projectile points. The pottery is typically cord roughened, but a reconstructed vessel from the Arpan mound was smoothed. Ceramic decoration includes a row of punctates below the lip. Stone tools are frequently made from Knife River flint.

Since the late 1970s, some archaeologists have expanded the complex to include occupation sites with Besant points even when the burial-complex traits and specialized artifacts are not present. This approach appears to gloss over critical cultural differences and to homogenize the Plains Middle Woodland period.

Ann M. Johnson

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South Appalachian Tradition

The term "South Appalachian tradition" is used to refer to evidence for cultural continuity of appreciable antiquity in the eastern part of the lower Southeast, in an area centered on Georgia and South Carolina. Initially based on ceramic technology, specifically the occurrence of carved-paddle stamping on pottery, continuity is also indicated in the local projectile-point sequence, which is sometimes also called the Piedmont tradition (Oliver 1985). Traditions are defined as, among other things, "persistent configurations in simple technologies" (Willey and Phillips 1958:37). Continuity in projectile point and ceramic manufacturing behavior characterizes the South Appalachian tradition to the point that many archaeologists view it as defining a loosely knit culture area with roots well back into the Archaic, and perhaps to the Paleoindian period.

The concept was originally proposed by William Henry Holmes in a 1903 paper in the *Twentieth Annual Report of the Bureau of American Ethnology* entitled "Aboriginal Pottery of the Eastern United States," his monumental synthesis of ceramic artifacts recovered from throughout the Eastern Woodlands by the excavations of the bureau's Mound Division. Holmes noted that the ceramics from the general Georgia–South Carolina area, or what he called the "South Appalachian" area, were characterized by a distinctive, stamped exterior finish, which suggested a common background:

> . . . a culture of somewhat greater marked characteristics comprises the states of Georgia, South Carolina, and contiguous portions of Alabama, Florida, North Carolina, and Tennessee. . . . [T]he ceramic phenomena of this province include one great group of products to which has been given the name South Appalachian stamped ware. . . . [T]his stamped pottery is obtained from mounds, graves of several classes, village sites, and shell heaps. . . . [T]he remarkable style of decoration, more than other features, characterizes this pottery. Elaborately figured stamps were rarely used elsewhere (Holmes 1903:130–133).

The existence of a South Appalachian cultural province characterized by a distinctive ceramic tradition and covering the area described by Holmes is now universally accepted. A South Appalachian geographic variant of Mississippian has been proposed (Griffin 1967:185) and has been subject to extensive analysis and synthesis (e.g., Ferguson 1971; Hally 1994).

Widespread use of carved wooden paddles to finish pottery first occurred in the Early Woodland period, shortly after 1000 B.C. (2950 years B.P.), with the appearance of dentate-, check-, and simple-stamped ceramics variously classified in the Refuge, Deptford, and Cartersville series. Some continuity is indicated with earlier, Late Archaic Stallings and Thom's Creek ceramics, which were occasionally simple stamped; check and dentate stamping (some of the latter are clearly applied with a paddle) may also be an attempt to imitate earlier drag-and-jab and separate punctated decorations. Complicated stamping, the application of elaborate curvilinear and rectilinear designs, appears ca. 100 B.C. (2050 years B.P.) or shortly thereafter with the Santa Rosa–Swift Creek series and continues unabated through the historic period; major later series include Napier, Etowah, Savannah/Wilbanks, Lamar, and Qualla. Some of the most elaborate design motifs, including representations of animals and cosmological themes, occur early on Swift Creek ceramics.

Subsequent designs are typically less complex geometric arrangements, variations on circles, ovals, triangles, and spirals. Throughout the Woodland and Mississippian periods, similar motifs tend to occur almost contemporaneously across the South Appalachian area, indicating an appreciable degree of interaction among the local societies.

Clear morphological continuity is also indicated in projectile points in this area, from side-notched Late Paleoindian Hardaway and Taylor forms, through corner-notched Early Archaic Palmer and Kirk types, to a series of stemmed types, including Kirk, Stanly, Savannah River, Small Savannah River, Gypsy, and Swannanoa (Oliver 1985). The appearance of large triangular points in the Early Woodland marks the end of this stemmed manufacturing tradition. While gradually reduced in size, triangular forms continue through the historic period over much of the area and are considered a local tradition. The only other apparent discontinuity in projectile-point manufacture occurs during the Middle Archaic, when the contracting- and straight-stemmed Morrow Mountain and Guilford types appear, types that are thought by some to represent intrusive traditions. While other ceramic and projectile-point types and technologies are also present in the area, particularly at the geographic margins, and with greater or lesser incidence over time, the persistence of the South Appalachian culture area is recognizable throughout much of prehistory.

David G. Anderson

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South Platte Phase

The South Platte phase of the Colorado Plains Woodland regional variant in the western Plains subarea of the Plains Woodland pattern was proposed by W.B. Butler (1986) to resolve taxonomic problems caused by conflicts between definitions for the Parker and Graneros foci of A.M. Withers (1954), the early Ceramic period of J.J. Wood (1967), and the Hog Back phase of C.E. Nelson (1971), none of which was found to be a valid construct.

Although some superficial resemblances exist, the Colorado Plains Woodland is not part of the "classic" Woodland of the east. Pottery and the bow and arrow are present, but horticulture does not appear to have been an important element in the economy in northeastern Colorado. Elaborate burial practices are absent, and only a few accompaniments occur in a grave. Small corner-notched arrow and dart points, small triangular side-notched and tri-notched arrow points, cord-marked ceramics with straight to slightly inverted rims and a conoidal base, and expanding-based drills are recognized as definitive cultural markers for Colorado Plains Woodland occupations. Settlement is associated with permanent water, with a preference for locations with a south-facing exposure or on high points of land. Data on architecture are almost nonexistent. The best that can be said is that shelter may have been constructed on a pragmatic basis. The Colorado Plains Woodland peoples represented by the South Platte phase were hunters and gatherers well adapted to the plains of northeastern Colorado, southeastern Wyoming, western Nebraska, and western Kansas during the later third of the Sub-Boreal, the Scandic, and the Neo-Atlantic climatic episodes (ca. A.D. 100–1150, or 1850–800 years B.P.).

William B. Butler

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material markers as simply the warfare/cosmogony complex of a much more comprehensive set of cultic institutions that underwent development throughout the entire period. James A. Brown and Knight have called attention to a wide range of cultic connections having to do with success in warfare, ritual adoption of foreigners, widespread beliefs in the procreative powers of various spirits, and the power concentrated in ancestor shrines.

James A. Brown

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Southeastern Paleoindian

Paleoindian assemblages in the Southeast are commonly, if somewhat arbitrarily, placed into Early, Middle, and Late subperiods, with estimated temporal ranges of ca. 10,550–8950 B.C. (12,500–10,900 years B.P.), 8950–8550 B.C. (10,900–10,500 years B.P.), and 8550–8050 B.C. (10,500–10,000 years B.P.), respectively (Anderson 1990; all dates refer to uncorrected radiocarbon years before the present). These three subperiods correspond to the occurrence of (Early) lanceolate fluted points resembling western Clovis forms; (Middle) fluted and unfluted forms with broad blades and constricted hafts like the Cumberland, Suwannee, Simpson, Quad, and Beaver Lake types; and (Late) resharpened lanceolate corner- and side-notched forms like Dalton, San Patrice, Bolen, and Big Sandy. The dating for the first two of these subperiods relies primarily on the cross-dating of the diagnostic bifaces with morphologically similar forms. Early Paleoindian Clovis points are securely dated to ca. 9250–8950 B.C. (11,200–10,900 years B.P.) in the Southwest and Lower Plains, while fluted forms with deeply indented bases have been dated somewhat later, to ca. 8650 B.C. (10,600 years B.P.), at sites in the Northeast. Stratigraphic evidence exists supporting all or parts of this relative sequence from several locations in the Southeast, most notably Hester in Mississippi, Dust Cave in Alabama, and Silver Springs in Florida. Only Late Paleoindian Dalton and early side-notched Bolen/Big Sandy assemblages are reasonably well dated, at Dust Cave, Page-Ladson in Florida, and Rodgers Shelter in Missouri.

Large numbers of fluted points occur in the Southeast, particularly along the major drainages of the Midsouth. Until the 1980s, few large, diversified Clovis-site assemblages had been found or recognized, which led to the widespread view that the southeastern Early Paleoindian archaeological record consisted primarily of isolated point finds or light artifact scatters, the remains of small foraging groups characterized by a high residential mobility (Meltzer 1988). Major sites with extensive and diverse assemblages dating to the Early and immediately following Middle Paleoindian subperiods do occur in some parts of the region, however, particularly along the Tennessee and Cumberland river valleys, in northern Florida, and in Virginia. At some of these sites, of which Carson-Conn-Short in Tennessee is a good example, dozens, and in a few cases hundreds, of points and formal unifacial tools have been found, as well as large blades and blade cores

that rival, if not exceed, the blade technology found on some classic western Clovis sites.

In almost every state, individuals are compiling information about Paleoindian sites and artifacts, most typically locational and measurement data on fluted points. In 1994, locational and/or metric data were compiled for ca. 5,000 fluted points from the Southeast and more than 8,000 fluted points from eastern North America as a whole (Faught et al. 1994). Dense concentrations of artifacts occur in the major river valleys of the interior Southeast and Lower Midwest. These may represent places where initial extended settlement occurred, staging areas from which the exploration and eventual occupation of the larger region may have proceeded. The numbers of fluted points from the eastern United States so vastly exceed the numbers reported to date from the western half of the continent that if initial human entry was through the ice-free corridor onto the Great Plains, or else along the Pacific rim, it is possible that these original immigrants did not have Clovis technology when they arrived or, alternatively, that it was not until these populations reached the East that they really took off. Where Clovis technology arose and how it spread is unknown, and while an origin somewhere in the East is not altogether implausible, there is no chronological support for it yet.

The existence of dense concentrations of fluted points in some parts of the Southeast while other areas are nearly devoid of these artifacts indicates a highly selective use of the landscape rather than a pattern of near-continuous mobility. Large areas of the Gulf and Atlantic Coastal Plain appear to have seen only minimal utilization, while dense concentrations of sites and artifacts occur along portions of major interior drainages like the Tennessee, Cumberland, and Ohio rivers. If these concentrations reflect areas of initial settlement, their irregular distribution also suggests that colonization likely proceeded in a leap-frog fashion rather than a continuous wave of advance.

The directions and extent to which Early Paleoindian populations moved over the landscape in the Southeast are being explored through detailed lithic source identification analyses that document the distances raw materials used for artifacts moved from quarry areas. In some parts of the region, movement of raw materials up to 200–300 km (124–186 miles) has been demonstrated, particularly in the Kentucky-Indiana-Ohio area and in North and South Carolina, while in other areas, notably southern Virginia, materials typically moved over much shorter distances. These patterns appear to be related to raw-material availability, with more long-distance movement of material in areas where sources of replacement stone were few and far between. Direct procurement of lithic raw material is indicated, as there is little evidence for the extensive and specialized reduction/manufacturing activity of large numbers of bifaces or cores characteristic of production for exchange. An excellent examination of Paleoindian mobility is J.A. McAvoy's (1992) analysis of assemblage and raw-material data from Williamson and many other sites in southern Virginia in the reconstruction of band territories, annual ranges and settlement organization.

If the southeastern Clovislike forms are contemporaneous with their western counterparts, an occurrence between ca. 9250 and 8950 B.C. (11,200–10,900 years B.P.) is likely. Unfortunately, there are few early radiocarbon dates in secure contexts from the region. At the Johnson-Hawkins site near Nashville, Tennessee, a deeply buried hearth with associated fluted preforms yielded a date of 9750 B.C. ± 980 (11,700 years B.P.). Two sites from Florida provide fairly strong evidence for the existence of considerably older, possibly pre-Clovis, occupations in the region. They date to 10,550–10,050 B.C. (12,500–12,000 years B.P.). At Page-Ladson, five dates bracketing this interval have been obtained from a level containing a mastodon tusk with cut marks on it, and at Little Salt Springs, a wooden spear associated with a giant tortoise was dated to 10,080 B.C. ± 200 (12,030 years B.P.). No other firm evidence supporting pre-Clovis occupations has been found in the Southeast, in spite of the extensive research- and cultural-resource-management-based survey and excavation activity that has taken place. Lithic-reduction analyses conducted over the past two decades have, in fact, led to the dismissal of home-grown pre-Clovis candidates like the Lively pebble-tool complex from Alabama, formed in actuality of cores from initial-stage lithic reduction by Archaic populations. Recent accelerator mass spectrometry dating of the Natchez human pelvis, found with late Pleistocene megafaunal remains, gave a determination of 3630 B.C. ± 80 (5580 years B.P.). Many more dates with small sigmas and plenty of associated artifacts are needed before there is widespread acceptance among profes-

sional archaeologiists that human occupation in the region predates ca. 9250 B.C. (11,200 years B.P.), or even that fluting technology could be earlier in the Southeast than in the western half of the continent.

Direct associations between human and now-extinct terminal Pleistocene fauna have been found in Florida, including the remains of a giant tortoise at Little Salt Spring and the discovery in the Wacissa River of a *Bison bison antiquus* skull with a projectile point embedded in its forehead. In addition, a number of tools carved from green proboscidean ivory and other modified megafaunal bone have been found in Florida's rivers and sinks. Indisputable associations of humans and mastodon have also been found at Kimmswick in southern Missouri and possibly at the Coates-Hindes site in western Tennessee. It is thus probable that southeastern Paleoindians hunted now-extinct Pleistocene fauna and megafauna at least some of the time. But because direct associations between Paleoindians and megafauna have been rare in the East, at least when compared to their occurrence in the western part of the continent, and because megafaunal extinctions are assumed to have been over fairly early, by ca. 8850 B.C. (10,800 years B.P.), some archaeologists have argued that the subsistence strategies of eastern Paleoindian groups were directed primarily to modern species, with Pleistocene megafauna only a small and infrequent part of the diet (e.g., Meltzer and Smith 1986). What the minimal subsistence data from this time period in the Southeast indicate is that extinct, rather than modern, fauna were the prey of choice. Accordingly, modern fauna, such as deer and smaller mammalian species like rabbits, raccoons, and opossums, may have been second-line resources, taken only when megafauna were not readily available.

Five sites with stratified deposits spanning the Middle Paleoindian through Early Archaic periods, a time that marks both the extinction of Pleistocene fauna and the forced adoption of modern game species, as well as the onset of Holocene climatic conditions and resource structure/vegetational patterns, have been examined and reported in detail. These include Hester in Mississippi, an open-air site; the Haw River floodplain open-air sites in North Carolina; the Hardaway mountaintop workshop/base camp in North Carolina, which was the subject of extensive additional excavations in the 1970s and 1980s, and the assemblage of which was used to help formulate the Archaic cultural sequence for the lower Southeast; the Page-Ladson site in Florida, a now-submerged and partly filled-in sinkhole in the Aucilla River bottom; and Dust Cave in Alabama, a deeply stratified rock shelter. Preservation of floral and faunal remains at the latter two sites, Page-Ladson and Dust Cave, is remarkable, with worked bone common, including bone needles and fishhooks, at Dust Cave. These same two sites have produced large numbers of logically ordered radiocarbon dates, demonstrating, among other things, that side-notched point forms (locally described as Big Sandy, Bolen, or Early Side-Notched) first appeared ca. 8250 B.C. (10,200 years B.P.), somewhat earlier than previously thought.

Other major later Paleoindian excavations and analyses include the extensive work with the Suwannee assemblages from the Harney Flats base camp site near Tampa Bay, Florida, and at two Dalton sites in northeast Arkansas, the Sloan cemetery and the Brand campsite. Dalton settlement systems have been explored in both the central Mississippi Valley and the Georgia Piedmont, and the close affinities evident between Clovis and Dalton technology suggest that Dalton evolved directly from Clovis in the central Mississippi Valley, perhaps as early as 8850 B.C. (10,800 years B.P.). Finally, the examination of early human occupations on now-submerged portions of the continental shelf has resulted in the discovery of a number of sites in submerged contexts, some an appreciable distance into the Gulf of Mexico (see Anderson and Sassaman 1996 for summaries of Paleoindian and Early Archaic research in the Southeast).

David G. Anderson

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See also AUCILLA RIVER SITES; DALTON; DUST CAVE; HARDAWAY SITE; KIMMSWICK; RODGERS SHELTER

Southern California Coast

The coastal region of southern California extends from Morro Bay, 150 km (93 miles) upcoast from Santa Barbara, to the Mexican border. It includes more than 400 km (248 miles) of shoreline and extends as much as 100 km (62 miles) inland. Culturally, it may continue south into Baja California for another 200 km (124 miles) or more. Also included are the major coastal islands of this zone, especially the northern Channel Islands of Santa Cruz, Santa Rosa, and San Miguel, and the more southerly islands of Santa Catalina, San Clemente, and San Nicolas. This area saw the development of a long, rich cultural tradition that culminated in some of the most elaborate hunter-gatherer societies known.

Coastal southern California has been studied archaeologically since the nineteenth century. Multiple local-culture sequences have been proposed for each coastal county—San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Orange, and San Diego—as well as for the northern and southern Channel Islands. Influential models have been offered by D.B. Rogers (1929), M.J. Rogers (1929, 1938, 1958), A.E. Treganza and A. Bierman (1958), P.C. Orr (1943), and W.J. Wallace (1955), among others. The most comprehensive regional models in use are C.N. Warren's (1968) and C. D. King's (1981, 1990), which are summarized here and linked with the more general J.L. Chartkoff and K.K. Chartkoff (1984) framework.

A Paleoindian presence along the southern California coast has long been asserted, but all evidence remains controversial. Orr (1968) and R. Berger (Orr and Berger 1966) have noted the occurrence of dwarf mammoths on Santa Rosa Island and the discovery of carbon materials dating to more than 18,050 B.C. (20,000 years B.P.), but most authorities remain unconvinced that either the bones or the carbon can be directly connected with human traces. On the mainland, coastal southern California has seen several claims for Pleistocene-age human remains, but the method used to calculate their ages, aspartic acid racemization, has been generally discredited for that purpose. Similar claims for early cultural sites at Texas Street, Del Mar, Calico, and elsewhere have met with similar disproofs. As of the mid-1990s, a sound basis is lacking for accepting human presence in the area before the end of the Wisconsin glaciation ca. 10,050 B.C. (12,000 years B.P.). Recent discoveries of fluted points along the southern California coast (Erlandson and Colton 1991:4), however, establish human presence there as early 10,050–9050 B.C. (12,000–11,000 years B.P.). This early presence has been called "Paleo-Coastal" by M.J. Moratto (1984). He sees it as analogous to the Western Pluvial Lakes tradition, the final Paleoindian stage of the interior deserts, which extends into the Early Archaic (9050–6050 B.C., or 11,000–8000 years B.P.) and incorporates the San Dieguito tradition of Warren's model.

The San Dieguito tradition (9050–6050 B.C., or 11000–8000 years B.P.; Warren 1967a), described below, is by far the best-established and documented Early Archaic tradition of the southern California coast. The Middle Archaic is represented in Warren's model by the Encinitas tradition, which ends in the Santa Barbara–Los Angeles area by 3050 B.C. (5000 years B.P.) but continues in the San Diego area until A.D. 750 (1200 years B.P.). The Encinitas tradition does not reflect the more general transition from Middle Archaic (6050–4050 B.C., or 8000–6000 years B.P.) to Late Archaic (4050–2050 B.C., or 6000–4000 years B.P.) to early Pacific (2050–550 B.C., or 4000–2500 years B.P.) in the Chartkoff and Chartkoff model.

King's (1981) model is more specific to the

Domesticated sunflower achenes in a clump together with squash seeds from the Marble Bluff site (3SF.1), Searcy County, Arkansas. Three radiocarbon dates from this burned cache of stored seeds indicate that these specimens are ca. 3000–3200 years old. The seed clump is accessioned as 32-23-345 in the University Museum, University of Arkansas, Fayetteville. (Photograph by G. Fritz)

ball carried by warriors and hunters, or mixed with corn flour. Buffalo Bird Woman's family usually stored two or three sacks of sunflower seeds for winter use.

Sunflower may never have been a staple food for Indian people, but seeds remain economically important today as a source of protein, fat, and concentrated energy, and the flowering plants add beauty to fields and gardens far beyond their North American homeland.

Gayle Fritz

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Swift Creek

Swift Creek is a Middle Woodland–period (ca. 200 B.C.–A.D. 400, or 2150–1550 years B.P.) archaeological culture located in Georgia, northern Florida, and small portions of adjoining srates; ir was named after the type site, a single platform mound and associated village area, excavated near Macon, Georgia, during the WPA era (Kelly and Smith 1975). Swift Creek components are identified by elaborate curvilinear, complicated-stamped ceramics that often exhibit animal or cosmological motifs. Swift Creek populations participated in the panregional Hopewellian interaction and religious complex, with its emphasis on widespread exchange of extralocal raw materials and finished products, elaborate mortuary ritual, and a highly individualistic and egalitarian animal-centered hunting/guardian spirit–based ceremonialism and ritual (Brose 1985; Penny 1985).

Swift Creek and other contemporancous South Appalachian–area ceramic-design motifs are found at sites as far removed as Pinson in western Tennessee, Mann in southern Indiana, and Rutherford in southern Illinois, and at a number of the major mound centers in Ohio, including Hopewell, Harness, McGraw, Mound City, Tremper, Turner, and Seip. Besides pottery, other presumably locally derived materials, such as mica and galena, saw widespread distribution throughout the East (Goad 1979); it is also possible tbat perishables, such as feathers, carved masks or other objects, or unusual foods, were moving. The preeminent product coming from the Swift Creek–culture area, at least in terms of archaeological visibility, was conch or whelk shell. Probable source areas for this shell were the northern and western Gulf Coast of Florida and, to a lesser extent, the lower Atlantic seaboard.

The distribution of Swift Creek sites and centers appears to have been shaped by the panregional demand for shell and by regional physiographic conditions that constrained the

routes through which this commodity could pass into the interior. A number of major sites are located in coastal areas, including Bernath and Block-Sterns in western Florida, near presumed sources of shell (Bense 1993). The major Middle Woodland settlements along or near the Chattahoochee River at Mandeville and Kolomoki in south Georgia, and in the northwestern part of the state at Shaw and Tunacunnhee, likely were way stations along a north-south trade axis leading from the Gulf Coast to the Tennessee River and from there downstream and overland into the heart of the Midwest, perhaps via sites like Pinson and Mann. These communication routes closely correspond to the location of major historic Indian trails, which likely had considerable antiquity (Goad 1979:244–245). While elaborate burials characterized by classic Hopewellian grave goods, such as copper panpipes and earspools, prismatic blades, galena, cut mica, and platform pipes, are found at many Swift Creek centers, these materials occurred within otherwise purely local Woodland assemblages. At Mandeville, dated from A.D. 100 to 450 (1850–1500 years B.P.), for example, the period of greatest Hopewellian influence was also the period with the most pronounced occurrence of Santa Rosa/Swift Creek materials; at Tunacunnhee, ceramics from the Cartersville, Connestee, and Candy Creek series were found at a nearby habitation site assumed to be contemporaneous.

Swift Creek complicated-stamped ceramics represent a continuation of the South Appalachian carved-paddle decorative tradition. They replaced the plain, check-, and simple-stamped ceramics of the Deptford and Cartersville series in northern Florida and southern Georgia in the first decades of the first millennium A.D. and were replaced, in turn, by Weeden Island ceramics and culture ca. A.D. 400 (1550 years B.P.). In central and northern Georgia, Swift Creek ceramics appeared about the same time but continued in use as late as A.D. 750 (1200 years B.P.), when they were replaced by the Late Woodland Napier series. At many sites in this area, they co-occur with Connestee-like, Deptford, and Cartersville ceramics. Early Swift Creek designs are usually of simple curvilinear design based on concentric circles and ovals. Rims are typically notched or scalloped, and tetrapods are common. Late Swift Creek assemblages, postdating ca. A.D. 500 (1450 years B.P.), are characterized by an increase in the incidence of plain pottery and folded rims, a decline in the incidence of notched and scalloped rims, and (usually) more complex complicated-stamped designs with some zoned stamping. Some design motifs and rim treatments have proven to be highly sensitive temporal markers, and some appear to come from specific sites. A fine-lined variant of Swift Creek, called B-Complex to differentiate it from classic south and central Georgia materials, is found in the northern and eastern Georgia Piedmont and appears to be transitional between Swift Creek and Napier. Middle Woodland sites in extreme eastern Georgia and South Carolina are largely dominated by Deptford and Cartersville ceramics and are almost completely devoid of Swift Creek influence, although occasional sherds are found; a similar situation occurs in western North Carolina, where assemblages are dominated by Connestee-like ceramics. During the period when Swift Creek ceramics were manufactured in central and northern Georgia, small square-stemmed projectile points were largely replaced by triangular forms, while to the south, primarily stemmed forms are found.

Swift Creek complicated-stamped pottery, which is characterized by elaborate and richly symbolic design motifs, offers an almost unparalleled opportunity to explore questions of Middle Woodland worldview and cosmology. Both animal motifs and cosmological themes occur (Snow and Stephenson 1993). Some of these motifs may have served as individual or lineage/community guardian spirits or representations of more general forces of the cosmos, such as the sky and the underworld (Penny 1985:184–189). Hopewellian avian images, for example, often include raptors and ducks, which are thought to reflect a dichotomy between the separate domains of the sky and the watery underworld. These representations, fairly common on classic Ohio, Havana, and Marksville vessels, are less commonly seen among Swift Creek designs, suggesting that the latter may reflect a less ordered or more casual and diversified view of the natural world and the cosmos.

Swift Creek populations in some areas built platform as well as burial mounds that were likely important arenas where competition between individuals and lineages occurred. Evidence for summit structures has been found at some; at others, hearths suggesting communal ritual or feasting are present; at still others, little or no evidence has been discovered for how the mounds functioned. Swift Creek sites with plat-

form mounds, besides the type site itself, include Mandeville, Kolomoki, Annewakee Creek, and Cold Springs in Georgia, Garden Creek in western North Carolina, a Connestee occupation but with some associated Swift Creek sherds, and McKeithan in northeast Florida (Jefferies 1994). At some coastal sites like Bernath in northwest Florida, ring middens appear to be an equivalent to the mound- and plaza-based centers found in the interior. The extent of monumental construction at Swift Creek sites appears to be closely tied to proximity to regional trading and communications routes. Major mound centers or sites with impressive mortuary remains in the Swift Creek area, such as Mandeville, Kolomoki, or Tunacunnhee, typically occur along or near these routes. Mound construction is less extensive or absent in areas farther away from them, as is evidence for elaborate Hopewell-related mortuary ritual. A number of small Swift Creek mound centers have been documented in northern Georgia that may have been shrines where relatively uncomplicated communal ritual occurred.

Swift Creek centers evolved over time. They experienced major periods of growth, inter- or intraregional interaction, and decline and abandonment, organizational fluctuations that also appear to have characterized the use of major Ohio Hopewell centers. Disruptions at any point in the distribution network may have had ripple effects over much larger areas, and interaction may have been much greater at some times than at others. There is some evidence that interaction between the Southeast and the Midwest increased in the centuries immediately after A.D. 150 (1800 years B.P.) (Brose 1985:76–77). While panregional interaction declined markedly after A.D. 400 (1550 years B.P.) or so, Swift Creek culture itself either continued or transformed itself locally, with no evidence for a break in continuity. The reasons for the decline in the larger Hopewellian interaction network and ritual may be tied to the appearance of the bow and arrow, which apparently took place about the end of the Middle Woodland period in many parts of the East. The introduction of this technology, when coupled with increasing regional population, may have brought about conditions in which raiding or warfare became more prevalent than trade and ritual as a means of achieving social objectives.

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See also GARDEN CREEK SITE; HOPEWELL INTERACTION SPHERE; KOLOMOKI; MANDEVILLE; MANN SITE; MCKEITHEN SITE; PINSON MOUNDS SITE