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Eastern North American Archaeology: A Summary

Prehistoric cultures changed from small hunting bands to well-organized agricultural towns and tribes.

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The major themes of the prehistoric Indian occupation of Eastern North America are those of gradual cultural development, or evolution, and population growth over some 15,000 years. The cultural growth is from small migratory bands of hunters to agricultural societies of tribes, towns, and temples. There were two major cultural climaxes: those of the Hopewellian and the Mississippian societies. The most important outside influence was the introduction of agriculture from Mesoamerica, beginning about 1000 B.C., and subsequent stimuli, especially between A.D. 700 and 1400, from that dominant North American cultural center.

In a very real sense of cultural connections, Eastern North America in prehistoric times is the area east of the Rocky Mountains (*1*) and from north of the Gulf of Mexico to the boreal forest zone of Canada. Although there were great differences in the natural habitats within this area, with marked changes in climate and major vegetational changes during the long period of American prehistory, there were no major physiographic or climatic barriers preventing a relatively rapid exchange of cultural innovations over most of the area. The most effective barriers, within the period of agricultural development, were the boreal forest zone on the north and the semiarid plains on the west.

Although there was considerable linguistic diversity among the historic tribes, there were only four major linguistic stocks. The four stocks probably had a common source in North America in the far distant past. The archaeological record also indicates that, after the initial occupation by Fluted Point hunters of about 10,000 B.C., there are no known major cultural introductions representing the intrusion of a large migratory or invading group. The evidence from skeletal material can be interpreted in the same way, for the minor regional divergences seem to represent microevolutionary changes from a common parent stock, some of which may be adaptive responses to particular environments. The most striking change in cranial formation is the result of cultural factors. Different styles of cradleboard binding or other constriction of the infant's skull produced adult crania differing markedly from the natural form (*2*). Death came early to these prehistoric peoples, and they suffered a number of physical ailments identifiable from the skeletal remains (*3*). Most common were arthritic inflammations, usually in the lumbar region, sometimes involving vertebral fusion. Arthritic changes are also seen in bones and joints, particularly after trauma or strain. Dietary deficiencies are indicated by evidence of rickets and osteoporosis symmetrica. Other skeletal changes have been interpreted as having resulted from bone tumor, tuberculosis of the spine, arteriosclerosis, and syphilis. Skeletal material which may be syphilitic appears at about 2000 years ago and becomes more common thereafter as we approach the historic period. Some individuals were hunchbacks, and at least one individual had kidney stones. One human effigy portrays an achondroplastic dwarf with goiter. Tooth wear is most common among the hunting-gathering populations and is more pronounced in women than in men. Many older individuals (over 30) had lost all of their teeth. Caries are less common in the preagricultural societies.

In this presentation of the prehistory of Eastern North America there are no vanished races; no mysterious Mound Builders; no wandering Welshmen, Lost Tribes of Israel, Irish Monks, German ironmongers, Scandinavian intruders into Minnesota, Phoenicians around Lebanon, Pennsylvania, or angels and golden tablets in New York. These concepts of the 18th and 19th centuries, with unfortunate hangovers up to the present, were a product of the ignorance of that period.

The Early New World People: Whence and When

Men came late to the Americas, probably reaching the New World about the same time that other peoples were moving into Australia. The fundamental biological and cultural development of man took place in the Old World, from Africa to eastern Asia, during the Pleistocene epoch. This period of roughly 2 million years was marked by major glacial and interglacial periods affecting the entire globe. The latest major ice development, which began about 70,000 years ago, is known in North America as the Wisconsin. This worldwide glaciation had an important

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effect on man and his appearance in North America. During Mid- and Late Wisconsin times, a cultural adaptation to this late Pleistocene environment developed in the area that is now western Europe, northern Africa, southern Russia, and the Near East. It appears that this adaptation, known to prehistorians as the Upper Paleolithic, spread across the steppe area of central Asia and had penetrated as far as Japan by at least 15,000 years ago. Along the southern border of Siberia identified archaeological sites range in age from about 30,000 years (sites representing a modified Mousterian culture) to approximately 15,000 to 10,000 years [sites representing an Advanced Paleolithic culture known from the Lake Baikal area and characterized by hunting of the late Pleistocene arctic fauna, use of hides for clothing, and construction of semisubterranean dwellings (*4*)].

During the maximum ice advance of the late Pleistocene, sea level was lowered some 100 to 150 meters; this is attributed to development of the vast accumulation of glacial ice. One result was the emergence of the Bering land bridge which connected Siberia and Alaska during most of the Wisconsin. Arctic animals, insects, and nonarboreal vegetation were able to move freely across the land bridge (*5*), and man finally crossed some 20,000 to 16,000 years ago. These dates are inferred from the fact that the early hunter-gatherers had apparently spread over much of the New World, as far as the southern tip of South America, by 9000 B.C.; there are no sites and complexes in North America known to be as early as 20,000 to 16,000 years ago. Man did move across the Bering coastal shelf in the late Wisconsin and was able to do so because he had developed techniques of survival in a subarctic and arctic environment.

No satisfactory estimate has yet been proposed for the time when the Late Wisconsin continental glaciation moving west and the mountain glaciation moving east in western Canada met, or of the time when the ice began to withdraw. In the absence of sound data, I assume that the ice-free corridor from Montana to the north was closed only during relatively short periods of maximum ice advance and was open during most of the Wisconsin. If the last maximum advance occurred about 18,000 years ago, the corridor may not have been finally closed until approximately that time and must have been open again by 16,000 years ago (*6*).

The Fluted Point Hunters

There is no established cultural complex composed of crude choppers, scrapers, pulping planes, or bone pounders which represents mid-Pleistocene movement along the northeast coast of Siberia into North America. There are, indeed, dates obtained by the radiocarbon technique for purported archaeological sites from Texas to California which range from 20,000 to more than 40,000 years ago, but so far none of these localities can be regarded as having provided evidence which is the unquestionable result of human activity.

There is sound evidence of a widespread Fluted Point hunting complex which has been dated between 9500 and 8000 B.C. in the western Plains and has an implied equivalent age in the Eastern Woodlands (*7*). In the Plains and in the Southwest this early hunting tradition can be divided into an early Llano complex, which has Clovis-type projectile points, and a later phase identified most clearly with the Folsom-type point. Both of these complexes have been found associated with extinct fauna. In the Eastern Woodlands, from the Gulf of Mexico to the present mixed coniferous-hardwood forest zone, there is abundant evidence of occupation by Fluted Point hunters (*8*). This occupation is known to be earlier than 8000 to 7000 B.C. in the South (Fig. 1). Current interpretations place the occupation of these hunters in the area from the Great Lakes to Nova Scotia at about 10,000 to 8500 B.C. There is no sound evidence of the killing of the mammoth, mastodon, musk-ox, giant beaver, whale, walrus, or grizzly bear by man, but these animals disappeared from the East (that is, from east of the Rocky Mountains) within a few thousand years of man's first presence in the area (*9*). While hunting certainly is implied in the tool forms which have been preserved at the "kill" sites in the West and at seasonal camps in the East, there is no compelling reason to believe that early man was solely a carnivore or that his primary protein source was "big game." Most historically documented hunting groups obtained a sizable proportion of their food from vegetation. It is reasonable to assume that this was the case with prehistoric hunting groups in the Eastern United States.

The basic surviving tool assemblage of the Fluted Point hunters includes bifacially flaked knives and projectile points with a distinctive groove or "flute" running from the base toward the tip on both faces of the implement. The most common tool is a small end scraper, often with sharp spurs at each side of the beveled scraping edge. There are long, slender side scrapers, knives, drills, groovers, and graving tools, made from small flakes, with a slender projecting sharp point. Some inferences as to other tools can be made, even though perishable artifacts are not normally found in the East. Slender cylindrical bone points with beveled bases have been found at the Clovis site in New Mexico, and bone needles, awls, and beads at the Lindenmeier site in Colorado. Wood shafts would have been used for spears or darts, for handles, for shelter, for clubs, and for fire. Animal hides were probably used for clothing, cordage, and containers, and perhaps for shelter.

There is little indication that caves or shelters were used by the Fluted Point hunters, and the sites now known are usually temporary camping areas. Because of valley erosion and deposition over the last 10,000 to 14,000 years, few of the finds have been made in valley floors, except along the Tennessee River in northern Alabama. Specimens of this complex have been obtained from as far north as central Wisconsin, the southern half of the lower Peninsula of Michigan, southern Ontario, northern New York, and northwestern Vermont, and from as far northeast as central Nova Scotia. The northern distribution of Fluted Point hunters is believed to have resulted from the northern spread of vegetation and animal life during the glacial retreat from the Cary morainic system and its equivalents after about 13,000 or 12,000 B.C. The present known concentrations are, to an important degree, the product of intensive regional efforts to obtain data on the part of certain archaeologists. On the other hand, the continuing lack of reports of points in the Appalachians is interpreted as the result of prehistoric environmental factors.

No one knows where and when this widespread Fluted Point tradition developed. For years it has been assumed that it originated in the Southern Plains and the adjacent Southwest, but the greater variety and the large number of fluted point forms in the Southeast and the sharply restricted time period for Clovis points in the West, from 9500 to 9000 B.C., now suggest that the development of the complex may have taken place in the Southeast. In

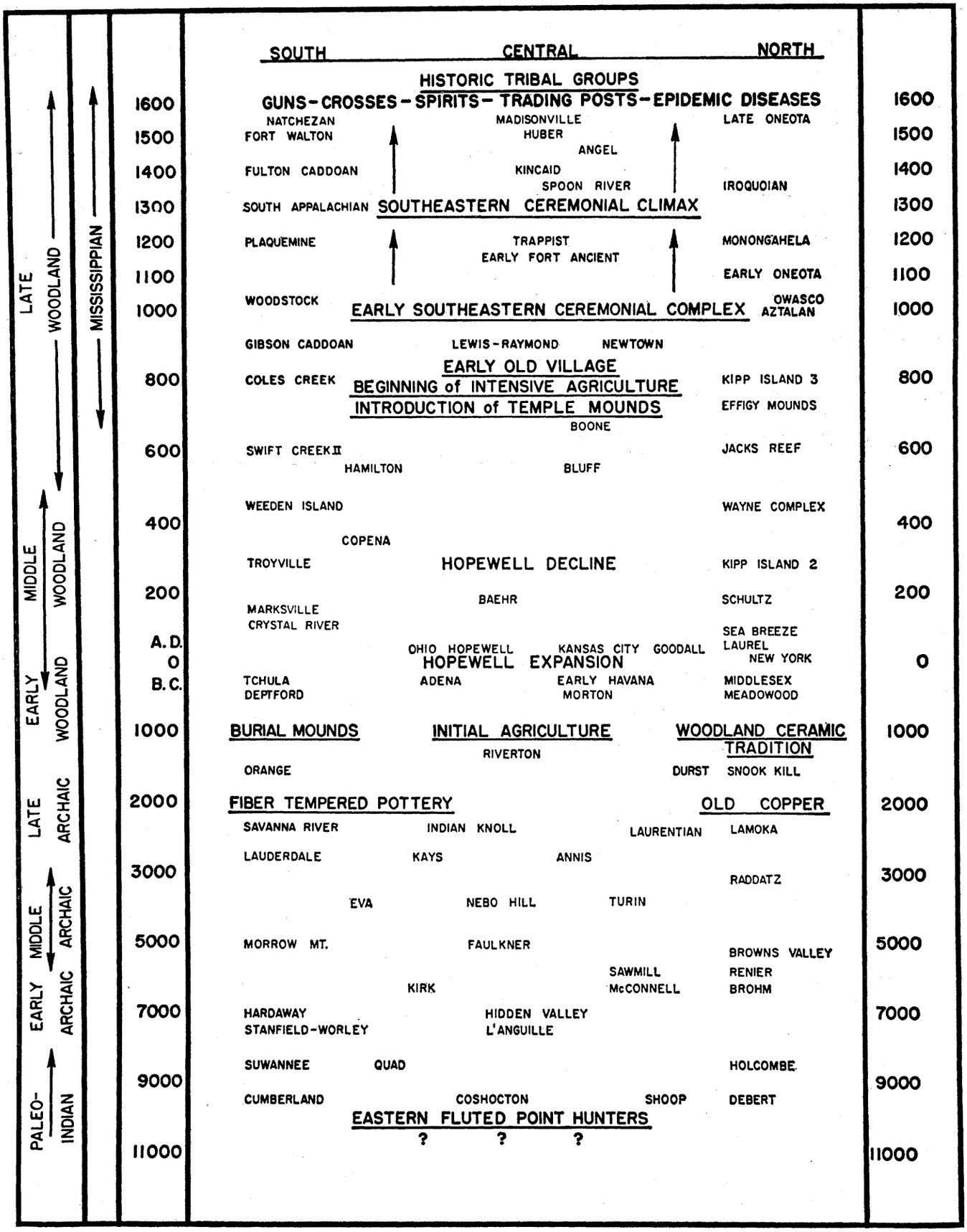

Fig. 1. Cultural sequence and chronology in Eastern North America. [Museum of Anthropology, University of Michigan]

any event, the relative uniformity of the artifact complex over the entire area of distribution implies that there were no other early people in the East with a different artifact complex, since almost inevitably there would have been exchanges of tools had this been the case.

The Early Archaic

Many archaeologists feel that there is a "cultural stage" difference between the early hunters, with a primarily stone-tool or "lithic" assemblage, and the later, preceramic groups, who are called "Archaic" (*10*). The Archaic "stage," in the interpretation of these archaeologists, is one of mixed hunting, gathering, trapping, and netting, with an increasingly developed seasonal round of food-gathering activities. In such an interpretation there is a tendency to extend the time span of early hunters or Paleo-Indians to about 6000 B.C. (*11*), for by that time significant cultural differences are readily apparent between the thinly scattered hunting camps and kill sites of the "hunters" and the larger midden sites of the Middle to Late Archaic societies considered here, who returned to favorable sites year after year and gradually built up substantial midden deposits.

In the Early Archaic the fluted-point style of shaping points and knives is abandoned gradually, and unfluted forms become predominant. The other tools remain essentially the same, and the inference is that in no area of the East does the shift in projectile-point styles result from the movement of new cultural groups into the area. Between about 9000 and 6000 B.C., in the Eastern Woodlands there are a variety of projectile-point styles characterized by stemmed and notched bases. A number of caves and rock shelters have initial occupations during the Early Archaic; examples are Graham Cave in central Missouri, Modoc Rock Shelter southeast of St. Louis along the east side of the Mississippi, and the Stanfield-Worley Shelter and Russell Cave in northern Alabama. Many sites have been found along streams, some buried by alluvium to considerable depths; examples are the Hardaway site along the Yadkin in Stanly County, North Carolina, and a site now being excavated at St. Albans, West Virginia. The Quad site and other sites along the Tennessee in northern Alabama, the Nuckolls site in western Tennessee, and sites in the l'Anguille Valley of Cross County, Arkansas, are less deeply buried sites along major streams. In the Great Lakes area, sites of this period are known close to the shores of former lake levels; among them are the Holcombe site north of Detroit, the George Lake and Sheguiandah sites in north Georgian Bay, the Brohm site north of Port Arthur, and the Renier site on the Door Peninsula, Wisconsin.

In the assemblages from these sites many of the flint tools, such as scrapers, knives, and gravers, are made from blades and flakes which are chipped only on their outer surfaces. Flint drills and a few bone awls, hammerstones, choppers, and crude flint adzes and gouges attest to a more varied tool inventory. Grinding stones to process seeds are known from this period.

The Early Archaic of this article may be regarded, then, as the period of initial cultural changes and adaptations to the food and industrial resources of the varied postglacial environments of Eastern North America, ranging from the milder winter of the South to the frigid snowy winter of the northern areas. By the time the early European explorers arrived in the Great Lakes area, for example, the Indians were using 275 species of plants for medicine, 130 species for food, 31 species as magical charms, 27 species for smoking, 25 species as dyes, 18 species in beverages and as flavoring, and 52 species for various utilitarian purposes. Many of these plant species had more than one use. It has been estimated (*12*) that "at least 20 percent of the available vascular plants apparently were used by the Indians aboriginally and of these, more than one-third were used for food." This striking exploitation of the native plants is best documented for the Great Lakes area, because of Yarnell's recent study, but other areas are thought to have had a similar development. We know from the animal remains that most available edible species of animal were eaten, at one time or another, by prehistoric Indians. This dependence on, and knowledge of, the native resources took a long time to develop, and much of the development probably took place during the long Archaic period.

Middle Archaic

A Middle Archaic period can be recognized, with dates set somewhat arbitrarily between about 6000 and 4000 B.C. Some of the cultural innovations of this period are a marked increase in ground and polished stone tools. These ranged from grinding stones, grooved axes, and pendants to the early bannerstone forms which had a central hollow cylinder drilled by hand or with a bow drill, with a reed or hollow bone bit and with sand as an abrasive. The bannerstone was placed on the cylindrical shaft of an atlatl (or throwing stick), giving extra leverage in throwing spears at game, or at people. Specialized grinding and pounding stones, such as the bell pestle, were developed.

Bipointed bone fish gorges, bone fishhooks, a larger variety of bone awls, antler-tip projectile points, and antler handles, flaking tools, shaft wrenches, and scrapers are known. Turtle carapaces were shaped into cups, and canines of bear, bobcat, and other small mammals were perforated and strung, together with bird-bone beads, as necklaces.

Most of the burials of this period are flexed and placed in small excavated pits. Some of the burials have grave-goods of a utilitarian and an ornamental nature, but many do not. The earliest recorded remains of the Indian dog are of this period. Some of the dogs were buried as though they were someone's best friend.

Evidence of substantial dependence on river mollusks and ocean shellfish for food is provided by shell mounds along streams in the Southeast and by shell heaps now under water along the coastal shelf off western Florida. Sea level reached its present height by about 2000 B.C., and most of the coastal middens are not earlier than that date (*13*). Recurrent occupation of areas favorable for obtaining shellfish resulted in large shell heaps which were both village sites and burial grounds. In such shell heaps, bone artifacts and refuse and even deep burials are often well preserved. Many contemporary burials and associated evidences of human occupation in other soils are, however, badly deteriorated, difficult to recognize, or impossible to recover.

Late Archaic

The Late Archaic cultural development, from about 4000 to 1000 B.C. (Fig. 2), was built upon the earlier achievements in the East and was a time of considerable population growth, clear regional adaptations, and interregional exchange of raw materials. It

is this total cultural growth of some 10,000 years which resulted in the culmination of preagricultural achievements in the East. The close of this cultural phase is marked by significant innovations.

In the Southeast, both along the coast and along major streams in Georgia, Alabama, Florida, Tennessee, and Kentucky, the consumption of many varieties of mollusks produced great shell middens. Along the Tennessee, 70 percent of the freshwater mussel fauna found today are found in the prehistoric midden debris. In addition, some of the 22 larger varieties of freshwater snails may also have been eaten, after being steamed in pits (*14*). At in-

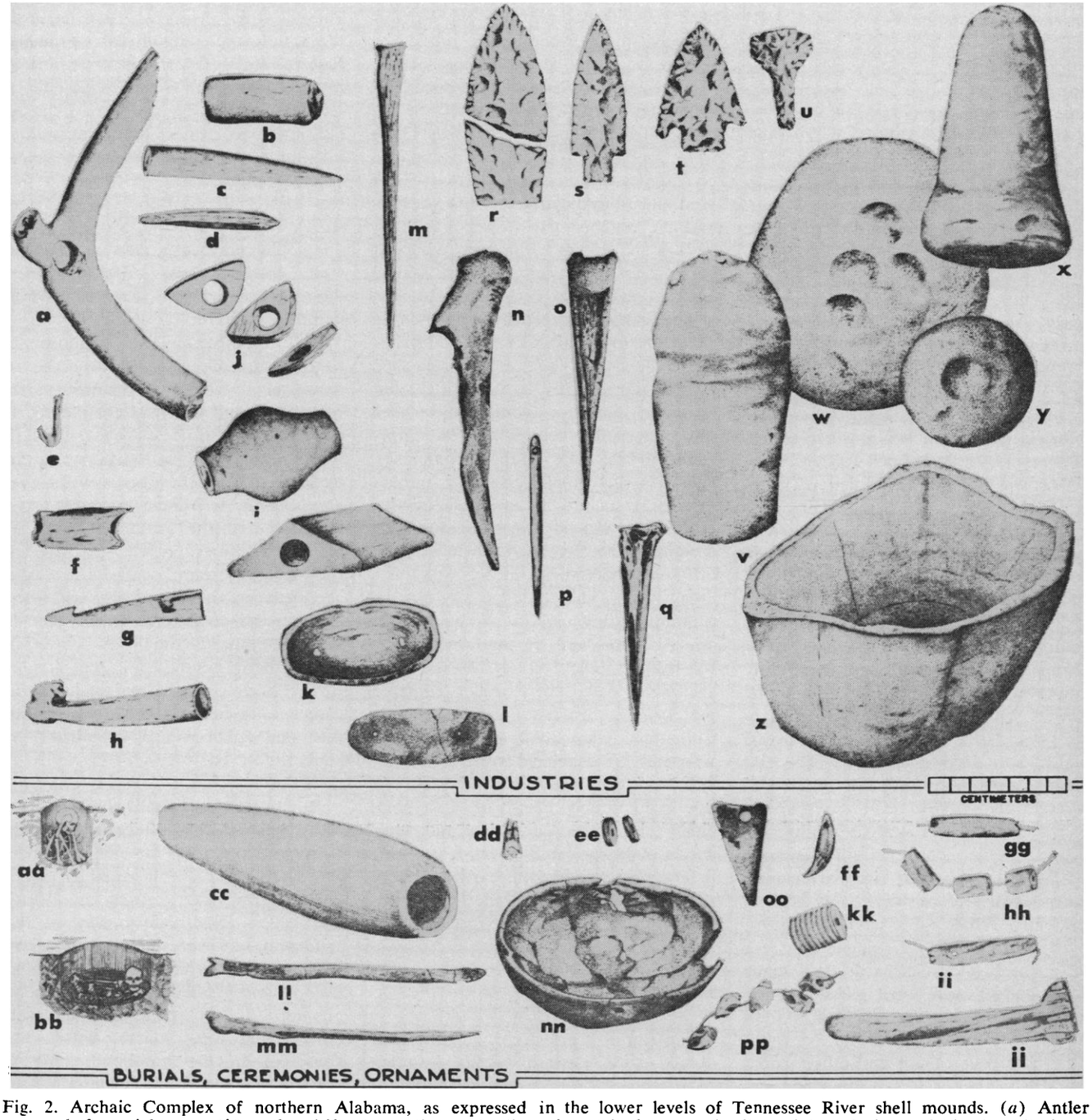

Fig. 2. Archaic Complex of northern Alabama, as expressed in the lower levels of Tennessee River shell mounds. (*a*) Antler arrow shaft straightener; (*b*) antler drift; (*c*) antler projectile point; (*d*) bone projectile point; (*e*) bone fishhook; (*f*) bone atlatl hook; (*g, h*) antler atlatl hooks; (*i*) shell atlatl weight (composite); (*j*) stone atlatl weights; (*k*) boatstone; (*l*) bar gorget; (*m*) bone awl; (*n*) deer ulna awl; (*o*) bone awl; (*p*) bone needle; (*q*) bone awl; (*r–t*) stone projectile points; (*u*) stone drill; (*v*) grooved stone ax; (*w*) lapstone or nutting stone; (*x*) stone bell pestle; (*y*) circular hammerstone; (*z*) small steatite vessel; (*aa*) sitting burial; (*bb*) fully flexed round grave burial; (*cc*) tubular stone pipe; (*dd*) human tooth bead; (*ee*) shell-disk beads; (*ff*) canine tooth bead or pendant; (*gg*) tubular stone bead; (*hh, ii*) tubular shell beads; (*jj*) shell columella pin; (*kk*) crinoid stem bead; (*ll*) engraved bone spatula (28 centimeters long); (*mm*) human fibula awl (36 centimeters long); (*nn*) bowl from human skull (greatest diameter, 18.5 centimeters); (*oo*) shell pendant (2.5 centimeters long); and (*pp*) shell beads (individual beads, 1.3 centimeters long). (Objects *ll* through *pp* are not shown to scale.) [From *Archeology of Eastern United States* (Univ. of Chicago Press, Chicago, 1952)]

land sites such as Lamoka Lake in New York, the people fed on 28 species of mammals, 13 species of birds, turtles, and at least 5 species of fish, in addition to a substantial amount of native plant food, as mentioned above. An increase in the number of grinding stones may reflect greater dependence on acorns and other nuts for both food and oil. The polished-stone woodworking tools were widely used in the Northeast; the adze and gouge were the preferred forms (*15*).

One of the most striking innovations of the Late Archaic was the manufacture, by heating and hammering chunks of pure copper, of a variety of awls, socketed and unsocketed projectile points and knives, cresent-shaped knives or scrapers, hooks, gouges, adzes, drills, and beads. The utilitarian forms have a wide distribution, from the Dakotas through the Great Lakes area to New England, into the lower Ohio drainage and Illinois, but most of the finds are in the western Great Lakes area, particularly in eastern Wisconsin (*16*). By 1904 over 13,000 copper artifacts from Wisconsin had been recorded (*17*), obtained largely in the course of modern farming activities on Late Archaic village sites. Copper mining from open pits began about 3000 B.C. and continued up to the historic period. Indian groups of many different archaeological complexes participated in this work (*18*). After about 1000 B.C., apparently due to a marked increase in ceremonial activity and dress, much of the copper was fashioned into beads, breast plates, and decorative forms. The Old Copper tools were primarily distributed through the Lake Forest environment of the Great Lakes and are a reflection of a significant ecological diffusion zone (*19*). It is thought that birchbark canoes may have been known in this area in the Late Archaic.

In the absence of suitable flint for tools, the Florida Coastal Indians made shell gouges and shell celts (or axheads), which parallel the stone tools to the north, possibly for the construction of dugout canoes and other woodworking activities (*20*). The large marine *Busycon* shells and other shells also appear in the mid-South and as far north as Minnesota (*21*) and Ontario, but in these areas they were made into gorgets and beads.

Among other objects and innovations first recorded in this period are fish weirs; flint and iron pyrites sets for making fire; cordage and fabric made from native bast fibers; circular house patterns 9 to 14 meters in diameter with hard floor lenses; steatite and sandstone bowls, in various areas from New England to the southern Appalachians; red ocher in graves in the north; and an increase in cremation of the dead. A polished-stone atlatl weight known as the birdstone supplants the bannerstone in the northern area, while the boatstone replaces it in the South. Flutes and whistles of bird bone and rattles and cups of turtle shell are the first known musical instruments. These were probably used largely for dance ceremonies or for curing disease. Stone plummets may have been bola weights, and the notched flat stones may have been net sinkers. Finger-weaving of plant fibers produced the first known cloth.

The earliest recorded pottery is in the form of plain-surfaced fiber-tempered bowls, in coastal Georgia and Florida about 2500 to 2000 B.C., but no other significant additions have been observed, and the pottery is simply added to the Late Archaic complexes. Within a few hundred years a number of simple incised patterns are applied to these bowls, but the techniques and designs in the Savannah River area are different from those in the St. Johns area of Florida. This pottery-making technique gradually spreads into northern Alabama and as far west as the Mississippi Valley, but it has not been accurately dated there. Fiber-tempered pottery is known from a site in coastal Colombia from 3000 to 2500 B.C., where it is associated with sand-tempered pottery in all levels (*22*). It has not been found north of Colombia, either along the Caribbean and Gulf coasts or in the Antilles. Thus it is difficult to say whether this earliest pottery in southeastern North America was introduced or a local development.

Early Woodland

For some years archaeologists concerned with Eastern North America have recognized that cultural additions and changes now known to have occurred about 1000 B.C. influenced the pattern of life of many societies. The most significant of these were the appearance of Woodland pottery and burial mounds and the first evidence of agriculture. The earliest northern pottery is known from just west of the Mississippi to New England and from the Ohio to the St. Lawrence Valley (*23*). This is a thick, grit-tempered vessel, coiled and low-fired, with wide mouth and flat-to-rounded base, which was paddled on both the outer and inner surfaces with a cord-wrapped paddle. Pottery-making had been introduced to the Seward Peninsula of Alaska from Asia by 1000 B.C. In terms of the techniques of manufacture this Asiatic pottery bore a marked resemblance to Woodland pottery, but there is no clear evidence that these techniques were transmitted into the Great Lakes area. In the mid-Atlantic states, most of the early pottery has a flat bottom and a flaring sidewall (*24*), but it has steatite temper and could represent a gradual transition from steatite bowls to pottery, under the influence of the early "fiber-tempered" tradition to the south.

The construction of mounds by basket-loads of earth to cover the remains of the dead was begun in the Mississippi and Ohio valleys shortly after 1000 B.C. Some archaeologists regard this method of burial as an introduction from the coastal Vera Cruz area, but the techniques of mound construction and the burial practices are markedly different in the American and the Mexican examples. There is a large gap between the two areas, and there are impressive differences in the associated cultural complexes. The earliest northern mounds are the simplest forms. Their construction gradually becomes more complex until between 100 B.C. and A.D. 300, in Middle Woodland times, they reach the apex of their development.

In contrast to the still somewhat unsettled picture for pottery and for burial-mound building, the major impetus for agricultural development is clearly from Mexico, where agriculture already had had a long history. Beyond that statement, however, there is uncertainty. While some archaeologists and botanists have suggested an independent beginning for the cultivation of sunflower, pigweed, marsh elder, and goosefoot in the mid-South (*25*), at none of the caves and shelters in Kentucky or in the Ozarks so far investigated can these be proved to have preceded the cultivation of gourds, squash, and perhaps pumpkin, which came from Mexico, apparently before maize. The early cultivated forms are known from 1000 to 500 B.C., and squash cultivation had reached an Early Woodland settlement at the Schultz site

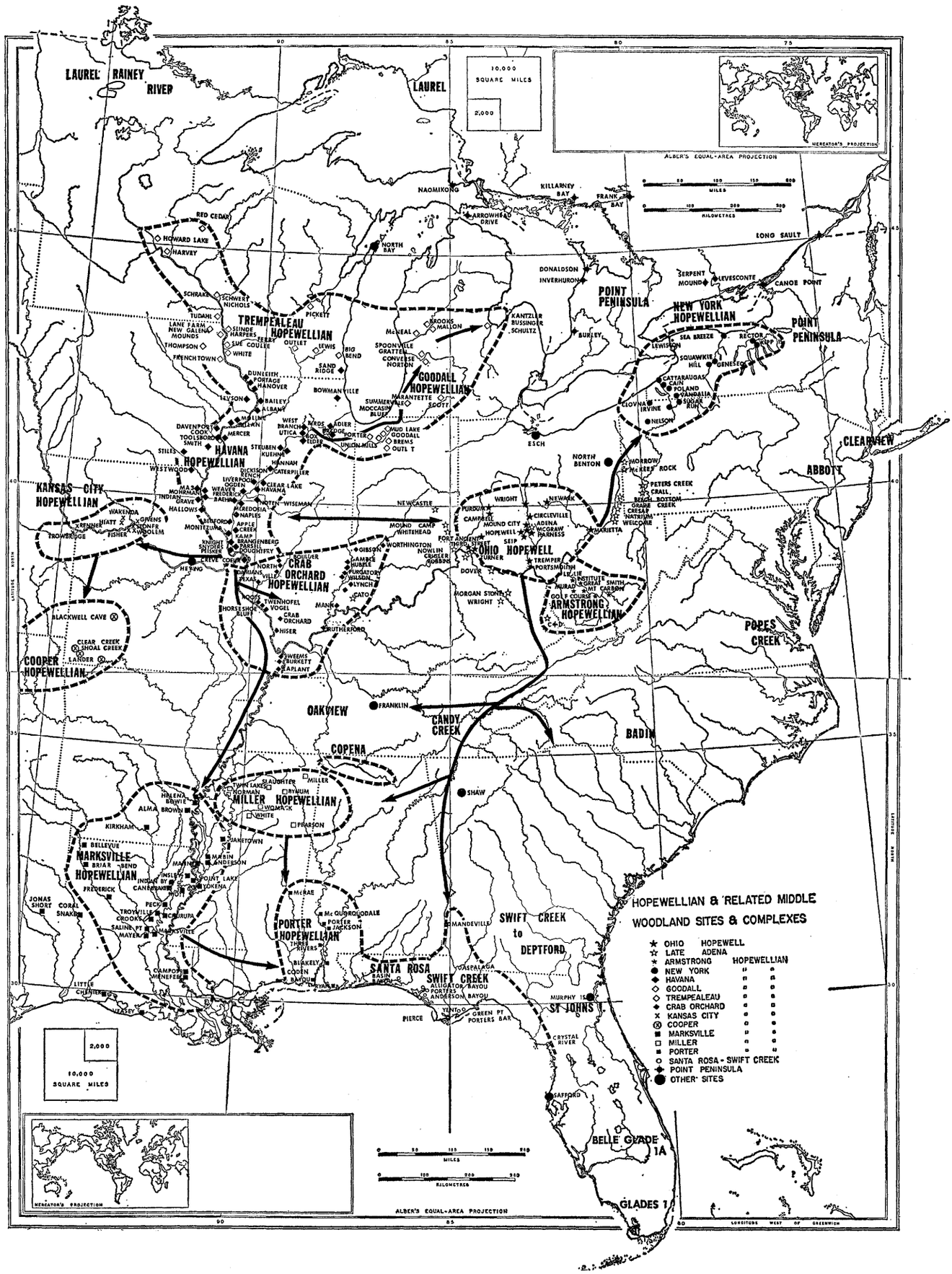

Fig. 3. Map of Hopewellian and related Middle Woodland sites and complexes. There is considerable uncertainty about time periods, areas, and assignment of sites to area complexes. [Museum of Anthropology, University of Michigan]


LITTLE MIAMI RIVER
GREAT ENCLOSURE
ELEVATED CIRCLE
CRACKED WAY
LONG ENCLOSURE
TURNER GROUP
OF EARTHWORKS
ANDERSON TOWNSHIP HAMILTON COUNTY
OHIO
SCALE IN FEET
OHIO
a
b
c
d
e
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in the Saginaw Valley by the later date (*26*). The initial agricultural activity is cultivation of both introduced and native plants. While maize has been reported in an Early Woodland context in Georgia, it is not certainly identified in the Eastern United States until Middle Woodland times. The route and manner of introduction of these Mesoamerican cultigens is not known. Maize is more likely to have been brought in from the Southwest than directly from northeastern Mexico.

By the latter half of the first millennium B.C., the Adena culture of the central Ohio Valley, the Morton complex in Illinois, the Tchula phase of the lower Mississippi Valley, the Deptford complex in Georgia, the Middlesex in New York, and many other local complexes have significantly different patterns which allow their recognition in each of these areas as regional "tribes." Pottery and mound-building did not spread very far west of the Mississippi at this time. Thus it appears that the western prehistoric societies were not in the mainstream of development, nor were most of the populations of the eastern and northeastern seaboard and the Great Lakes area. They remained at an essentially Archaic level.

The attention given to burial ceremonialism which began in the Late Archaic is accentuated in some of these Early Woodland groups. Copper, mica, and ocean shell were brought into the Ohio Valley, and in other areas as well there are indications of exchange and trade in foreign raw material and artifacts. Small tubular stone pipes first appear in terminal Archaic and Early Woodland sites. This form became specialized as a long narrow stone tube in the Adena area and in the northeast, and as clay tubes in the lower Mississippi Valley. The Ohio pipestone quarries of the lower Scioto Valley furnished a fine-grained siltstone which was easily drilled and took a fine polish. Pipes of Adena manufacture and other items were carried east into Chesapeake Bay villages, as far northeast as the upper St. Lawrence Valley, and north to the Manitoulin district of northern Lake Huron. The striking florescence of Ohio Valley Adena takes place at about the time the Early Havana Hopewellian groups are in the Illinois Valley. Adena and Early Havana are contemporary participants in the development of many of the cultural expressions of the Hopewellian societies. Some of the Late Adena sites are shown in Fig. 3, a map of the Middle Woodland period.

Middle Woodland Domination by Hopewellian Cultures

The term "Middle Woodland" refers to the period when most of Eastern North America was dominated by the Hopewellian culture, between 200 B.C. and A.D. 400 (Fig. 3). The name Hopewell derives from the name of the owner of a farm in Ross County, Ohio, which had on it a large geometric earthwork enclosing a village site and burial mounds (*27*). Ohio Hopewell was the most spectacular, having large and complex burial mounds and geometric earthworks enclosing anywhere from 10 to hundreds of acres (4 to many hectares) (Fig. 4). The Scioto Valley near Chillicothe was the center of the development in Ohio, which is known from four major excavated sites; other major Hopewell concentrations were at Marietta and in southwestern Ohio. The large sites were the dominant religious, political, and population centers. There is some evidence for the existence of small villages near them. Many contemporary prehistoric societies in Eastern North America are known to have shared many of the behavior characteristics of Ohio Hopewell. Some of these societies participated in this complex only to a minor degree and others hardly at all.

Most of the food supply was provided by hunting and gathering, activities which were supplemented to some degree by the cultivation of maize and, presumably, squash. The Hopewellian societies from Kansas City to Ohio are the first known growers of maize in the Midwest, and it is assumed that this addition to the diet was partly responsible for the strong cultural growth during Hopewellian times.

Ohio Hopewell

The Hopewell-culture emphasis on burial ceremonies has been matched only by the archaeologist's concentration on excavation of the burial mounds. The large Ohio sites had a number of smaller mounds and one or two large mounds 6 to 12 meters high, 75 to 150 meters long, and 45 to 55 meters wide. The large mounds cover multiple mortuary structures in which various styles of burials were placed. Some of these structures were destroyed by fire and then covered with earth. Other burials had a low primary mound of earth over them. The large mounds cover many such interments and represent the burial of hundreds of individuals and perhaps the passage of some hundreds of years. Many Hopewell bodies were cremated after they had been dressed according to the individual's status in the society. Cremated with them were burial offerings appropriate to that status. The cremated remains were then placed in specially prepared clay basins in the mortuary chamber. Other bodies were uncremated and were buried singly or in groups with their grave goods; some of these burials were in log tomb structures or on small prepared platforms. Some of the most significant burials were in small mounds. Mound 11 at the Hopewell site was less than ½ meter high and about 15 meters in diameter, yet it contained one cremated burial with no grave goods

Fig. 4 (opposite page). Hopewell earthwork pattern and Hopewellian art and pottery. (*a*) Turner Earthworks, Hamilton County, Ohio (diameter of elevated circle, 140 meters); (*b*) designs in thin copper plate from Hopewell site, Ross County, Ohio (about × 1/5); (*c*) bone engraving on proximal half of human femur, Hopewell site (length of bone, about 13 centimeters); (*d*) engraved stone tablet from Cincinnati (length, about 13 centimeters); (*e*) painted pottery male effigy from Knight site, Calhoun County, Illinois (height, 11 centimeters); (*f*) *Busycon* cup, Hopewell site (about 30 centimeters); (*g*) mica effigy of eagle (?) claw, Hopewell site (28 centimeters); (*h*) different types of copper earspools from Seip Mound, Ross County, Ohio (each spool about 5 centimeters); (*i*) obsidian ceremonial spear from Hopewell site (23 centimeters); (*j*) Havana Zoned Dentate vessel from Havana Mound 6, Mason County, Illinois (height, about 15 centimeters); (*k*) embossed flying eagle (?) design on copper plate, Mound City, Ross County, Ohio (length, 30 centimeters); (*l*) sheet copper over cane panpipe, Hopewell site (length, 11½ centimeters); (*m*) Hopewell style vessel from Crooks site, La Salle Parish, Louisiana (height, about 15 centimeters); (*n*) Hopewell style vessel from Crooks site; (*o*) sculptured and engraved hawk effigy pipe from Tremper Site, Scioto County, Ohio, and plain platform pipe from Hopewell site (both about 10 centimeters long); (*p*) engraved roseate spoonbilled-duck design, Hopewell site (length, about 10 centimeters). (See *42*.)

and another with which were buried over 135 kilograms of obsidian fragments, or about 60 percent, by weight, of all the obsidian found in Ohio. The percentage of cremations ranges from 100 percent at Tremper to about 37 percent at the Hopewell site.

Ohio Hopewell pottery belongs to the widespread Woodland ceramic tradition first recognized in the Ohio Valley in association with Early Adena sites. The zoned-decorated rocker-and-dentate stamped Hopewell pottery is an apparent introduction from Illinois and becomes the dominant decorated pottery in the Ohio sites. Another significant introduction was of check, complicated, and simple stamped pottery, from the Deptford and Swift Creek cultures of the southeastern Tennessee to Pensacola area. Some of these vessels were evidently brought in as trade pieces, for they are made of micaceous clays and tempering materials from the Southeast.

The acquisition of nonlocal raw materials by trading parties, which was a significant activity in Late Archaic and Early Woodland times, reaches striking proportions particularly in Ohio Hopewell. Large amounts of copper were obtained from pits in the Lake Superior native copper deposits. Silver was sometimes naturally associated in the copper, but silver was also obtained from deposits near Cobalt, Ontario (*28*). Meteoric iron was combined with copper in ornaments, and meteoric specimens were found at ten sites in Ohio, at two sites in Illinois, at one in west central Georgia, and at Crystal River and Murphy Island, Florida. There was apparently more than one source of meteoric iron (*29*); there is no reason to believe the source areas were in Ohio. Mica, quartz crystal, aventurine, and chlorite were obtained from the southern Appalachians. Large marine shells such as *Cassis* were obtained from the Florida east coast, while *Busycon, Fasciolaria,* and smaller marine snail shells such as *Marginella, Oliva,* and *Olivella* came from the southeast and the Florida Gulf Coast. Other items used in decoration, probably from west Florida, include alligator teeth, shark teeth, ocean turtle shells, and barracuda jaws.

The galena cubes found at Hopewell sites were probably from western sources, perhaps from northwestern Illinois, or Missouri; nodular flint came from Harrison County, Indiana, or similar quarries near Cobden in Union County, Illinois (*30*). Recent neutron activation studies at the University of Michigan indicate that the obsidian was obtained from what is now Yellowstone Park, while a mottled brownish chalcedony is said to be from quarries along the Knife River in North Dakota or from gravel deposits in southern Manitoba.

If the raw materials were obtained primarily through intertribal barter, then the materials should be found at many contemporary sites along the trails and waterways leading to source areas, but this seems not to be the case. One possible explanation is that small parties of men from Ohio made trips to source areas in order to procure the raw materials for their own craftsmen, taking with them copper artifacts and perishable items for trade or "good-will" exchange.

Because of the concentration of copper artifacts in Ohio it is postulated that manufactured items of copper were distributed from Ohio to Tennessee, Georgia, Alabama, Florida, Mississippi, and Louisiana, and to areas in the North, from New York to Iowa and Missouri. Flint Ridge flint from the Newark-Ohio area has been recovered from New York, Pennsylvania, West Virginia, and perhaps Mississippi. One of the more conspicuous distributed objects is a platform pipe made from the same Ohio pipestone from which the Adena tubular pipes were made. The distribution of the platform pipe is from New York west to Wisconsin and Iowa and as far southwest as Hardin County, Illinois.

Ohio Hopewell art was highly developed and is expressed in a variety of ways (Fig. 4). The platform effigy pipes are naturalistically sculptured and skillfully portray many animal, bird, and fish forms, as well as a few human heads. Figurines of clay are of a somewhat similar naturalistic style. There are two-dimensional representations, on sheets of copper and mica, of mammals, fish, and birds, and of portions of these animals. There are also human figures, hands, and heads. Some of the representations, on thin copper, of the turkey buzzard, parrot, and eagle have feathers, wings, and other features embossed in the copper. Cut-out designs include the suavastika (a swastika with the arms extending to the left). Some of the cut-out designs may have been used as stencils in painting finely woven cloth of native bast fibers. The swastika, also, was used on a sculptured stone head. Still another art form was fine engraving on bone, with highly conventionalized designs, primarily of birds and animals. Many of these engravings were on human leg and arm bones.

The art, the procurement of exotic raw materials, the earthwork complex, and the elaborate burial procedures were all a part of a religious ceremonialism centered on a propitiation of the spirit world which affected the hunting, trading, warfare, games, health, death, and, in fact, every phase of the existence of these people. They believed that the skill of hunters, warriors, and craftsmen and the power and wisdom of social and political leaders depended on these supernatural forces. Many of the more elaborate burials of males are probably those of shamans whose control of the supernatural placed them among the important individuals in the social and political structure. The burial ceremonialism was not a special exotic cult but a climactic expression of a central theme of their way of life (*31*).

Havana Hopewellian

Another important center of Hopewellian development was the region of the Illinois Valley and the adjacent Mississippi Valley. During Early Adena times the Woodland people of Illinois were developing their own ceramic and artifact complex, and by about 300 B.C. a distinctive Havana Tradition pottery complex had been produced. (Havana is a small town in Mason County, Illinois.) The Havana Zoned Stamped style and associated styles are the first expression of Hopewellian pottery, and from it the Classic Hopewell Zoned style developed, about 100 B.C. Other cultural features of Early Havana are shared with Late Adena and Ohio Hopewell. The two regional developments followed parallel but distinctive paths, with diffusion of ideas and practices between them. This type of interrelationship is well known and has recently been called an "interaction sphere" and defined in a number of different ways (*32*).

Illinois Hopewellian villages occupied a few acres, were on slightly higher ground than the floodplain, and were located near the base of the upland, along tributary streams flowing into the main valley. The burial mounds are often on the bluffs overlooking

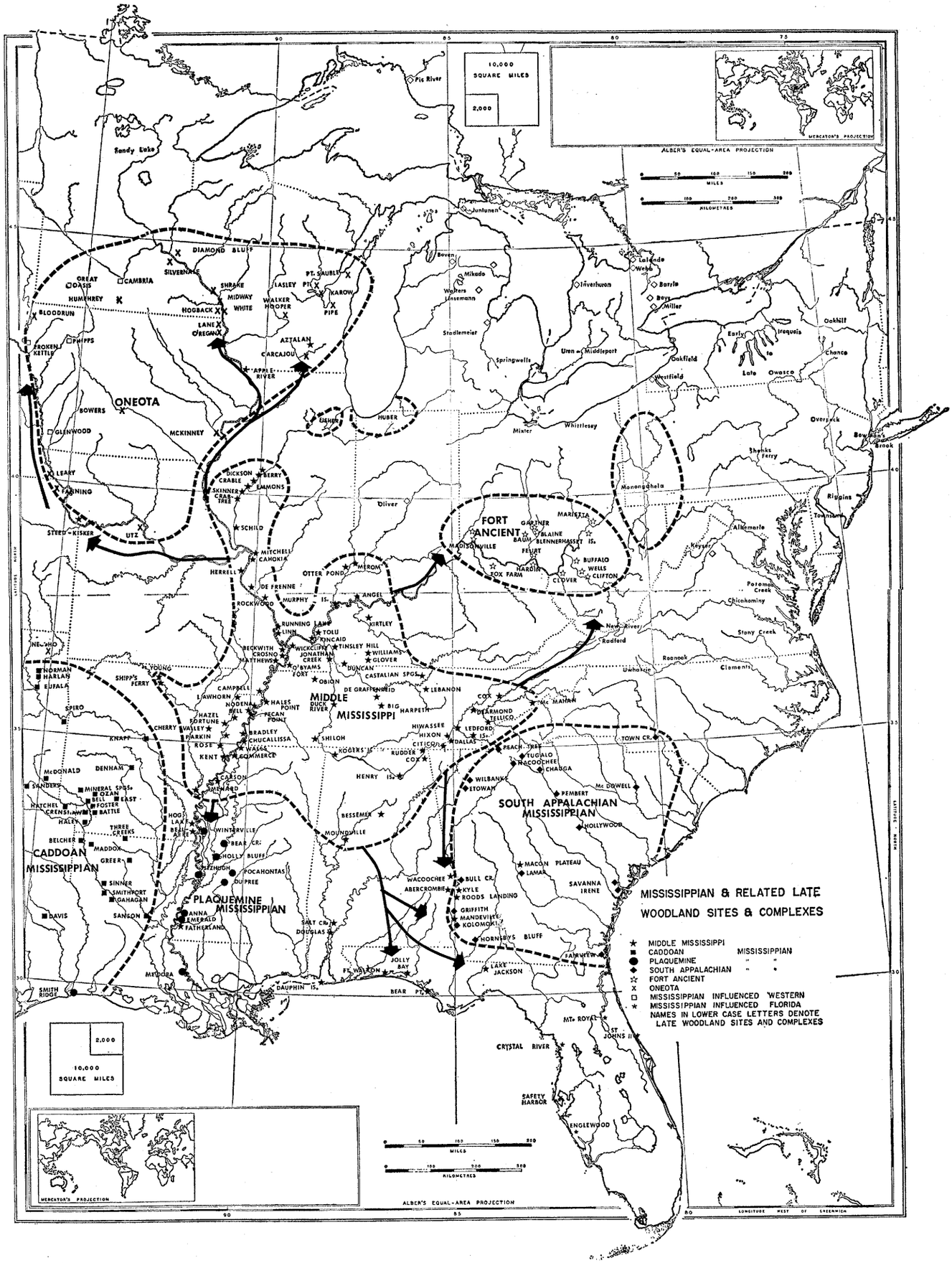


Fig. 5. Map of Mississippian and related Late Woodland sites and complexes. There is considerable uncertainty about time periods, areas, and assignment of sites to area complexes. [Museum of Anthropology, University of Michigan]

the valley, but some large mound groups were located on the village sites. The houses were ovoid structures, probably with a barrel-shaped roof, and were covered with bark, skin, and mats. Extensive digging in making refuse pits and mounds and digging for tubers and perhaps in agriculture was done with shell and flint hoes and probably with a splayed-end digging stick. The ungrooved polished stone ax, or celt, and a three-quarter grooved ax (an ax with grooves on three sides of the ax head) were the most common tools for wood chopping.

Knives and large corner-notched or stemmed atlatl and spear points were supplemented by antler projectile points for hunting and fighting. Large numbers of ovoid and stemmed flint scrapers attest to the importance of skin-working, while lamellar flake knives, which occur in even larger numbers, were cutting and perhaps woodworking tools. A large variety of bone awls were used for skin-working and the making of mats, baskets, and cloth. There is marked development of the ceramic complex, shown by hundreds of bowls and large cooking and storage vessels with a wide variety of stamped and incised decoration. Considerable care was given to the making of a finer grade of pottery, called Hopewell ware, with polished surfaces and expertly executed stamped and incised designs. Hopewell-ware pottery is found in considerable quantity in excavated villages in the southern half of the Illinois Valley; it was also placed in graves, together with the more common pottery. Hopewell limestone-tempered pottery vessels from the lower Illinois Valley were carried into western Michigan, Wisconsin, Iowa, and southern Illinois. The best northern Hopewell pottery was made in Illinois.

A common object in Illinois Hopewell graves is the shell cup made from *Busycon* and *Cassis* shells. Sections of these shells and of the shells of local mollusks were made into pendants and beads. Pearl beads are not as common in Illinois as in the Ohio sites. While some copper implements, such as the celts, adzes, and awls, may have been manufactured in Illinois, it is likely that copper pendants, gorgets, ear spools, and a few plates with repoussé designs came from Ohio, together with platform pipes of Ohio pipestone. Pipes were also manufactured in Illinois, of local materials. The baked-clay human figurines are more numerous in Illinois, and some are better made than the Ohio figurines.

Many of the burial mounds have subfloor burial chambers, some of them with logs lining the pit. Burials were extended, or the skeletal material, after exposure for a time on a scaffold or in a prior interment, was wrapped in a skin and placed as a bundle burial in the grave. Cremation was not common outside of the Ohio area.

For subsistence the people depended primarily on hunting, fishing, fowling, and gathering. Careful excavation of early Late Woodland village sites and identification of the plant and animal remains provide evidence of a broad utilization of the available native aquatic and land food. This was probably true for the Hopewellian societies also. Identification of animal bone from Hopewellian sites shows an increasing dependence on deer for meat, and this becomes a characteristic of the hunting practices of the later Mississippian agricultural societies (*33*).

Spread of the Hopewellian Societies and Culture

Southern Ohio Hopewell expanded into or influenced the Middle Woodland populations of the Allegheny Valley and of areas farther north into New York and Ontario (*34*). Hopewell artifacts from Ohio are found in the northern Alabama Copena complex, in a few areas in Tennessee and western North Carolina, and in the Deptford and Santa Rosa–Swift Creek sites in Georgia and Florida. The Illinois Valley center, on the other hand, expanded by movement of the population into northwestern Indiana, into southwestern Michigan, and into the Muskegon Valley to the north and the Saginaw Valley to the east—regions where a number of middle-to-late Hopewellian village sites and mound groups have been identified. A similar pattern of expansion into southeastern and southwestern Wisconsin and southeastern Minnesota is recognized. Another major thrust was up the Missouri into the Kansas City area. Excavated sites near Kansas City are strikingly similar to those in the Illinois Valley in their industrial products, and there are some similarities in the burial customs. The Cooper Hopewellian Complex of the adjacent areas of Kansas, Oklahoma, Missouri, and Arkansas was also connected to the Kansas City area by ceramic styles.

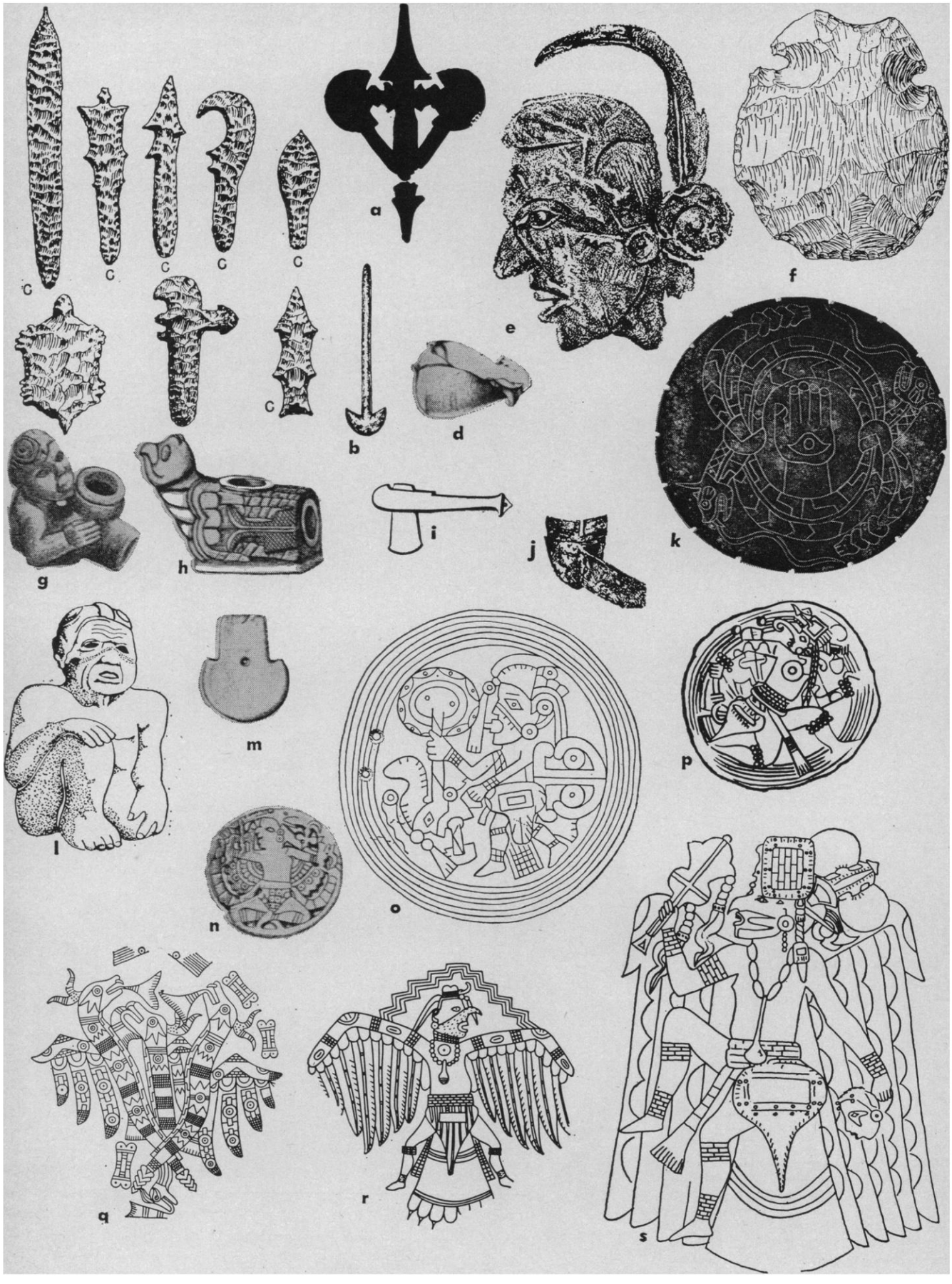
Illinois has the most detailed known sequence of Hopewellian change through time and of clear regional variations occurring at the same time. The unglaciated area south of St. Louis in the Mississippi, Wabash, and Ohio drainages has many Middle Woodland sites which represent an uneven blending of the Hopewellian industrial, artistic, and ceremonial activities with the locally developed regional patterns. Between Cairo and New Orleans the local groups were unevenly affected by Hopewellian concepts. The farther south the sites are, the more they reflect the tool forms which had a long history in the lower Mississippi alluvial valley and in the Southeast. The burial practices are significantly different from those in the North. The southern Hopewellian complexes such as Miller, Porter, and Marksville approach the attainments of the rich northern cultures only in their ceramic development (*35*).

From about A.D. 300 to 900 in most of the northern area there are gradual changes in a great many of the cultural

Fig. 6 (opposite page). Middle Mississippian fortified town and Mississippian pottery. (*a*) Reconstruction of Beckwith's Fort, Mississippi County, Missouri (length of wall, 810 meters); (*b*) red-and-white-on-buff effigy head pot, Campbell site, Pemiscot County, Missouri (14 centimeters); (*c*) negative-painted bottle, southeast Missouri (20 centimeters); (*d*) Ramey Incised jar from Cahokia area, Illinois (diameter, 25 centimeters); (*e*) engraved Caddoan bottle, Spiro, Le Flore County, Oklahoma (about 20 centimeters); (*f*) engraved Caddoan bowl, Spiro (diameter, 11 centimeters); (*g*) incised jar, New Madrid County, Missouri (diameter, 15 centimeters); (*h*) turtle effigy bottle, Scott County, Missouri (length, 25 centimeters); (*i*) red-on-buff bottle, southeastern Missouri (20 centimeters); (*j*) engraved bottle, Walls site, De Soto County, Mississippi (14 centimeters); (*k*) engraved bottle, Jaketown (?), Washington County, Mississippi (16½ centimeters); (*l*) stirrup-neck bottle, Pemiscot County, Missouri (diameter, 18 centimeters); (*m*) engraved bean pot, Cahokia (16½ centimeters); (*n*) male effigy bottle, Vernon Paul site, Cross County, Arkansas (23 centimeters); (*o*) engraved design on bottle, Moundville, Hale County, Alabama; (*p*) human head effigy bowl, Walls site (height, 22 centimeters). [From C. H. Chapman and E. F. Chapman, *Indians and Archaeology of Missouri* (Univ. of Missouri Press, Columbia, 1964); J. B. Griffin, Ed., *Archeology of Eastern United States* (Univ. of Chicago Press, Chicago, 1952)].

remains. Hopewellian utilitarian tools and ornamental and ceremonial materials disappear. There is a striking decline in burial ceremonialism. The exotic trade goods are much less common. The resultant decline is called Early Late Woodland. It takes place over much of the country, but it is most clearly observed where the more showy Hopewellian cultures had existed before. The cultural intercourse between regions, while perhaps lessened, did not stop. Recognition of this broad cultural unit is based on significant similarities in pottery, projectiles, ornaments, and burial procedures that spread over much of the north from Virginia to Minnesota.

The most notable exception to this decline is found in the deep South in the Weeden Island culture of the region from the northwest Florida coast to Mobile Bay and in the Troyville-Issaquena culture of the lower Mississippi Valley. Weeden Island in particular shows a strong emphasis upon burial ceremonialism, probably stimulated by Ohio Hopewell. This ceremonialism was centered around the burial of a "chief." After his burial many other individuals of lesser status were buried, with elaborate caches of both excellent and bizarre pottery, on the east side of the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mound. It has been suggested that a barter-and-exchange system between island farmers and coastal seafood gatherers was in existence (*36*). Weeden Island culture continued until about A.D. 1400. It gradually was submerged by a late Mississippian expansion to the Gulf Coast, in the form of the Pensacola and Fort Walton complexes.

East of the Appalachians from North Carolina into New England and westward from New York to Minnesota, people of the late prehistoric cultures, while subsisting to a substantial degree on the products of agriculture, still relied on hunting and collecting for a large proportion of their food supply. They did not significantly participate in the Mississippian cultural advances and are regarded as Late Woodland groups up to the time of European colonization (*37*). They did, however, have their own cultural development. The most notable of these cultures were those of the Iroquoian societies in New York and southern Ontario and the Siouan groups in Minnesota and southern Manitoba.

Fig. 7 (opposite page). Flint hoe of the Mississippian period and art representations of the Southeastern ceremonial complex. (*a*) Bilobed-arrow copper headdress, Hixon site, Hamilton County, Tennessee (23 centimeters); (*b*) polished stone spud, Spiro, Le Flore County, Oklahoma (58 centimeters); (*c*) flint cache, Duck River, Tennessee (length of upper left blade, 68 centimeters); (*d*) *Cassis* shell cup, Hiwassee Island, Meigs County, Tennessee (23 centimeters); (*e*) cut-out repoussé human head effigy, Spiro (27 centimeters); (*f*) flint hoe, Cahokia area, Illinois (15 centimeters); (*g*) polished-stone human effigy pipe, Ferguson Mound, Jefferson County, Mississippi (13 centimeters); (*h*) polished-stone bird effigy pipe, Emerald Mound, Adams County, Mississippi (16½ centimeters); (*i*) polished monolithic ax, Hixon site (18 centimeters); (*j*) copper long-nosed-god mask, Gahagan site, Red River Parish, Louisiana (7 centimeters); (*k*) engraved stone disk, Moundville, Hale County, Alabama (32 centimeters); (*l*) sculptured stone human figure, Lebanon, Wilson County, Tennessee (44 centimeters); (*m*) polished-stone perforated celt, Ledford Island, McMinn County, Tennessee (9 centimeters); (*n*) seated-priest engraved shell gorget, Hixon site (11 centimeters); (*o*) engraved shell gorget showing dancing priest with fan and human head, southeastern Missouri (15 centimeters); (*p*) engraved shell gorget showing priest with long-nosed-god mask, New Madrid County, Missouri (about 10 centimeters); (*q*) engraving on *Busycon* shell, Spiro (28 centimeters); (*r*) masked eagle dancer engraved on large *Busycon* shell, Spiro (33 centimeters); (*s*) embossed copper plate showing dancing priest, Etowah, Bartow County, Georgia (43 centimeters). (See *43*.)

Agricultural Efficiency and the Mississippian Cultures

The term "Mississippian" is used here to refer to the wide variety of adaptations made by societies which developed a dependence upon agriculture for their basic, storable food supply (Fig. 5). This dependence is recognizable by about A.D. 700 to 900, from the Cahokia area around St. Louis on the north to the Vicksburg area on the south. These villages are primarily along the major streams with large alluvial floodplains which provided fertile and easily worked soils. It was the gradual shift to a substantial dependence on agriculture for food that tied the societies to specific localities, emphasized territoriality and ownership of land, provided a supply of storable food that allowed marked increase in population, permitted specialization of labor, provided markets for the exchange of goods, and led to the development of elaborate religious ceremonies centered around crop production, in which whole tribal groups took part. While the actual crop production and attendant rites emphasized the solidarity of tribal groups, the religious ceremonialism connected with agriculture spread widely through most of the major southeastern tribes. It was the more favorable climatic conditions for agriculture in the southern half of the Eastern United States that allowed that area to acquire the marked cultural dominance of the last 1000 years of Indian occupancy.

The Indian crops were and are ideally suited to the environment of the central and lower Mississippi Valley. Maize, particularly, grows best when the soil is warm and spring frost is past. When the maize has sprouted, it thrives best with abundant warm rain and high temperatures both day and night. Its maturing is aided by a dry period or by lowered temperature. It is easily stored and kept and is the most nearly complete food of all the Indian starchy domesticated plants. Maize, beans, and squash do well on the sandy and light loam soils found in the bottom lands of the great rivers of the East. There is a high correlation between the presence of these soils and the location of Mississippian sites. No wonder the former natural levees of the lower Mississippi Valley south of St. Louis, along cutoff lakes, with their fish and bird life, were a favorite place for Mississippian people. These soils could be tilled with digging sticks and with hoes of flint, shell, and bone. Areas of forest on sandy residual soils such as those of the southern piedmont of the Carolinas and the Georgia uplands were admirably suited, after girdling of the trees, to crop production (*38*).

Several varieties of maize, beans, squash, pumpkin, gourd, and sunflower were cultivated. The addition of these crops to the wide variety of native berries, tubers, nuts, fish, and game provided an ample supply of food. At the major Cahokia site in the American Bottoms east of St. Louis, 20 species of animals, 58 species of birds, 5 species of turtles, a frog, 19 species of fish, 16 species of river mussels, 5 species of freshwater snails, and 11 species of marine snails were used for food, ornaments, and implements (*39*).

Not only did the more efficient Mississippian agricultural economy allow population growth in the central Mississippi Valley area but it was a major factor in the expansion of Mississippian culture to the south, east, north, and west. Some of this was by migration. As early as A.D. 1000, tribal groups, or segments of them, moved from the lower Tennessee-Cumberland-Ohio area south and east into the upper Tennessee drainage and as far southeast as Macon, Georgia. Another source of Mississippian migrants of about A.D. 1000 was the Cahokia area around St. Louis. From there, people of the Old Village culture moved up the Illinois to the Peoria area, up the Mississippi into Wisconsin and eastern Minnesota, and up the Missouri to Kansas City, to Sioux City, and into South Dakota (*40*). The lower Mississippi Valley Coles Creek complex had expanded westward by A.D. 800 into western Louisiana, southwestern Arkansas, and eastern Oklahoma and provided a significant stimulus to the development of the prehistoric Caddoan cultures. Coles Creek was not an important participant in the development of the major Mississippian complexes. In a later period, about A.D. 1500, a Mississippian tribal group moved into central North Carolina from northern Georgia or the western Carolinas. Another movement was of Creek people from central Alabama to the west-Florida coastal area; a third expansion, at about the same time, was down the Mississippi from above the mouth of the Arkansas.

The major development of Mississippian communities was in the Mississippi Valley between St. Louis and northwest Mississippi. There were heavy concentrations in southeast Missouri, eastern Arkansas, western Ken-

tucky, and Tennessee and up the Ohio into southwestern Indiana. Many of the large towns were fortified by woodbastioned stockades enclosing 10 to 40 acres (4 to 16 hectares) of land (Fig. 6). These were the main population centers and the place of residence and action of the social, political, and religious leaders of the tribal groups. The town square was bordered by flat-topped earthen mounds on which were large buildings which served as council houses, temples, and sometimes charnel houses. Residential buildings were rectangular-to-square and were from 4½ to 12 or more meters long. They were of wattle-and-daub construction, or the walls were covered with bark or reed matting. Excavations of some of these sites have uncovered hundreds of house remains, but it is difficult to estimate how many of the houses were occupied simultaneously. Early historic sources mention large towns with houses numbering in the hundreds, and populations of between 1000 and 2000. Subsidiary villages and farming areas sometimes stretched for miles and, in some instances, formed an almost uninterrupted zone of farming communities for some distance.

The pottery complex is much more diversified than previous complexes. There are clear functional differences of form and quality. Cooking and storage jars and simple bowls are the most common objects, but there are many polished and decorated bowls, bowls with effigy heads, plates, large pans for evaporating salt, and a wide variety of bottles, including animal and human effigy forms. There is a considerable use of red filming and of bichrome, polychrome, and negative painting, particularly in the central area of the Mississippi cultures, which also had such exotic forms as the stirrup-neck bottle and human-effigy-head vases.

Trade is represented by the appearance, far in the interior, of large marine gastropods from the Southeast and the Gulf Coast area. These were shaped into containers some of which were used for the "black drink," a purgative used in ceremonies, and were often buried with individuals of high status. They were used to make beads of various sizes and shapes for ornamentation, for mask gorgets, and for circular gorgets with elaborate engravings. In the Caddoan area, the large shells have complicated engraved designs. Flint was traded, both in the form of finished ceremonial products and, to some extent, as blocks to be made into weapons and other implements. Salt was a significant trade item, which apparently increased in importance with the increase of crop plants in the diet. Copper was a major trade item. Most of this was obtained from the Lake Superior area, although there were some local sources. The copper was used for plating wooden and stone ornaments and for making ceremonial celts; copper plates were embossed with elaborate designs.

The cultural climax of the Mississippian societies was reached about A.D. 1200 to 1500; thus De Soto's travels through the Southeast took place when the Indian societies were still at their cultural peak. It was also during this period that most of the striking art forms associated with the Southeastern Ceremonial Complex were produced, traded, and buried with the civil, religious, and war leaders of the communities (Fig. 7) (*41*). There are many cultural variations in these eastern sites, resulting from local styles and traditions which reflect the political and societal groupings. The Caddoan-speaking peoples of the adjacent portions of Louisiana, Arkansas, Oklahoma, and Texas formed one such distinctive complex; others include the adjoining Plaquemine cultures of the lower Mississippi Valley in Louisiana and western Mississippi; the Moundville, Alabama, and related groups; the south Appalachian societies in northwest Georgia and adjacent North Carolina and Tennessee; the Dallas complex of eastern Tennessee; the Duck River and Chucalissa complexes in western Tennessee; the Kincaid group in southern Illinois; the Matthews group in southeast Missouri; the Trappist–Spoon River populations in Illinois; and the Fort Ancient groups in the central Ohio Valley. Figure 5 suggests the population density and the dominant cultural complexes. There are many more sites known to archaeologists, however, for each site identified.

The religious symbolism of the Mississippian cultures is engraved, painted, and sculptured on pottery, engraved on shell, sculptured in wood and stone, chipped from flint, embossed on copper, and painted on cloth. Many of the symbols, such as the weeping eye (Fig. 7*q*) and the bilobed arrow (Fig. 7*a*), are difficult to interpret, but others can be interpreted; for example, the cross, the swastika, the sun circle, and the skull, heart, and crossbones symbolize, respectively, the concepts of the four world quarters, the wind, sun worship and the sacred fire, and the sacrifice of captives.

Some of the religious symbolism was probably derived from Mexico, during the Post Classic maximum northward expansion of Mesoamerican culture, but it is extremely difficult to be more precise in terms of the specific source area, or of the way in which the Mexican concepts arrived, or of the area in the Southeast where they were first adopted. The southwestern United States cultures received even more direct influences at the same time from northwestern Mexico, and these had a profound effect upon the late prehistoric societies in that area. The earliest appearance of this pan-Southeastern Ceremonial Complex is around A.D. 1000, when the long-nosed-god masks cut from sheet copper appear with burials in Florida, Louisiana, Oklahoma, and Missouri, and at the Aztalan site in Wisconsin (Fig. 7*j*). Michael Coe suggested to me that these representations of a "long-nosed god" may be the result of Mexican influences introduced into the Southeast by *pochteca* or traveling merchants, whose extensive activities in Middle America are well known. The God of the Aztec *pochteca* was Yacatecuhtli, who is sometimes portrayed with a prominent nose. He is sometimes shown with a group of arrows and a disk, which suggest the bilobed arrow, and with a barred staff, suggestive of a serpent, which resembles a possible serpent staff, held by priests, on shell engravings from the Spiro site in Oklahoma. The culmination of the ceremonial complex was reached in the last two centuries before the arrival of De Soto, and by this time there were many fundamentally similar religious practices and attitudes over much of the area strongly influenced by Mississippian culture.

The European colonization and conquest was a disaster to Indian societies. Among the most effective introductions were epidemic diseases, which reached the interior much faster than direct intervention and altered social, economic, and political alignments did. The trading-post economy helped to shift the activity of the native peoples from agriculture back to hunting and trapping, and the introduction of liquor, guns, and broken treaties removed the Indian and his cultures as effective forces in Eastern North America.

Summary

The initial occupation of Eastern North America was by small bands of people who gained their livelihood by hunting and gathering. As time passed, the occupants of different regions became increasingly familiar with the available natural resources. The development or introduction of new tools and devices enabled the people to exploit their environments more effectively, until, by Late Archaic times, population size had increased, in terms both of density within a given area and number of people in individual social units.

The initial agricultural productivity aided the culmination of the long cultural traditions in the remarkable productions and practices of the Hopewellian complexes of Middle Woodland times. The major Hopewellian centers reflect the marked change in societal organization and patterns. The costumes of the dead and the manner of their burial clearly reflect individual status differentiations, while artistic creativity is probably to be equated with incipient specialization of labor. Many of the Mississippian societies reached an even more advanced plateau of cultural development, with fortified towns, an organized priesthood, dominant hereditary chiefs, political and military alliances, and a well-developed class system.

The details of the cultural development in Eastern North America are unique, but the general trend may be regarded as a common one in human society, and the patterns of behavior, as analogous to those developed by other peoples in other areas of the Old World and the New.

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11. This view is supported by R. J. Mason; see, for exam → *Current Anthropol.* **3**, 227 (1962).
12. R. A. Yarnell, "Aboriginal Relationships between Culture and Plant Life in the Upper Great Lakes Region," *Anthropol. Papers, Museum Anthropol. Univ. Michigan No. 23* (1964).
13. There is some disagreement as to when sea level reached essentially its present position and whether it has varied significantly within the last 5000 years. See C. G. Higgins, *Amer. Scientist* **53**, 464 (1965).
14. J. P. E. Morrison, *Smithsonian Inst. Bur. Amer. Ethnol. Bull.* **129**, 337 (1942).
15. W. A. Ritchie, *The Archaeology of New York State* (Natural History Press, New York, 1965).
16. R. Ritzenthaler, Ed., *Wisconsin Archeologist* **38**, 4 (1957); J. B. Griffin, Ed., "Lake Superior Copper and the Indians," *Anthropol. Papers Museum Anthropol. Univ. Michigan No. 17* (1961).
17. C. E. Brown, *Wisconsin Archeologist* **3**, 49 (1904).
18. J. B. Griffin, in *Proc. Intern. Congr. Americanists, 36th, España, 1964* (Sevilla, 1966), vol. 1, pp. 281–285.
19. ———, *The Quaternary of the United States* (Princeton Univ. Press, Princeton, N.J., 1965), pp. 662–63. The term "Boreal" Archaic is not applicable.
20. R. P. Bullen, in *Florida from Indian Trail to Space Age* (Southern Publishing Company, Delray Beach, Florida, 1965), vol. 1, pp. 305–316.
21. This reference is to "the first American tragedy" of Minnesota Lady, whose burial associations included a *Busycon perversa* gorget very similar to Late Archaic forms in Kentucky shell mounds [A. E. Jenks, *Pleistocene Man in Minnesota: a fossil Homo Sapiens* (Univ. of Minnesota Press, Minneapolis, 1936)]. See my discussion of this "fossil" in *The Quaternary of the United States* (Princeton Univ. Press, Princeton, 1965), pp. 661–62.
22. G. Reichel-Dolmatoff, *Publ. Univ. de los Andes, Antropologia* **2**, 52 (1965).
23. For an early discussion of the Woodland ceramic tradition see J. B. Griffin, in "The Adena People," *Univ. Kentucky Rep. Anthropol. Archeol.* **6**, 220 (1945). A more recent evaluation may be found in J. B. Griffin, in "Prehistoric Cultural Relations between the Arctic and Temperate Zones of North America," *Arctic Inst. North Amer. Tech. Paper No. 11* (1962), pp. 160–62.
24. This pottery is described and illustrated in R. L. Stephenson, "The Accokeek Site: A Middle Atlantic Seaboard Culture Sequence," *Anthropol. Papers Museum Anthropol. Univ. Michigan No. 20* (1963), pp. 180–183.
25. This hypothesis has been supported by M. L. Fowler, G. I. Quimby, and J. Witthoft at various times.
26. H. R. Crane and J. B. Griffin, *Amer. J. Sci. Radiocarbon* **7**, 130 (1965).
27. The two major publications on this site are by W. K. Moorehead ["The Hopewell Mound Group of Ohio," *Field Museum Nat. Hist. Pub. 211, Anthropol. Ser. 6, No. 5* (1922)] and H. C. Shetrone ["Explorations of the Hopewell Group of Prehistoric Earthworks," *Ohio Archaeol. Hist. Quart.* **35**, No. 1 (1926)]. Significant summaries are by R. G. Morgan [*Archeology of Eastern United States* (Univ. of Chicago Press, Chicago, 1952), pp. 83–89] and O. Prufer ["Hopewellian Studies," *Illinois State Museum Sci. Papers* **12**, 35 (1964)].
28. Personal communication from Walter Kenyon, Royal Ontario Museum, Toronto, discussing the LeVesconte site near Campbellford, Ontario. An important find was made here of four copper- and five silver-jacketed panpipes.
29. O. Prufer, *Ohio J. Sci.* **61**, 341 (1961).
30. I am here following the inexact usage of many American archaeologists who do not use mineralogical terminology for a variety of stones flaked by Indians.
31. Some archaeologists refer to the burial ceremonialism from Late Archaic through Hopewell as several different "cults," and to the Southeastern Ceremonial Complex as the Southeastern "Cult." I would refer to Islam as a religion, and to the Black Muslim movement as a "cult."
32. See papers by D. W. Dragoo, O. Prufer, S. Struever, J. A. Brown, E. V. McMichael, and J. R. Caldwell in "Hopewellian Studies," *Illinois State Museum Sci. Papers* **12**, 35 (1964). This volume has an extensive listing of sources on Illinois or Havana Hopewellian.
33. C. E. Cleland, "The Prehistoric Animal Ecology and Ethnozoology of the Upper Great Lakes Region," *Anthropol. Papers Museum Anthropol. Univ. Michigan No. 29* (1966).
34. Discussions of this expansion to the northeast may be found in W. A. Ritchie (*15*, pp. 213–228) and in W. J. Mayer-Oakes, "Prehistory of the Upper Ohio Valley: An Introductory Archaeological Study," *Carnegie Museum Anthropol. Ser. No. 2* (1955), pp. 63–67, 81–87, 96–98, 153–55.
35. This view is not accepted by everyone.
36. The basic reference for Weeden Island is G. W. Willey, *Smithsonian Inst. Misc. Collections* **113** (1949). Some additional important studies are W. H. Sears, "Excavations at Kolomoki: A Final Report," *Univ. Georgia Ser. Anthropol. No. 5* (1956); ———, → "Burial mounds on the Gulf Coastal Plain," *Amer. Antiquity* **23**, 274 (1958); C. H. Fairbanks, "Gulf Complex subsistence economy," *Southeastern Archaeol. Conf. Bull.* **3**, 57 (1965).
37. See the discussion of Owasco in W. A. Ritchie (*15*); see also M. E. White, "Iroquois Culture History in the Niagara Area of New York State," *Anthropol. Papers, Museum Anthropol. Univ. Michigan No. 16* (1961); and J. V. Wright, "The Ontario Iroquois Tradition" ("La Tradition Iroquoise de l'Ontario"), *Nat. Museum Can. Bull. 210 (Anthropol. Ser. No. 75)* (1966).
38. C. Sauer, in *Essays in Anthropology Presented to A. L. Kroeber* (Univ. of California Press, Berkeley, 1936), pp. 279–298.
39. F. C. Baker, "A study in ethnozoology of the prehistoric Indians of Illinois," *Trans. Amer. Philosophical Soc.* **32**, No. 2, 51 (1941); P. W. Parmalee, "Vertebrate remains from the Cahokia Site, Illinois," *Trans. Illinois State Acad. Sci.* **50**, 235 (1957). J. R. Swanton discusses food sources and culinary preparation in, "The Indians of the Southeastern United States," *Smithsonian Inst. Bur. Amer. Ethnol. Bull.* **137** (1946).
40. This interpretation is presented in J. B. Griffin, "A hypothesis for the prehistory of the Winnebago," in *Culture in History: Essays in Honor of Paul Radin*, S. Diamond, Ed. (Columbia Univ. Press, New York, 1960), pp. 809–865.
41. → A. J. Waring, Jr., and P. Holder, *Amer. Anthropol.* **47**, 1 (1945). Many writers have commented on this complex, and some have unfortunately referred to it as the "Buzzard Cult," "Death Cult," and "Southern Cult."
42. Sources for Fig. 4 are as follows: *Papers of the Peabody Museum of Archaeology and Ethnology* (Cambridge), vol. 8, No. 3; *Ohio Archaeol. Hist. Quart.* **35**, No. 1; C. H. Chapman and E. F. Chapman, *Indians and Archaeology of Missouri* (Univ. of Missouri Press, Columbia, 1964); O. Prufer, "Hopewellian Studies," *Illinois State Museum Sci. Papers No. 12* (1964); D. Dragoo, *ibid.*; J. B. Griffin, Ed., *Archeology of Eastern United States* (Univ. of Chicago Press, Chicago, 1952).
43. Sources for Fig. 7 are as follows: J. B. Griffin, Ed., *Archeology of Eastern United States* (Univ. of Chicago Press, Chicago, 1952); C. H. Chapman and E. F. Chapman, *Indians and Archaeology of Missouri* (Univ. of Missouri Press, Columbia, 1964); W. B. Sears, in *Prehistoric Man in the New World* (Univ. of Chicago Press, Chicago, 1964); drawings from files of the Museum of Anthropology, Univ. of Michigan; W. K. Moorehead, in *Etowah Papers* (Yale Univ. Press, New Haven, Conn., 1932).