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Topper Site: Results of the 2000 Allendale Paleoindian Expedition

Albert C. Goodyear

University of South Carolina - Columbia, goodyear@mailbox.sc.edu

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The 2000 Allendale Paleoindian Expedition was the largest one ever. Over 100 volunteers participated as donor-excavators for an excavation that lasted for five weeks, from May 1 to June 3. The staff stayed on for another three weeks for a geology study of the Topper site and nearby environs using geological consultants.

Excavations this year focused on gathering more archaeological data from the pre-Clovis zone in the area of the initial discovery in 1998 (N244, E130). Here, unusual clusters of rocks were found, which have turned out to be chert knapping loci where pieces of local chert were reduced. This was also the area where in 1999 possible post stains were encountered. Few such stains were found this year nor any obvious spatial patterns. An exceptionally dry period preceded fieldwork this year as in 1999, rendering organic stain detection difficult in all cultural levels.

In May 2000, excavations concentrated on two block excavations. A large 4 x 8 m unit (Figure 1) was dug from E128 to E136 along the N242 and N244 grid lines. This was in the flatter area of the terrace. A 2 x 4 m unit was dug 10 m east of here going up the hill on the N244 line from E146 to E150. Excavation in the 4 x 8 m unit proceeded by 2-meter squares in 10 cm levels to 100 cm below surface (cmbs), which includes the full Holocene archaeological record in this part of the terrace. This would include Clovis through Mississippian. In the absence of finished fluted points, recognition of Clovis at Topper and the other Allendale chert quarry-related sites continues to rely on the transversely flaked and basally-thinned biface blanks, of which we have now excavated several examples (Figure 2). An optically stimulated luminescence (OSL) date taken from the base of the Holocene colluvial unit returned 13,000 to 14,000 calendar years ago, which is in line with expectations since Clovis dates about 13,000 calendar years ago. In the 4 x 8 m block, upon reaching 100 cmbs, construction plastic was nailed over the profile walls to prevent Holocene age artifacts from falling down into the lower levels (Figure 1). At 100 cmbs, excavations changed to five cm levels and one m units to gain finer spatial control.

In the 2 x 4 m unit, excavation continued in 10 cm levels all the way to the base of the sands terminating at about 220 cmbs on a terrace. As expected, the Holocene deposit here was deeper, being at the base of the
hill with 140 cm of slopewash sands accumulating. Soil lamellae were also present in the lower portion of the unit (Figure 3). At the bottom of the unit, large weathered cobbles and boulders of chert were encountered, which are believed to be the source of the pre-Clovis raw materials. Some of these show signs of human alteration by repeated smashing.

In the 4 x 8 m block, the normal stratigraphic pattern observed in 1998 and 1999 was repeated. Here approximately 200 cm of artifact bearing sands overlie a scoured gray silty clay terrace, which appears to be archaeologically sterile. Below about 100 cmbs, the chert typically utilized by Holocene age peoples, consisting of bedrock boulders available in the creek bed in the hillside and river cobbles, ceases to occur. Below that and intensifying at about 130-140 cmbs, cortical lithic debris increases along with the unusual small microlith-like chert tools made from highly weathered cortical chert (Figure 4). At approximately 150 cmbs, larger pieces of cortical chert appear, often occurring as feature-like concentrations (Figure 5). These concentrations are comprised of chunks of the cortical chert, some split open, along with quartz pebbles and cobbles with some showing modification by battering and splitting (Figure 6). The rock features occur as clusters of lithic items lying basically on a common surface rather than in pits. Owing to leaching by groundwater, no in situ charcoal survives anywhere in these lower sands.

The lithic artifacts found between 130 and about 210 cmbs thus far appear to be essentially microlithic in character (Figure 4). Including the 2000 field season, this is based on 78 square meters of excavation. Numerous small utilized chert flakes, unifacially retouched flakes, burins, burin spalls, and microblades dominate the tools. What appear to be two microblade cores were found this year (Figure 7). No bifaces have been found nor any definite flakes from bifacial retouch. Thermally-
altered and damaged chert flakes occur in every level. It is clear from our lab studies that quartz was also utilized. Quartz artifacts show up as pebble cores, hammerstones, unifaces, and flake tools. The quartz used in the pre-Clovis assemblage is derived from the hillside and is represented by small, clean, unstained alluvial gravels from ancient terrace material high up on the hillside. These gravels are typically small pebbles and cobbles and suitable only for flaking small cores and flakes. This is in contrast to the larger iron-stained quartz pebbles and cobbles found in the Savannah River today, which were available beginning in Clovis times and which are present at the Topper site in the upper meter of Holocene age occupations as hammerstones and firecracked rock.

Analysis of these technologies and the reduction strategies represented is currently underway. Larger chert boulders naturally available at the base of the hill appear to be smashed open. This is indicated by chunks and spalls with strong force lines observable in the more siliceous portions. This seems logical given the lack of large cobble hammerstones available for initial nodule reduction. Fire may also have been used in quarrying based on the presence of thermally altered chunks and flakes. Quartz hammerstones in the pre-Clovis zone are typically small (<8cm) and suitable for producing the small (<2cm) flakes, which exhibit striking platforms and bulbs of force. Most of the artifacts represent cortical debris. This is expected since the chert boulders serving as the pre-Clovis lithic source were for the most part poorly silicified with good cryptocrystalline material present only in minor portions. The cortical débitage ranges from angular to sub-angular chunks to cortical flakes with enough silica present to produce distinct striking platforms and bulbs. While generally speaking the pre-Clovis chert falls within the range of what is normally described as Allendale, we are beginning to see some differences in color and texture between cherts found in the upper versus the lower meter of the site. It is not certain if the differences are due simply to degree of weathering and age or if another variety of chert is present. A detailed petrologic study of the pre-Clovis chert is being planned to elucidate the physicochemical basis of these macroscopic differences.

A major goal of the 2000 field season was to conduct a geological study of the Topper site and related landforms to securely locate the archaeology within a regional geochronological framework. A team consisting of Dr. Steven Forman, University of Illinois at Chicago; Dr. John E. Foss, University of Tennessee; Dr. Thomas Stafford, Stafford Laboratories, Boulder, Colorado; and Dr. Michael Waters, Texas A & M University, worked from June 12-24, 2000 at Topper and nearby landforms. Although these consultants are currently pulling together their findings, some of the more salient results can be reported here.

In 1998, it was initially thought that the entire 2.0+ m of upper sand was colluvium, i.e. derived from the hillside as slopewash. Colluvium is indicated as contour elevations gradually increase approaching the hill and sands can be seen washing down the road today during rainstorms. However, during the brief reconnaissance made by these geologists in 1999, (Figure 8) when a much larger profile was exposed, it was revealed that the lowest meter of the sands were fluvially deposited and/or

Figure 5: Feature-like concentrations of cortical chert in the pre-Clovis zone in the 4 x 8 m excavation unit. (SCIAA photo by Daryl P. Miller)
modified. Drs. Waters, Forman, and Stafford were able to detect chute channels paralleling the Savannah River in the lower sands including small pieces of the underlying gray silty clay terrace (rip up clasts), which resulted from energetic flooding. Thus, extensive backhoe trenching was planned for Topper this year as well as other loci on the 70 ft and 80 ft terraces in an effort to reconstruct the regional geology of Topper and related archaeological sites.

Thirteen backhoe trenches were opened up at Topper in an effort to identify and map the geological stratigraphy. Using long continuous trenches, a clear difference was revealed between the upper meter of colluvial sands and the fluvially modified sands below. A photograph taken of the 1999 season block excavation neatly illustrates the three basic stratigraphic zones surrounding the archaeology at Topper (Figure 8). The upper meter of sands are typically discolored a light brown grading from darker to lighter by depth. According to the project soil morphologist, Dr. John Foss, this is a result of weak pedogenesis (Bw). Only modest soil development is possible due to the coarse nature of the parent material (quartz sands) and the lack of available fines where only iron and organic matter are available for weathering and translocation. As mentioned, an OSL date of 13,000 to 14,000 calendar years ago was obtained from the base of this zone. This date matches quite well our archaeological interpretation of the age of this level as this is the stratigraphic location of the Clovis preforms. Based on the OSL date and the time-sensitive Holocene artifact distributions by depth, approximately 110 cm of sands washed down the hill over a 13,000-14,000 year period. Using the estimate of 13,500 years, this would be an average of 8.15 cm of slopewash accumulating per thousand years.

The lower approximate one meter of sands as seen in the photo (Figure 8) is fluvially deposited and/or modified. The term "modified" is used since we are not certain how much of the sand is coming off the hillside and being fluvially reworked by floods versus alluvial deposition. It is a clean white sand of a similar texture to the upper meter. Chute channels with small quartz pebble gravels can be detected in this unit. The pre-Clovis artifacts and unusual feature-like rock concentrations occur in lower half of this zone. An OSL date of 15,000 to 16,000 years ago was obtained from the top of the alluvium. This sample was taken from underneath the 13,000-14,000 K. A. date at the base of the colluvium. This date would indicate that the pre-Clovis artifacts, which are found predominantly in the lower half of this unit, are at least 16,000 years old and probably older. These sands overlie a dark colored overbank unit (the gray silty clay terrace) enriched by silt and clay of alluvial origin.

The top of this unit is scoured and bioturbated as indicated by cracks and probably root holes (Figure 8). In the 1999 field season, hand excavations were conducted up to a meter deep in this unit. A few small possible flakes were found suggesting they were bioturbated into this unit.

For purposes of geological dating, it was hoped that charcoal might be preserved in the gray silty clay terrace immediately underlying the pre-Clovis zone, but none was observed. Radiocarbon dates from this unit would provide a maximal age for the pre-Clovis zone lying immediately above it. In 1999, an attempt by Dr. Tom Stafford to date sediments (humic acids) from the upper gray silty clay unit was unsuccessful as the date was only 8,270 ± 60 RC yrs B. P. There are artifacts older than this found over a meter above indicating contamina-
tion of sediments by later humic acids. The lower sands of the pre-Clovis zone and the gray silt clay terrace top are in a zone of ground-water flow as we observed during the rainy season in 1998. However, in 1999, Stafford was able to collect sediment samples from underneath the gray clay terrace, which is about 1.5 m thick. Immediately under this terrace he obtained two humic acid radiocarbon dates from discrete alluvial layers that dated 19,280 +/- 140 R.C. yrs B.P. and 20,860 +/- 90 R.C. yrs B.P. This year he was able to obtain additional sediment samples from underneath this terrace from the bottom of backhoe trench 12. We are planning to date two more sediment samples taken from a different location to confirm these early dates. Radiocarbon dates of 18,570 +/- 100 R.C. yrs B.P. and 25,330 +/- 130 R.C. yrs B.P. on plant macrofossils obtained elsewhere from alluvium at elevations comparable to the gray clay terrace at Topper suggest these humic acid dates may be accurate.

Perhaps the most important finding by the geologists this year was the documentation of the Topper site stratigraphy. They were able to show conclusively that the 2.0+ m sand deposit of the site is of two different origins. The upper sands, which are colluvial, began forming from 14,000 to 13,000 years ago and represent the system of sedimentation operating today. Importantly, this system began operating several centuries, if not a couple of thousand years before the first Clovis people arrived. No evidence of flooding is observable in this unit indicating the Savannah had downcut to its present base level some time prior to that time. The river cobble chert, with its characteristic water worn cortex, is only associated with this unit. By the time Clovis people arrived, the Savannah had already cleaned itself out and exposed the chert cobbles and large iron-stained quartz cobbles, which were so extensively exploited in the Allendale County region by Paleoindian and Archaic groups. Large pieces of high quality bedrock chert exhibiting massive well-silicified sections also are associated with this upper unit. This material can be seen today in the bottom of the creek, which has cut into the hillside at Topper. Like the river cobble chert, this chert source appears to have been unavailable to the pre-Clovis occupants. When the Savannah River downcut during the late Pleistocene, it would have lowered the creek drainage gradient causing it to incise. By the time Clovis folk arrived, the high-quality bedrock cherts were exposed.

Below this unit lies approximately a meter of fluvial sands, which were deposited and modified by the Pleistocene Savannah River. It is known that the Savannah, like many of the major rivers of the Southeastern U.S., was flowing at higher bank levels during full and late glacial times. Toward the end of the glacial period, about 14,000 to 13,000 R.C. yrs B.P., major climatic changes occurred in the Southeast as world climate began to warm. With this dramatic change in temperature and precipitation came major hydrologic changes resulting in an erosion of river valleys as streams downcut to their modern levels. In the project area, the Paleoindian sites of Charles and Big Pine Tree, located on the 70-ft contour, overlie a heavily scoured terrace.

Dating the time of the late Pleistocene scour and downcut of the Savannah River will help confirm the age of the pre-Clovis remains at Topper. The pre-Clovis archaeological remains are housed in alluvium. Whenever the Savannah cut to its
modern level, the pre-Clovis at Topper must date no younger than this event. After the scour, the Savannah would have been incapable of reaching the Topper site elevation. To date this event will require extensive geological studies of the Savannah River alluvial history in the project area.

Toward that end, our project benefited greatly this year from another geology team headed by Dr. Douglas Williams of USC's Geology Department and his colleagues Dr. Zhenya Karabanov, Dr. Sasha Prokopenko, and Dr. Paul Gayes of Coastal Carolina University. They have been joined by Dr. Tom Stafford of Stafford Laboratories to work on fluvial geology and dating problems. These scientists graciously brought their vibracoring technology and students to the project area in June and November 2000 (Figure 9). The purpose of the coring is to study alluvial sediments in riverine deposits near the Topper site in order to reconstruct the hydrological history of the Savannah River over the past approximately 25,000 years. For archaeological purposes at Topper, their work is critical to help date the end of Savannah River alluviation at the 80-90-ft contour elevation. Preliminary radiocarbon dating results from the vibracores indicate deposits of Savannah River alluvium as old as 25,000 to 37,000 R. C. years ago in the lower portions of the stratigraphy. These dates are based on Stafford's dating of plant remains. It is hoped that plant macrofossils and pollen grains are sufficiently preserved to allow environmental reconstruction horizontally, we may see spatial patterns in the rock clusters and artifacts. We also intend to excavate just the Holocene zone (0-100 cmbs) in an area toward the river. From N228 to N246, in an area about 12 x 20 m, four Clovis-related biface fragments have been found suggesting Clovis biface making loci. By continuing to recover the fluted Clovis blanks and perhaps a fluted point itself, we can further reinforce our interpretation of the reality of Clovis in the lower portion of the colluvial unit.

Because of the pre-Clovis discovery at Topper, the site continues to receive attention in the media. During May, the excavation was on the front pages of the Charlotte Observer and the Charleston Post and Courier. During the geology study in June, Scientific American sent a writer down from New York and interviewed us “in the trenches.” An interesting article on the early peopling of the western hemisphere appeared in the September issue of that magazine, which included Topper. And, in the December issue of National Geographic, Topper was included in their similar review of the search for the earliest Americans. In December, 2000, Science Magazine sent a writer to SCIAA in preparation for a similar article being published in early March. In April, I’m scheduled to

See ALLENDALE, Page 24
present a paper at the annual meeting of the Society for American Archaeology in New Orleans, providing an update on our findings.

The supervisory staff this year included Tommy Charles, David Butler, Grayal Farr, Van Steen, Kenn Steffy, and John White. Without their help and that of the many talented volunteers who have returned year after year, a dig of this size couldn't be successfully accomplished. Susan Hollyday, Bob Cole, Darrell Barnes, John Conners, and Bill Lyles all lent able assistance to the technical recording. My thanks to them for their dedicated and enthusiastic work. Daryl P. Miller, project photographer, worked hard at getting everyone's picture plus many of the scientific shots. We have received great assistance in the lab, both in the field and at SCIAA, from Kenn Steffy, Bill Lyles, Bill Larson, John White, Darrell Barnes, Van Steen, Perry Mack, and Norm Cox.

Several people and organizations helped to make the 2000 dig a success. Without the 100+ donor-volunteers, there would have been no dig. Thanks to each one of you as listed below. Some volunteers have now come for five and six years in a row, driving from as far as Maine and Texas. Ms. Iola Brooker and her family of Brooker's Restaurant in Barnwell, continue to provide hearty southern fare as only they can do. Clariant Corporation is the owner of the project area and our gracious host. Their provision of the picnic shelter for camping and cooking and other site logistics are important amenities to our expedition. Key personnel at Clariant include Dan Packer, Director of Technical Operations, Bill Hartford, Site Manager, Susan Yates, Human Resources Manager, Tom Pinkney, Head of Security, and John Thompson backhoe operator extraordinaire. Betty Stringfellow and her adventuresome friends from Johns Island provided our crew with another memorable picnic on the site, which they have been doing since 1996. Board members of the Archaeological Research Trust of SCIAA and their guests had a BBQ party and stayed for a board meeting and tour the next day. Charlie Phlegar, then Executive Director of USC's Educational Foundation and Dr. Bruce Rippeteau led a tour of the excavation with several invited guests. Dr. David G. Anderson and his wife Jenalee Muse once again threw their famous Paleo-Carnivore dinner party at their home in Williston, feeding steaks to our team and many guests.

This year we are going again for five weeks beginning April 30 ending June 2, 2001. It will take that long, plus about 100 donor-volunteers to accomplish all that we intend. A sign-up notice (insert) is included in this newsletter. At SCIAA we need volunteers to come help sort and classify the hundreds of artifacts. Kenn Steffy and Van Steen have been operating the artifact lab nearly every day since last summer with the help of volunteers (Figure 10) who come in for a few hours a week. They also have an evening session for those who work during the day. Anyone interested in working in the lab, please call Kenn Steffy at SCIAA at (803) 777-8170 or email me at goodyear@sc.edu. He will train you to recognize the material.

The Allendale Paleoindian Expedition is substantially supported by private gifts. We are continuing to solicit donations for the ongoing work in the lab and the field. Funds are needed for more radiocarbon and OSL dates, a petrology study of the pre-Clovis chert, and running the laboratory. The services of a professional land surveying company are also needed to precisely measure the different site elevations along the river terraces. If any foundation, business, or individual would like to support our work, they should please contact me. A hearty thanks to all who have contributed to the Allendale work thus far and who have brought us to our present exciting state of development.

**Thanks to the donor-volunteers listed by week:**

**First Week**

Bob Cole, Hopkins, SC
Sallie Connah, Charleston, SC
John Conners, Waco, TX
Nelle Crowley, Columbia, SC
Nan Faile, Columbia, SC
Cliff Fontenot, Port St. John, FL
Berne Hannon, Taylor, SC
Susan Hollyday, Nashville, TN
Marty Howes, Sylvania, GA
Grace Larsen, Stuart, FL
Thor Larsen, Stuart, FL
William Larson, Santee, SC
Daniel Lorentz, Charleston, SC
Steve Miller, Columbia, SC
Robert Phillips, Jacksonville, SC
Janis Rodriguez, Cumming, GA
Helen Vose, Carthage, TN
Henry Wilkinson, Charlotte, NC
Neill Wilkinson, Charlotte, NC

Second Week
Robert Allison, Cary, NC
Darrell Barnes, Blythewood, SC
Carole Bennett, Folly Beach, SC
Scot Bowling, Chapel Hill, NC
Gary Brown, Southport, NC
Bob Cole, Hopkins, SC
John Conners, Waco, TX
Jamie Destefano, Marietta, GA
Cliff Fontenot, Port St. John, FL
Robert Hanlin, Charleston, SC
Margaret Harris, Charleston, SC
Crist Holden, New Hill, NC
Susan Hollyday, Nashville, TN
Bill Lyles, Lexington, SC
Anne-Marie Moran, Lakeland, FL
Marjorie Plummer, Princeton, NJ
Nancy Smith, Folly Beach, SC
Mike Toothill, Piedmont, SC

Third Week
William Anderson, Nashville, TN
Rebecca Barrera, Columbia, SC
Bob Cole, Hopkins, SC
John Conners, Waco, TX
Virginia Culp, Mountain Rest, SC
Rebecca Diamond, Lawrenceville, NJ
Joel Evans, Bryson City, NC
John Farris, Heritage, TN
Cliff Fontenot, Port St. John, FL
Robert Hammond, Westbrook, ME
Agnes Holladay, Fairview, NC
Curtis Holladay, Fairview, NC
Terry Hynes, Atlanta, GA
Arthur Libourel, Southampton, NJ
Bill Lyles, Lexington, SC
Holly Norton, Columbia, SC
Nancy Olsen, Newnan, GA
Clayton Parham, Latta, SC
Jennifer Secrest, Cary, NC
Alison Simpson, Greenville, SC
John Simpson, Greenville, SC
Mark Tolly, Nashville, TN
Ruth Wetmore, Brevard, NC
Connie White, Atlanta, GA
Brian Whittington, Wilkesboro, NC
Dennis Zeunert, Virginia Beach, VA

Fourth Week
Darrell Barnes, Blythewood, SC

Fifth Week
Depy Adams, Charlotte, NC
Lezlie Barker, Greenville, SC
Claire Buffkin, Charlotte, NC
Carla Daws, Athens, AL
Cliff Fontenot, Port St. John, FL
Sara Jane Frazier, Decatur, GA
Kevin Gallagher, Wading River, NY
April Gordon, Rock Hill, SC
Don Gordon, Rock Hill, SC
Susan Hollyday, Nashville, TN
Terry Hynes, Atlanta, GA
Bill Larson, Santee, SC
David Leaphart, Greer, SC
Elizabeth Leaphart, Greer, SC
Sallie Legare, Columbia, SC
Bill Lyles, Lexington, SC
Brian Marcel, Ann Arbor, MI
Rick McDonnell, Brooksville, FL
Dot Moore, New Smyrna Beach, FL
Gary Scrivano, Seymour, CT
Brian Siegel, Greenville, SC
Wanda Stover, Charlotte, NC
Ted Tsoi, Chapin, SC
Ned Wallace, Columbia, SC
Jim Way, Dorchester, SC

Figure 10: The lab team sorting artifacts from the Topper site at SCIAA. Standing: Bill Larsen, and Al Goodyear; Sitting: Van Steen, Kenn Stafford, and Norm Cox. (SCIAA photo by Daryl P. Miller)