2014

Paleoindian in COWASEE: Time, Typology, and Raw Material Selection

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

Follow this and additional works at: http://scholarcommons.sc.edu/sciaa_staffpub

Part of the Anthropology Commons

Publication Info
Published in South Carolina Antiquities, Volume 46, 2014, pages 3-20.
http://www.assc.net/
© 2014 by Archaeological Society of South Carolina, Inc.

This Article is brought to you for free and open access by the Archaeology and Anthropology, South Carolina Institute of at Scholar Commons. It has been accepted for inclusion in Faculty & Staff Publications by an authorized administrator of Scholar Commons. For more information, please contact SCHOLARC@mailbox.sc.edu.
Paleoindian (13,000 – 11,500 cal. yrs) demography is generally considered low relative to subsequent prehistoric time periods. Among Paleoindian complexes, Clovis population density may be the lowest in North America representing, at least at present, the first recognizable widespread settlement of the continent (Haynes 2002). In the eastern U.S., there are a variety of undated fluted and unfluted lanceolate point forms which are considered to come after Clovis and before Dalton (Justice 1987). These types have been traditionally assigned to the Middle Paleoindian period (e.g., Anderson and Sassaman 1996; Goodyear 1999; Anderson et al. 2010). Whether or not post-Clovis groups continued seamlessly out of Clovis populations with no discernible break has been a recent topic of debate. The traditional view is that there is no interruption in the East nor with Folsom on the Plains (Holliday and Meltzer 2010). Lately it has been suggested based on the lower frequency of post-Clovis projectile points in the East that instrument-assisted fluted point types such as Redstone, Debert, Vail, and Gainey represent a period of possible post-Clovis demographic decline or reorganization (Goodyear 2006, 2010a; Anderson et al. 2011). Whatever may have caused this post-Clovis decline in points, by Dalton times (ca. 12,000 – 11,500 cal. yrs) there are relatively abundant examples of Dalton points over the Midwest and Southeast. By around 11,500 cal. yrs, the Younger Dryas cold period was coming to an end and more modern climates were present everywhere ushering in what is called the Early Archaic (Anderson and Sassaman 2012).

What has been called the Clovis techno-complex (Bradley et. al 2010:3), as opposed what might be referred to as a single culture, is an attempt to recognize the many Clovis sites in North America which share technological elements on a consistent basis. Two of the most important of these are Clovis points and their characteristic biface production trajectories and prismatic blades with various blade core forms. Other bifacial and flake tools are part of this complex as well as osseous artifacts, but the chief diagnostics and the most commonly recognized are the points and blades (cf. Bradley et. al 2010; Collins 1999). One of the corollaries of Clovis stone tool technology is the use of high quality, fine grained isotropic lithic raw materials which allowed for the production of the intricately made fluted points and other well-shaped tools. Referred to as cryptocrystalline (Gardner 1974; Goodyear 1979), lithic artifacts made from these materials are well known for being geographically dispersed over great distances from their raw material sources resulting in their being foreign or exotic to a site or region. Speaking of Clovis raw material selection, Vance Haynes (1980:118) states that “They knew of, and made use of, most of the major aboriginal chert quarries known in the coterminous United States.” Many collections reveal they used multiple local sources within a few tens of kilometers of each other, as well as material from as much as 300 km away. This figure of 300 km (186 mi) for the maximum distance from lithic sources turns up repeatedly in the literature.

Within the Southeast, along the southern end of the South Atlantic Slope encompassing the states of North Carolina, South Carolina, and Georgia, the two major high quality lithic raw materials are the various metavolcanics of the Carolina Slate Belt of the North and South Carolina Piedmont (Daniel and Butler 1996; Daniel 1998, 2001; Steponaitis et. al 2006), and the Tertiary age marine cherts of the South Carolina and Georgia Coastal Plains (Cooke 1986; Goodyear and Charles 1984; Upchurch 1984; Goad 1979). Other types of tool stone are available both in the Piedmont such as quartz and quartz crystal (Novick 1978), and in the Coastal Plain with its orthoquartzite and various fossiliferous cherts, like Black Mingo and Wyboo cherts in the Santee river valley (Anderson et al.1982; Upchurch 1984; Costello and Steffy 2013, 2012, 2011). However, the metavolcanics and the Allendale-Brier Creek type materials are the dominant high quality tool stones and are heavily represented in the Paleoindian point data bases (Goodyear 2010b; Daniel and Goodyear 2006, 2013).

To date, the most comprehensive use of these major lithic sources is the work of Randy Daniel (1998, 2001) with his recognition of the North Carolina Uwharrie Mountain metavolcanic sources and the Allendale-type Coastal Plain cherts of South Carolina and southeastern Georgia. Using several private collections that spanned
both states, with these raw material distinctions he recognized two major hafted biface concentrations for the early Archaic Kirk corner-notched period. For purposes of simplification he posited that there was a Kirk band centered on the Uwharrie Mountains and a second contemporaneous band in the central Savannah River Valley focused on the Allendale cherts. He named them the Uwharrie and Allendale bands respectively. In his analysis, the geographic distribution of these bands cut across the major drainage systems north and south and he argued that Early Archaic people intentionally included access to these tool stone sources. He disagreed with the Early Archaic band/macroband models of Anderson and Hanson (1988) for these same landscapes. They argued that bands primarily focused on major rivers which included the Piedmont and the Coastal Plain for subsistence security and cross cut drainages for biocultural purposes such as information and mate acquisition (cf. Anderson and Hanson 1988). Their expectations for such river valley specific orientations were derived primarily from ecological and hunter-gatherer theory. In a similar study of prehistoric hunter-gatherer ranges which used private collections distributed down the Savannah River, Sassaman et al. (1988:85) found reciprocal though gradual fall-off patterns of quartz in the Piedmont and Allendale chert in the Coastal Plain suggesting movement up and down the river valley. They concluded that at least in the Savannah River valley that the Early Archaic mobility range was coextensive with the entire watershed (Sassaman et al. 1988:85).

With the continued recording of Paleoindian points in the state-wide surveys of North and South Carolina over the last 25 years, it has become possible to examine similar settlement organization issues for Clovis. Specifically, Daniel and I have been interested in the antiquity of the Uwharrie-Allendale band concept as proposed for Kirk Corner notched (Daniel and Goodyear 2013). Daniel and Goodyear (2014) have argued that the southern range of Uwharrie Clovis band settlement activity was what is now recognized as northern South Carolina. This is based on the concentration of metavolcanic Clovis points in northern South Carolina which morphologically are statistically identical to those of North Carolina except for length. The South Carolina examples tend to be shorter implying greater use as they leave the Uwharrie Mountain area sources. This is complicated somewhat by the evident fluvially transported metavolcanic cobbles present in the South Carolina portion of the Pee Dee River whose upper reaches flow through the Uwharries. (Young 2010; Goodyear 2010b). There is also metavolcanic tool stone present in the western Piedmont of South Carolina in the Sumter National Forest (Benson 2007) and extreme eastern Georgia (Moore et al. 2010). However, plotting of metavolcanic Clovis points in the western South Carolina Piedmont reveals a sparse distribution with

![Figure 1. Clovis points made from Allendale Chert versus metavolcanics within 20 km either side of the Santee River.](image-url)
no tendency to cluster near these metavolcanic quarries (Figure 1). In fact, the few Clovis points in that region resemble in color and texture the North Carolina types (Goodyear 2010b). At the Topper site (38AL23) and Flamingo Bay (38AR469), both located near the Savannah River, excavated Clovis artifacts resemble those of North Carolina, especially the green welded vitric tuffs (Goodyear et al. 2009; Moore and Brooks 2011). The metavolcanic sources in the western Piedmont, however, were heavily utilized by later Archaic peoples, especially for Savannah River points. In contrast to Clovis, metavolcanic Dalton points are heavily concentrated in counties around the Sumter National Forest (Goodyear 2009a) indicating the first intensive use of these lithic materials. The change to local and often inferior raw materials in Dalton is a trend observed across the Southeast (Goodyear 1999) implying a decrease in regional mobility.

Distributional studies of Clovis points in South Carolina by raw materials have produced some robust patterns that may be useful for studying settlement patterns and implied mobility strategies. What has been called the Allendale-Brier Creek Clovis complex (Goodyear 2009b, n.d.) is based in large part on the heavy usage of Allendale type Coastal Plain chert (ACP) for Clovis points in southern South Carolina and southeastern Georgia (Figure 1). ACP outcrops are plentiful in Allendale County, South Carolina, in the Savannah River, and in neighboring Screven and Burke Counties of Georgia, including abundant outcrops in and around Brier Creek which flows through those counties (Goodyear and Charles 1984; Goodyear n.d.). Sites such as Big Pine Tree (38AL143) and Topper are well known examples of Clovis quarries and related sites (Goodyear 2009b, 1999; Smallwood 2010, Smallwood et al. 2013). No sources of ACP are known north and east of Allendale County, South Carolina providing good geographic closure for studies of sources and patterns of dispersion (Goodyear and Charles 1984:7).

Examination of Figure 1 showing Clovis point distributions by Allendale chert and metavolcanics suggests a possible physical and cultural boundary along the Saluda River in the Piedmont and the Congaree-Santee Rivers on the Coastal Plain. This zone may mark the boundary between Uwharrie Clovis people to the north and an Allendale band to the south (Daniel and Goodyear 2013). This boundary would not have been impermeable as people and obviously artifacts would have passed through it as seen with the metavolcanic Clovis points to the south of it and ACP Clovis points to the north (Figure 1). The interaction of the two bands likely occasioned gift giving or exchange between and among groups resulting in exotic points being circulated amongst local groups. That is to say, the presence of exotics may have been more of a result of a social functions rather than strictly an economic one.

**COWSEE: Examining the Congaree-Wateree-Santee River Drainages**

In order to gain a quantitative appreciation of the presence of Clovis and later Paleoindian artifacts in the Coastal Plain portion of the proposed boundary, and to measure the incidence of exotic versus locally made points, an area 20 km wide on either side of the rivers was examined for fluted points (Figure 1). The figure 20 km was chosen as that is the maximum distance historically observed hunter-gatherers are known to walk in a single day (Gingerich 2012, Surovell 2009, Binford 2001). Any naturally occurring tool stone found within this distance was considered local for purposes of this study.

Paleoindian projectile point data were obtained from the South Carolina Paleoindian Point Database maintained by the Southeastern Paleoamerican Survey at the South Carolina Institute of Archaeology and Anthropology, including recent additions by the author as observed in private collections. For Daltons, which are not included in the Paleoindian Point Database, the records of local collectors from the South Carolina Collectors Survey (Charles 1981) were utilized plus new private collections studied by the author. A total of 16 private collections were examined starting at Carolina Dak (Eastman) on the west side of the Congaree River continuing down river to the Lake Marion Dam, and continuing up on the east side of Santee River (Figure 2). Of the 16 collections, only three were previously inventoried by the Collector Survey, the rest were new collections. These collections were studied from 2011 through 2013, recording hafted bifaces from all time periods that could be classified by conventional types in South Carolina archaeology as well as lithic raw materials. These collections are listed in Table 1 by location and collection along with the total number of typed bifaces. Altogether some 3,230 hafted bifaces were examined. By recording the types by all time periods and not just Paleoindian, it is possible to study potential changes in raw material selection patterns through time.

Before presenting the fluted point findings, a comment should be made about the possibility of preClovis points occurring in the study area. Two examples of what may be preClovis points have been recorded (Figure 3), one of local orthoquartzite (USL2) and the other which appears to be Ridge and Valley chert. (USL15). The USL nomenclature (Unidentified Small Lanceolate) is an
effort by the author and Tommy Charles to draw attention to this unusual hafted biface form which does not seem to fit Clovis or any known later biface technologies in South Carolina or anywhere else. These USL’s appear to be similar to what Painter (1983) and Peck (2013) have called the Haw River type of North Carolina which is characterized by a heart shape with the distal end pointing down. Small lanceolates similar to these have been found at Meadowcroft Rockshelter in Pennsylvania and Cactus Hill in Virginia, both thought to be preClovis in age (cf. Goodyear 2003). The USL forms as illustrated here (Figure 3), have yet to be found in excavated context and dated in South Carolina or anywhere else to my knowledge.

**Clovis Points (n=39)**

Clovis points (Figure 4) were recognized according to widely accepted attributes such as percussion fluting often in repeated stages, a base with a minor indentation, frequent overshot flaking on the faces, and a moderately excurvate outline of the blade at least in the earlier stages of tool life (Bradley et al. 2010). Finished Clovis points or nearly completed points along with preforms were all counted together as Clovis. Clovis preforms have been well documented and described in the Allendale County sites such as Big Pine Tree (Goodyear 1999) and Topper (Goodyear and Steffy 2003; Smallwood 2010; Smallwood et al. 2013), including an associated Clovis age 10,956 +/- 65 BP radiocarbon date from Topper (Goodyear 2013).

The Clovis points by raw material and frequency are presented in Table 2. A total of 20 Allendale chert (ACP) and nine metavolcanic points were found. These 29 represent the total of certain exotics in the study area or 7.3%. Confirmed local examples include eight made of orthoquartzite or 21.0%. The remaining raw materials include one made of quartz and another of quartz crystal (Table 2). The geographic origins of these two are ambiguous as both types are native to the Piedmont could represent cultural imports from that province. Alternatively, quartz cobbles are present in the

---

**Table 1. Private collections studied in the COWASEE drainage area.**

<table>
<thead>
<tr>
<th>Collection No.</th>
<th>Site</th>
<th>Collector</th>
<th>Location</th>
<th>N*</th>
<th>Upland</th>
<th>Lake</th>
<th>Associated Creeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Eastman-DAK</td>
<td>Andy Redland</td>
<td>Calhoun Co.</td>
<td>49</td>
<td>x</td>
<td></td>
<td>Swany Hunt</td>
</tr>
<tr>
<td>2</td>
<td>Kaiser</td>
<td>Brian Platt</td>
<td>Calhoun Co.</td>
<td>7</td>
<td></td>
<td></td>
<td>Sandy Run</td>
</tr>
<tr>
<td>3</td>
<td>38CL45-46,49,51</td>
<td>G. Lee Thomas</td>
<td>Calhoun Co.</td>
<td>94</td>
<td>x</td>
<td></td>
<td>Big &amp; Little Beaver,Murphy Mill</td>
</tr>
<tr>
<td>4</td>
<td>38 CL 10</td>
<td>A. Ruffin, F. Gant, D. Vining</td>
<td>Calhoun Co.</td>
<td>80</td>
<td>x</td>
<td></td>
<td>Big &amp; Little Beaver</td>
</tr>
<tr>
<td>5</td>
<td>38CL101</td>
<td>Rat and June Streit</td>
<td>Calhoun Co.</td>
<td>963</td>
<td>x</td>
<td></td>
<td>Bates Mill</td>
</tr>
<tr>
<td>6</td>
<td>38CL101</td>
<td>Wilkinson Family</td>
<td>Calhoun Co.</td>
<td>61</td>
<td>x</td>
<td></td>
<td>Murph Mill</td>
</tr>
<tr>
<td>7</td>
<td>Island</td>
<td>Steve Williams</td>
<td>Calhoun Co.</td>
<td>711</td>
<td>x</td>
<td></td>
<td>Four Hole Swamp</td>
</tr>
<tr>
<td>8</td>
<td>William Jackson</td>
<td>William Jackson</td>
<td>Calhoun Co.</td>
<td>22</td>
<td>x</td>
<td></td>
<td>Bates Mill</td>
</tr>
<tr>
<td>9</td>
<td>Tommy Hoffn</td>
<td>Hoffman Family</td>
<td>Orangeburg, Calhoun Co.</td>
<td>170</td>
<td>x</td>
<td></td>
<td>Little Poplar</td>
</tr>
<tr>
<td>10</td>
<td>Carson-Bryce</td>
<td>Hebert Family</td>
<td>Calhoun Co.</td>
<td>193</td>
<td>x</td>
<td></td>
<td>Halfway Swamp</td>
</tr>
<tr>
<td>11</td>
<td>Hungapulli Collection</td>
<td>Ellerree, SC</td>
<td>Elloree, SC</td>
<td>110(a)</td>
<td>x</td>
<td></td>
<td>Big Poplar</td>
</tr>
<tr>
<td>12</td>
<td>Stephanie Coulter</td>
<td>Varnc, SC</td>
<td>Varnc, SC</td>
<td>230</td>
<td>x</td>
<td></td>
<td>Mill Creek</td>
</tr>
<tr>
<td>13</td>
<td>Hebert Family</td>
<td>Calhoun, Orangeburg Co.</td>
<td>Calhoun, Orangeburg Co.</td>
<td>918</td>
<td>x</td>
<td></td>
<td>Southside Lake Marion</td>
</tr>
<tr>
<td>14</td>
<td>Ferguson Landing</td>
<td>Dianne Vining, Ann Shull</td>
<td>Orangeburg Co.</td>
<td>55</td>
<td>x</td>
<td></td>
<td>Estow Creek</td>
</tr>
<tr>
<td>15</td>
<td>David Wielicki</td>
<td>David Wielicki</td>
<td>Clarendon Co.</td>
<td>5</td>
<td>x</td>
<td></td>
<td>Wybo Creek</td>
</tr>
<tr>
<td>16</td>
<td>Robert Costello</td>
<td>Clarendon Co.</td>
<td>Clarendon Co.</td>
<td>227</td>
<td>x</td>
<td></td>
<td>NE Lake Marion</td>
</tr>
</tbody>
</table>

*Number of typed hafted bifaces.
(a)=Paleoindian and Early Archaic Only
Total Number = 3,230
The eight orthoquartzite Clovis points and preforms are interesting as that raw material was used to some extent by Clovis people. But in the state wide data base, only 14 orthoquartzite points have been recorded or about 4% of the database. Orthoquartzite is evidently not a favored raw material for making fluted points. Likewise Black Mingo chert also native to the basin has only two representatives in the state database indicating it was even less desirable for Clovis points. Before writing off orthoquartzite, however, as too poor a raw material for Clovis points, there are some examples that clearly indicate it wasn’t impossible. In Figure 5, three examples of orthoquartzite Clovis points are shown which came from the Cooper River. The largest one (Figure 5a), exhibits excellent workmanship including large flutes and well executed overshot flakes on the blade.

As will be shown below, even Dalton people made minimal use of quartz which was presumably available in gravel bars. In addition to Clovis points, ACP macroblades from the study area which are considered Clovis in origin were also noted (Figure 6). Excavations at the Topper site have revealed abundant examples of macro blades and their cores in association with Clovis (Sain 2012; Sain and Goodyear 2012). The macroblades found in the study area were all utilized with some exhibiting more than one retouched or utilized edge per blade. All macroblades are made of Allendale chert except one (Figure 6e) that is suspected to be orthoquartzite.

**Table 2. Clovis Points by Raw Material in the Santee River Valley, S.C.**

<table>
<thead>
<tr>
<th>Raw Material</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allendale Chert</td>
<td>20</td>
<td>51.3%</td>
</tr>
<tr>
<td>Metavolcanic</td>
<td>9</td>
<td>23.1%</td>
</tr>
<tr>
<td>Orthoquartzite</td>
<td>8</td>
<td>20.5%</td>
</tr>
<tr>
<td>Crystal Quartz</td>
<td>1</td>
<td>2.6%</td>
</tr>
<tr>
<td>Quartz</td>
<td>1</td>
<td>2.6%</td>
</tr>
<tr>
<td>Total:</td>
<td>39</td>
<td>100%</td>
</tr>
</tbody>
</table>

Exotics (Allendale chert, metavolcanic) = 29 or 74.3%  
Local (Orthoquartzite) = 8 or 21.0%  
Exotic/Local (Crystal and Quartz) = 2 or 5.2% = 70.3%  

Coastal Plain river beds which originate in the Piedmont. If they are added to the orthoquartzites, that would make 10 that are local. The minimal use of quartz by Clovis peoples in South Carolina might suggest they were brought in to the Coastal Plain. These percentages can be statistically evaluated based on their frequencies. A one-sample chi-square test for the ratio of exotic versus local raw materials (29:10) yields a probability of < .01 by chance. Based on the predominance of Clovis points and preforms exotic to the basin, it seems evident that Clovis peoples whether coming from the north or the south were bringing them into the COWASEE basin from their native areas.

**Redstone Points (n= 9)**

Another early fluted point type considered immediately post-Clovis in age is the Redstone (Cambron and Hulse 1964). Because of the extensive flutes these can be confused with Clovis points and have been in the past (Goodyear 2006). They usually have a different blade configuration being straighter or trianguloid with sharper tips than Clovis. They are also fluted differently with what has been called instrument-assisted fluting (Goodyear 2006, 2010a). Flutes were detached by placing an instrument in the concavity and either pressing or indirectly percussing off the flute similar to that of Folsom. Repeated fluting events may have resulted in the deeply concave bases but which also may reflect a hafting change from Clovis (Figure 7).
Figure 4. Clovis points in the COWASEE study area.
Figure 5. Clovis points made from orthoquartzite found in the Cooper River, Berkeley County, SC.

Figure 6. Clovis macroblades and blade-like tools from the COWASEE study area.
Figure 7. Redstone Points in the COWASEE study area.
A total of nine Redstones were observed in the study area (Figure 7), a type that is relatively rare everywhere when compared to Clovis. In the South Carolina Paleoindian point data base, the ratio of Clovis to Redstone is about 4 or 5 to one (Goodyear 2006:102). In North Carolina it is about 3 to 1 (Daniel and Goodyear 2006). The approximate 4 to 1 ratio seen here in the COWASEE region is thus an expected finding given the usual numerical dominance of Clovis points over Redstones. This drop in instrument-assisted fluted points including such types as Redstone, Gainey, Vail, and Debert is a pattern seen over the entire eastern United States and may be related to a demographic and/or settlement reorganization phenomenon at the beginning of the Younger Dryas (Anderson et al. 2011). This is also the time of what is thought to have been an extraterrestrial impact striking the northern hemisphere perhaps ushering in the Younger Dryas cold spell and resulting in the collapse of Clovis and several Pleistocene megafaunal species (Firestone et al. 2007; Wittke et al. 2013).

The raw material data for Redstones (Table 3) while scant, is spread over several exotic and local types. Three examples are of Allendale chert thought to be from the Savannah River quarries with two of these shown here (Figure 7b and c); one specimen is of black welded vitric tuff (g) thought to be from the Asheboro, North Carolina area; one is made from a brownish gray chert (h) which is very foreign to South Carolina and may be an exotic from Tennessee; one example of Ridge and Valley chert (a) which could be from north Georgia or Tennessee; one of quartz (d); and one of orthoquartzite (c), the latter a definite local material.

While the raw material data for Redstones in the COWASEE region is limited, in the state wide data base only six of the 74 Redstones are made from materials that could be said to be local in the study area. These include Black Mingo chert (1), quartz (1), quartz crystal (1), and three examples of orthoquartzite. Three of these are from the COWASEE region (Table 5). Importantly, the six from the statewide data base represent only 8.1% of the 74 total with over 90% made from the very fine grained raw materials, a fact made understandable by the raw material requirements for creating such long flutes (Goodyear 2010b:30).

All of the fluted points included in this study are listed in Tables 4 (Clovis) and 5 (Redstone). This will allow the reader to examine for themselves my typological classifications.

Returning to Clovis (Table 2), the dominance of exotic Clovis bifaces in the COWASEE basin with some coming from the south and others from then north is consistent with the idea that the Congaree and Santee Rivers served as a cultural boundary during Clovis times. The use of some local raw material such as orthoquartzite indicates they stayed there long enough to resupply their tool kit with locally available raw material but not long enough to match the frequencies of points coming from their settlement centers (Figure 1; Daniel and Goodyear 2013). These drainages might have been characteristically visited at certain times and functioned as an aggregation zone for social purposes by Uwharrie and Allendale bands (Daniel and Goodyear 2013). The raw material patterns presented here would thus far support such an interpretation.

**Dalton Points (Late Paleoindian)**

Although the precise dating of Dalton by radiocarbon has been limited, the best temporal placement would be 12,000 to 11,500 KA. The estimated dating of between 10,500 and 9,900 BP by radiocarbon (Goodyear 1982) is approximately correct. Early Archaic notched points in the Southeast have been shown to be as old as 11,500 KA and these dates have been on pure notched point assemblages. However, Dalton points could have been made in some regions a few centuries later than 11,500 KA. The classification of Dalton here as Paleoindian is based on the overall technology rather than subsistence. By this time period the modern flora and fauna of the Holocene are well established (Anderson and Sassaman 2012).

A total of 66 Dalton points (Figure 8) were observed in the study area (Table 6). Of these 33 or 50% were exotic to the valley, 21.2% ACP and 28.7% metavolcanic. Orthoquartzite (22), which is definitely local, represents 33.3% of the sample. The locals can be increased to 24 by adding one made from silicified palm wood and one of BMC (Table 6) bringing locals to 36.4%. The category Other (Table 6) includes the above two locals, plus two unknown cherts or silicates and one that resembles Piedmont silicate. They could be local from the river gravels or external to the valley. The six quartz points could be either local or exotic but likely represent use of local quartz sources given the tendency for more local raw material procurement by Dalton groups throughout the Southeast. If these six are considered local, that would bring locals to 30 or 45.4% of the sample.

Whether Daltons are classified as 36.4% local or 45.4%, there is a decided increase over Clovis points in local materials. The increase in use of local lithic materials by Dalton compared to Clovis times can be evaluated statistically using the chi-square test. Combining Clovis with Redstones results in an exotic to local ratio of 35 to 13. Daltons have a 38 exotic to 30 local ratio counting.
Table 3. Redstone Points by Raw Material in the Santee River Valley, S.C.

<table>
<thead>
<tr>
<th>Raw Material</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allendale Chert</td>
<td>3</td>
<td>33.3%</td>
</tr>
<tr>
<td>Metavolcanic</td>
<td>1</td>
<td>11.1%</td>
</tr>
<tr>
<td>Orthoquartzite</td>
<td>1</td>
<td>11.1%</td>
</tr>
<tr>
<td>Quartz</td>
<td>1</td>
<td>11.1%</td>
</tr>
<tr>
<td>Black Mingo Chert</td>
<td>1</td>
<td>11.1%</td>
</tr>
<tr>
<td>Exotic Chert</td>
<td>2</td>
<td>22.2%</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td>9</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 4. List of Clovis Points by SC Number and Raw Materials Utilized in this Study.

<table>
<thead>
<tr>
<th>Allendale Chert*</th>
<th>Metavolcanic</th>
<th>Orthoquartzite</th>
<th>Quartz</th>
<th>Crystal Quartz</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC 39</td>
<td>SC 93</td>
<td>SC 38</td>
<td>SC 584</td>
<td>SC 159</td>
</tr>
<tr>
<td>SC 88</td>
<td>SC 145</td>
<td>SC 293</td>
<td>SC 349</td>
<td></td>
</tr>
<tr>
<td>SC 148</td>
<td>SC 230</td>
<td>SC 313</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC 199</td>
<td>SC 436</td>
<td>SC 514</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC 206</td>
<td>SC 450</td>
<td>SC 594</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC 218</td>
<td>SC 461</td>
<td>SC 596</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC 282</td>
<td>SC 477</td>
<td>SC 604</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC 312</td>
<td>SC 515</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC 351</td>
<td>SC 386</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC 386</td>
<td>SC 409</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC 451</td>
<td>SC 478</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC 503</td>
<td>SC 568</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC 578</td>
<td>SC 603</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC 614</td>
<td>SC 620</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>N= 20</strong></td>
<td><strong>N=9</strong></td>
<td><strong>N=8</strong></td>
<td><strong>N=1</strong></td>
<td><strong>N=1</strong></td>
</tr>
</tbody>
</table>

Table 5. List of Redstone Points by SC Number and Raw Materials Utilized in this Study.

<table>
<thead>
<tr>
<th>Allendale Chert</th>
<th>Metavolcanic (Welded Tuff)</th>
<th>Orthoquartzite</th>
<th>Quartz</th>
<th>Black Mingo Chert</th>
<th>Exotic (Tenn.?)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC 109</td>
<td>SC 20</td>
<td>SC 601</td>
<td>SC 321</td>
<td>SC 153</td>
<td>SC 605</td>
</tr>
<tr>
<td>SC 143</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>SC 622</td>
</tr>
<tr>
<td>SC 206</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total= 9</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
the beginning of which may have been triggered by an extraterrestrial impact.

As mentioned above, the 16 collections I studied were tabulated for all hafted bifaces through time by raw material. These data should allow an examination of raw material selection practices through time past Dalton up to the transition from the Early Archaic corner notched points to the beginning of the classic Middle Archaic Morrow Mountain period. Points typical of this somewhat elusive transition would be Kirk Stemmed, Bifurcates, and Stanly Stemmed (Table 7).

The side-notched points are presented by raw material in Table 8. Within this category are included the occasional Hardaway Side Notched, the ubiquitous Taylors, and a few Van Lotts. No such distinctions are made here as all were tabulated as side notched. The temporal priority of side notching versus corner notching is widely recognized in the Southeast (cf. Tuck 1974). In calendar years these would date from about 11,000 to 10,500 years ago with some dating a few centuries earlier. One obvious pattern in Table 8 would be the very large number of points made from local raw material. A total of 132 or 63.5% are made of local lithics versus 76 or 36.5% from exotics. This represents a dramatic shift to local raw materials seemingly anticipated by the Daltons at 45.4% (Table 6). As will be seen, side notched points have the highest usage of local lithics for all the Early Archaic. The low number of metavolcanic raw materials (5.3%) also marks a dramatic break from previous centuries. The connection to the Allendale chert quarries, however, at 31.2% is still very much in evidence.

Table 9 presents the corner notched points. The majority of these are what are normally called Kirk Corner Notch with some examples of Palmer, Lost Lake, and a few Hardin Barbed. Dates for Kirks range from about 10,500 to 9800 calendar years before present. Compared to side notched points, corner notched shows an increase in numbers from 208 to 253 or a 21.6% jump. But perhaps the most interesting difference between the two is the reversal of local versus exotic raw material selection. A total of 75.9% of corner notched points are made exotics versus 24.1% local. The percentage change is evident. The ratios of the frequency between local and exotic between the two types can be evaluated by the chi square statistic. For side notched it is 132 to 76; for corner notched it is 61 to 192. The probability of getting these ratios by chance is less than p .001. The

Across the Pleistocene-Holocene Transition: The View from the COWASEE Basin

Thus far it has been seen that the pattern of raw material selection changed from the early fluted point period to the late Paleoindian Dalton period. Clovis appears to be visiting the basin for short periods of time perhaps in conjunction with seasonal aggregation activities related to social interactions with bands to the north from the Uwharrie Mountains. These rivers may have served as a culturally defined natural boundary and incorporated into the cognitive views of macrobands on the South Atlantic slope (Daniel and Goodyear 2013). For the immediately following period defined by the Redstone point, the comparatively small sample of nine points is parallel to a similar 4 to 1 Clovis to Redstone ratio seen elsewhere in South Carolina and adjacent states. Some sort of demographic collapse or reorganization may be implied here due to its widespread nature in the Southeast (Anderson et al. 2011). This is also the time of the rapid onset of the Younger Dryas cooling period, about 10,500 to 9800 calendar years before present. Compared to side notched points, corner notched shows an increase in numbers from 208 to 253 or a 21.6% jump. But perhaps the most interesting difference between the two is the reversal of local versus exotic raw material selection. A total of 75.9% of corner notched points are made exotics versus 24.1% local. The percentage change is evident. The ratios of the frequency between local and exotic between the two types can be evaluated by the chi square statistic. For side notched it is 132 to 76; for corner notched it is 61 to 192. The probability of getting these ratios by chance is less than p .001. The

Table 6. Dalton Points by Raw Material in the Santee River Valley, S.C.

<table>
<thead>
<tr>
<th>Raw Material</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allendale Chert</td>
<td>14</td>
<td>21.2%</td>
</tr>
<tr>
<td>Metavolcanic</td>
<td>19</td>
<td>28.7%</td>
</tr>
<tr>
<td>Orthoquartzite</td>
<td>22</td>
<td>33.3%</td>
</tr>
<tr>
<td>Quartz</td>
<td>6</td>
<td>9.0%</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>7.6%</td>
</tr>
<tr>
<td>Total:</td>
<td>66</td>
<td>100%</td>
</tr>
</tbody>
</table>

Exotics (Allendale chert, metavolcanics) = 53 or 50% Local (Orthoquartzite, Silic. Palm, Black Mingo chert) = 24 or 26.4% Exotic/Local? (Quartz) = 6 or 9.0% Add Quartz as Local = 30 or 45.4%
Figure 8. Dalton Points in the COWASEE study area.
represents a major surge in frequencies and geographic distributions. In Figure 9 the percentage of local raw materials is plotted through time from Clovis to Stanly. In contrast to the just discussed decrease in local raw materials with Kirk Corner Notch, Kirk Stemmed and bifurcates tick up with Stanlys having the highest at 66.6%. Although not plotted here, Morrow Mountain locals in COWASEE are 70% and higher. This increase in local raw material usage may signal the beginning of population growth and the attendant decrease in the range in regional mobility. Prior to this, however, the dramatic drop in projectile point frequencies in the COWASEE basin from the all time high of 253 with Kirk Corner Notch to a mere 70 during the centuries between then and Morrow Mountain, strongly resembles an overall population decrease or at least the relative abandonment of this region (Figure 10).

Paleoindian in COWASEE: Conclusions

The original purpose of this study was to examine quantitatively the frequency of Clovis points by raw material in the area referred to here as COWASEE, or the Congaree-Wateree-Santee drainage basin. These rivers were previously suggested by Daniel and Goodyear (2013) to be a boundary between a Uwharrie Mountain North Carolina Clovis band and a band to the south centered in the central Savannah River valley. The raw materials characteristic of each province, metavolcanics and Coastal Plain marine cherts, are easily differentiated macroscopically.

Table 7 presents the frequencies and raw materials for the late Early Archaic-early Middle Archaic period. Hafted bifaces for this interval includes Kirk Stemmed, Bifurcates, and Stanly Stemmed. These types have been historically noted to be infrequent to rare in the southern Coastal Plain of South Carolina (Anderson 1996; Sassaman 1995, 1996).

A total of 70 examples were observed in the collections (Table 7). Nearly half of these (34) were Kirk Stemmed. Stanly Stemmed had 30, with only six bifurcates. In the Southeast, the radiocarbon dating of these types are considered after Kirk Corner Notched with Kirk Stemmed and bifurcates apparently contemporary depending on the site and region. Stanlys would come at the end of this period (Chapman 1985: Table 7:1). Morphologically, Stanlys appear to be more like Morrow Mountains which itself represents a major surge in frequencies and geographic distributions.

Table 7. Kirk Stemmed, Bifurcate and Stanly Stemmed Points by Raw Material in COWASEE.

<table>
<thead>
<tr>
<th>Raw Material</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allendale Chert</td>
<td>11</td>
<td>15.7%</td>
</tr>
<tr>
<td>Metavolcanic</td>
<td>22</td>
<td>31.4%</td>
</tr>
<tr>
<td>Orthoquartzite</td>
<td>27</td>
<td>38.6%</td>
</tr>
<tr>
<td>Quartz</td>
<td>4</td>
<td>5.7%</td>
</tr>
<tr>
<td>Black Mingo Ch.</td>
<td>6</td>
<td>8.6%</td>
</tr>
<tr>
<td>Total:</td>
<td>70</td>
<td>100%</td>
</tr>
</tbody>
</table>

Kirk Stemmed = 34 or 48.6%  
Stanly Stemmed = 30 or 42.8%  
Bifurcates = 6 or 8.6%  

High percentages of Allendale chert and metavolcanics strongly resembles those percentages found for Clovis. Clovis was 74.3% exotic and 25.6% local counting quartz and crystal; corner notched is 75.9 versus 24.1%. A chi-square test for these frequency ratios produced a probability of between .95 and .90 by chance which shows it is virtually the same and thus not significant. Like with Clovis usage of COWASEE as implied by the exotic to local ratio, corner notched groups appear to be using the basin for short term periods and possibly social aggregation by macro bands resident in the central Savannah River valley and the Uwharrie Mountains of North Carolina. This is strongly reminiscent of Randy Daniel’s Uwharrie and Allendale Kirk band models (1998, 2001).

Paleoindian in COWASEE: Conclusions

The original purpose of this study was to examine quantitatively the frequency of Clovis points by raw material in the area referred to here as COWASEE, or the Congaree-Wateree-Santee drainage basin. These rivers were previously suggested by Daniel and Goodyear (2013) to be a boundary between a Uwharrie Mountain North Carolina Clovis band and a band to the south centered in the central Savannah River valley. The raw materials characteristic of each province, metavolcanics and Coastal Plain marine cherts, are easily differentiated macroscopically.
The analysis of local versus exotic raw material usage was extended across the Pleistocene-Holocene transition by evaluating Early Archaic notched point ratios. Early Archaic side notched points were seen to have a marked increase in the use of local raw material expanding the pattern seen previously in Dalton. This could be a result of increased residence time by people inhabiting COWASEE for prolonged periods. The succeeding corner-notched period, however, exhibits a major statistically significant reversal of these ratios that bears a remarkable similarity to the earlier Clovis. This may mean a return to the Uwharrie-Allendale macrobands demographic distribution as originally suggested by Randy Daniel (1998).

Lastly, it should be pointed out that none of these results would have been possible without the use of private artifact collections. In fact, many of the Clovis and Redstone points present in the South Carolina Paleoindian Point Data Base began to be recorded in the 1960s (Waddell 1965; Michie 1977) continuing on today covering a 50-year span. The documentation of such rare artifacts is only possible by examining large assemblages of artifacts from single sites and regions. Private collections made by conscientious collectors are the primary means archaeologists have for examining the content and geographic dispersion of regionally mobile prehistoric hunter-gatherers. Accordingly, professional archaeologists need more contact and relationships with private collectors and not less.
the Edisto River in the Coastal Plain of South Carolina. *Occasional Papers 1*. The Archaeological Society of South Carolina, Columbia.


---

**Acknowledgements**

The following individuals and organizations provided access to their collections. Alphabetically they include Robert Costello, Stephanie Coulter, Gayle Dyches, Elloree Heritage Museum, Fred Hay Gant, The Herbert family, Dennis Hendrix, Tommy Huffman, William Jackson, Brian Platt, Adam and Susan Ruffin, Andy Rutland, Kat and Jane Salley, Ann Shull, South Carolina Bank and Trust (the Hungarpiller collection), G. Lee Thomas, Becky Ulmer (Shuler collection), Dianne Vining, Gregg Walls, David Wielicki, the Robert Wilkinson family, and Steve Williams. Together they have provided valuable data that helps tell the story of early prehistoric peoples in South Carolina. I would also like to thank Bob Costello, Kenn Steffy, Tommy Charles and Joe Wilkinson for aid in identifying certain Coastal Plain silicates and their observations about lithic tools in the COWASEE region. Randy Daniel and Christopher Moore were consulted frequently over the course of this study and as always were valued colleagues in the search for meaning in these ancient relics.

**References Cited**


---

**Table 9. Corner Notched Points by Raw Material in COWASEE**

<table>
<thead>
<tr>
<th>Raw Material</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allendale Chert</td>
<td>143</td>
<td>56.5%</td>
</tr>
<tr>
<td>Metavolcanic</td>
<td>47</td>
<td>18.6%</td>
</tr>
<tr>
<td>Orthoquartzite</td>
<td>18</td>
<td>7.1%</td>
</tr>
<tr>
<td>Quartz</td>
<td>39</td>
<td>15.4%</td>
</tr>
<tr>
<td>Black Mingo Ch.</td>
<td>4</td>
<td>1.6%</td>
</tr>
<tr>
<td>Ridge and Valley Ch.</td>
<td>2</td>
<td>.79%</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>253</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Exotics (Allendale, Metavolcanics, Ridge and Valley) = 192 or 75.9%
Local (All others) = 63 or 24.1%
Bradley, Bruce A., Michael B. Collins, and Andrew Hemmings

Cambron, James W. and David C. Hulse
1964 *Handbook of Alabama Archaeology, Point Types Part I.*

Charles, Tommy

Chapman, Jefferson

Collins, Michael B.
1999 *Clovis Blade Technology.* University of Texas Press, Austin.

Cooke, Charles W.

Costello, Robert C. and Kenneth E. Steffy


Daniel, I Randolph


Daniel, I. Randolph and J. Robert Butler

Daniel, I. Randolph and Albert C. Goodyear

Daniel, I. Randolph and Albert Goodyear
2013 Clovis Macrobands in the Carolinas. Poster presented at the Paleoamerican Odyssey Conference, Santa Fe, NM.

Firestone, Richard B., A. West, J. Kennett, L. Becker, T. Bunch, Z. Revay, P. Schultz et al.

Gardner, William M.

Gingerich, Joseph A. M.

Goad, Sharon I.
1979 Chert Resources in Georgia, Archaeological and Geological Perspectives. University of Georgia Laboratory of Archaeology Series, Report 1. Athens, Georgia.

Goodyear, Albert C.

Research Manuscript 156, University of South Carolina, Columbia.


Goodyear, Albert C. and Tommy Charles


University of South Carolina, Columbia.

Goodyear, Albert C., Keith Derting, D. Shane Miller, and Ashley M. Smallwood


Goodyear, Albert C. and Kenn Steffy


Haynes, Gary


Haynes, C. Vance


Holliday, Vance T. and David J. Meltzer


Justice, Noel D.

1977 *The Late Pleistocene Human Occupation of South Carolina*. Manuscript on file with the South Carolina Institute of Archaeology and Anthropology, University of South Carolina.

Michie, James L.

1977 *The Late Pleistocene Human Occupation of South Carolina*. Manuscript on file with the South Carolina Institute of Archaeology and Anthropology, University of South Carolina.

Moore, Christopher R., Mark J. Brooks, Andrew J. Ivester, and Terry A. Ferguson


Moore, Christopher R. and Mark J. Brooks

Novick, Lee

Painter, Floyd

Peck, Rodney M.

Sain, Douglas A.
2012 Clovis Blade Technology at the Topper Site (38AL23), Assessing Lithic Attribute Variation and Regional Patterns of Technological Organization. Occasional Papers 2, Southeastern Paleoamerican Survey, South Carolina Institute of Archaeology and Anthropology, University of South Carolina.

Sain, Douglas A. and Albert C. Goodyear

Sassaman, Kenneth E.
1995 Twenty Five Lessons and Twenty Five Years of Middle and Late Archaic Archaeology. South Carolina Antiquities 25 (Nos. 1 &2):30-42.


Sassaman, Kenneth E., Glen T. Hanson, and Tommy Charles

Steponaitis, Vincas P., Jeffrey D. Irwin, Theresa E. McReynolds, and Christopher R. Moore, editors

Smallwood, Ashley M.

Smallwood, Ashley M., D. Shane Miller, and Douglas A. Sain

Surovell, Todd A.

Tuck, James A.

Upchurch, Sam B.

Waddell, Eugene C.

Wittke, J., J. Weaver, T. Bunch, D. Kennett, A. Moore, G. Hillman, K. Tankersley et al.

Young, Christopher