, the potential archaeological significance of caves is global in nature. Cave resources are many, varied, significant to the understanding of the past, and extremely fragile. Education, preservation, and protection are concepts not limited to speleo-archaeological resources, but also apply to a plethora of cave phenomena that demand our work and attention.

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