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IRENE MOUND SITE
CHATHAM COUNTY, GEORGIA

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CHATHAM COUNTY, GEORGIA

Caldwell - McCann - Hulse

IRENE MOUND SITE

CHATHAM COUNTY, GEORGIA

By

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With a Section on

PHYSICAL ANTHROPOLOGY

By

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Archaeological Project
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TO

LUCY B. McINTIRE

FOREWORD

The report on Irene Mound Site, Chatham County, Georgia, is one of the few final publications to present results in current southeastern archaeological exploration on the intensive investigation of a large and complex major site. Most information available to students of American archaeology thus far on the subject of the Southeast has come from occasional papers, preliminary reports, or reports on the survey and reconnaissance of larger areas in which little intensive or prolonged study is given to individual site components.

Under Government subsidy incident to a national emergency to relieve widespread unemployment, archaeology in the United States has received great impetus in the last seven or eight years. First under CWA, then under FERA, ERA, and WPA, projects have been set up under local and state sponsorship in many parts of the country. A number of these have continued throughout the interval of the emergency and are still operating. Particularly in the Southeast has archaeology been a favored type of "made work." That this should have been true is interesting inasmuch as so few southern scientific institutions, universities, and museums had established departments of anthropology or archaeology or had engaged in systematic qualified archaeological exploration.

There was a dearth of professionally trained archaeologists in the South. State and local sponsors were under the necessity of importing them from other sections of the country. Some two score or more graduate students with field training came to supervise the new work projects in archaeology. These were the vanguard, many of whom are still employed after six years of continuous field exploration. They have undergone thoroughly and rigorously what has been referred to humorously as their "southeastern initiation."

The initiation was not always an easy or happy one in the earlier days of adjustment between the primary objectives of relief unemployment and the requirements of scientific adequacy. Whereas a labor complement on even a large expedition under normal circumstances would have been ten to fifteen men, supervised by three or four trained specialists, now field crews ran into the fifties and even hundreds, and the "non-relief" supervisors were held to a minimum of one or two. Projects ran for short duration and then sought for new lease on life. Supplies were hard to get and must come from "sponsor's contribution." Space for storage, processing of materials, was frequently unavailable. The archaeologists were strangers in a strange land, their lot softened in some measure by the native kindness and consideration of their hosts and sponsors. There were many restless and uncertain days when the supervisor awaiting administrative clearance must needs grimly tighten his belt and speculate morosely as to where his

next meal was coming from. "Visiting firemen" were wont to congregate like Parisian émigrés in small beer parlors and cellars to indulge in passionate bull-fests on current southeastern chronology. If discussion did not always rise to the Socratic ideal, that fault need not derive entirely from gnawing stomachs and a persisting reminder of economic insecurity. A good masochistic personality was a prime requisite to provide intestinal fortitude and febrile enthusiasm.

Such was the backlog of experience from which the Irene site report sprung. Conceived in characteristic haste, almost dead aborning, nourished perilously during infancy, and sustained throughout only by the heroic measures of loyal sponsors and friends, the project survived to completion. The present publication is the fruit thereof.

It is not the function of a foreword to enter upon a critical review. The Irene report must expect such tender mercies as its own inherent merit will justify. However, in all fairness to Joseph Caldwell and his associates, fellow archaeologists-in-charge of the Irene explorations, a few words should be said regarding the peculiar excavation difficulties on this site. The statement of the authors regarding this item is somewhat modest. First, there was the matter of Clarence B. Moore's work in 1897. It is only necessary to record that Moore was unfortunately somewhat more preoccupied with Irene, particularly the burial mound, than he was with his more casual investigations on many southeastern sites. Extensive borrowing from the main mound by county engineers to provide fill for Pipemaker's Creek removed a large section necessary for complete uncovering of essential features of mound architectonics. Construction of a Moravian school with a cellar on the summit of the mound, while allowing an historical datum point in Oglethorpe's time, did not help to simplify excavation techniques. A fair-sized Colonial burial ground was another complication. Add to this a heavy semi-tropic screen of deeply rooted forest and tangled underbrush, the factor of tidal erosion from the Savannah River, the special problems of shell and sand mound exploration in the Gulf and South Atlantic coastal region, and one begins to marvel that excavation of a ceremonial mound site of such complex architectural history, with eight successive periods or stages of development, should have exposed consecutive layers or occupational floors in a manner to record so much structural detail and to permit of precise cataloguing of culturally diagnostic material from such narrow, telescopic contexts. It is all the more remarkable that such results were attained despite the inevitable loss in continuity incident to changing personnel wherein there were no less than four successive archaeologists-in-charge.

The importance of the Lower Savannah Basin in southeastern archaeology can hardly be overemphasized. The reports of Clarence B. Moore and the site explorations at Stalling's Island and Hollywood Mound near Augusta provided the only key to archaeological landmarks. Strangely enough, both Stalling's Island and Hollywood were among the first in pioneer southeastern exploration to be recognized then as "stratified sites." Nevertheless, systematic archaeology in the Savannah Basin and related territory was hardly initiated. South Carolina and the rich archaeological province of the Georgia

Coast (De Soto's Guale) were terra incognita. The Irene report fills a large hiatus in a little known and highly significant sub-area of the Southeast. The cultural picture is complementary to other recent systematic researches in central and north Georgia. Knowledge of Chatham County archaeology gleaned from earlier site reconnaissance by Antonio Waring,. Jr,. coupled with the results of work by F. M. Setzler and Preston Holder at St. Simon's and Brunswick, Georgia, did much to indicate the potentialities of the Irene site.

There have been discussions of the relative advantages of large scale areal survey from surface collections, with stratigraphic tests on perceived key sites, as over against intensive and prolonged investigation of a major stratified site. In the case of Irene Mound, modern survey of Chatham County has followed upon the heels of the exhaustive study of the major site. But it is a coincidence that Irene is today seen to have been not only the largest mound in the Savannah coastal region but also it reveals a longer consecutive stratified record of prehistory than is known to occur elsewhere. That it should have turned out to be such a rich ceremonial center is a scientific largess hardly to have been expected. It is unquestionably the site which would have been selected for intensive excavation on the basis of archaeological survey over the whole Savannah Basin. Other considerations enter into decisions to excavate a major site, not the least of which is salvage of scientific materials and data. The history of destruction at Irene Mound shows clearly that the site would almost certainly have been destroyed in a few more years. That fact justifies the complete and exhaustive exploration of the whole site despite the generally accepted principle of reserving crucial portions for future scientific exploration on the grounds that refinements in techniques and the growth of knowledge will give a better check on the site and its then implications.

Arthur R. Kelly,
National Park Service,
June, 1941.

PREFACE

The purpose of this report is to present the results of archaeological investigations at the Irene Mound site, Chatham County, Georgia. The work was conducted by the Work Projects Administration and sponsored by the Chatham County Commissioners and the Savannah Chamber of Commerce. Excavations were carried on continuously from September, 1937, until January, 1940.

The manuscript was written largely on the basis of field reports by a number of people who served in both professional and private capacities. Preston Holder, Vladimir J. Fewkes, and Claude E. Schaeffer successively supervised the project in its earlier stages, and any real value the report may have is largely due to their efforts. Note should be made of the work of Antonio J. Waring, Jr., and H. Thomas Cain, who were responsible for some of the most valuable data. Frederick S. Hulse and Virginia Griffin participated in the formulation of the main body of data in addition to providing the section on physical anthropology. Griffin supervised the reconstruction of the skulls, made all the observations and many of the measurements, while Hulse is responsible for the statistical analysis and the text.

Acknowledgements are due a number of other people who directly or indirectly assisted in the work. To Mrs. Lucy B. McIntire, District Director of Community Service Projects of the WPA, and to various other WPA officials; the writers owe grateful appreciation for their constant interest in the project and most helpful cooperation. The writers are indebted to Mr. and Mrs. Marmaduke Floyd of Savannah whose intimate knowledge of the history of the region proved invaluable in numerous instances. Dr. Glover M. Allen of Harvard University identified a large number of faunal remains; Mr. A. J. Nitzschke of Savannah identified various shells and arranged for the identification of others; while Mr. Arthur C. Munyan, State Department of Natural Resources, Atlanta, identified various stone materials.

Thanks are also due Mr. Lowery Axley of Savannah for taking a number of photographs; to the President and faculty of Armstrong Junior College; to the members of the Moravian organizations of Winston-Salem, North Carolina; and to the Society for Georgia Archaeology.

The late Mr. J. M. Mallory, former vice-president of the Society for Georgia Archaeology, left the authors deeply indebted to him for assistance and advice.

Among the Savannah organizations rendering material assistance to the project were the Strachan Shipping Co., the Central of Georgia Railroad, and the Savannah Cotton Compress and Warehouse Co.

The writers also wish to thank Prof. Frank Speck of the University of Pennsylvania, Dr. Frank M. Setzler of the United States National Museum, Dr. A. R. Kelly of the National Park Service, and Dr. Claude E. Schaeffer of the Pennsylvania Historical Commission for numerous helpful suggestions during excavations and for criticism of the manuscript.

Most credit is due, however, to the continuous efforts of the personnel of the project, both in the field and in the laboratory. The actual digging was done by Negro women, and their work was eminently satisfactory. The Caucasian race was represented by the field foremen and the laboratory staff. The manuscript was typed by Mae Royall; the maps and drawings were made by Margaret Winkers.

Should a copy of this report ever reach the Happy Hunting Ground, the writers will gladly rectify any instances of misrepresentation, provided communication is established through legitimate channels.

Joseph Caldwell and Catherine McCann
Savannah, 1941

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IRENE MOUND SITE

INTRODUCTION

Archaeological excavations on the Georgia, Florida, and South Carolina coasts have been carried on intermittently ever since the Civil War. Probably the first investigator was Jeffries Wyman (Wyman, 1875), who dug into the shell mounds along the St. Johns River in Florida. C. C. Jones (Jones, 1873) discussed objects found from time to time in coastal mounds. Clarence B. Moore dug a large number of sites along the coasts of Georgia (Moore, 1897), Florida (1900, 1901, 1902), and South Carolina (1898a), as well as on the Altamaha (1898c), Savannah (1898b), and St. Johns rivers (1892, 1894). Moore's reports have been the most frequently consulted in the present study. In 1936 Frank M. Setzler of the United States National Museum excavated a site on St. Simons Island, and in 1936-37 Preston Holder dug extensively at St. Simons and in the area around Brunswick, Georgia.[1] The excavations at Irene Mound were begun in 1937 and completed in 1939. At the present time the authors are working at a number of other sites in the vicinity of Savannah, Georgia.[2]

The work at Irene Mound was a logical continuation of the investigations by various governmental agencies at the Ocmulgee National Monument at Macon, Georgia (Kelly, 1938, 1939), and also at St. Simons Island and Brunswick. The Irene site itself was known to be one of the largest on the Georgia coast and had received a cursory examination by Moore (1898, p.168). In addition, the remarkable abundance of pottery at the site indicated the remains of intensive occupation.

Ceramic Chronology

Ceramic chronology is discussed at some length at the beginning of this report because it is believed that the reader will have a clearer picture of the significance of the features described if he understands their chronological setting.

The formulation of a ceramic chronology was the immediate problem at the beginning of excavations at Irene Mound. The possibility that Irene was a stratified site was suggested by the range of pottery decoration, as well as by the fact that similar design motifs occurred in less variety at other sites in Chatham County and Georgia. The result of ceramic investigation was expected to be a sequence of complexes defined on the basis of typology. It was hoped that such a series might serve to determine rough chronological associations of depositional features and artifacts other than pottery, and also to determine chronological relations with other sites.

When an adequate sample of pottery had been secured it was divided into a number of typological groups. These were determined principally according to the features of surface finish and decoration, selected as most likely to be culturally sensitive and easily determinable in the field (Southeastern Pottery Conference, 1938). It was found that these typological groups were not confined to the Irene site alone, for surface collections and excavations at other sites showed pottery which appeared to have a nearly identical decoration and surface finish. It was felt that such groups of pottery had a relationship which should be indicated by designation. Each group was called a "type" and named in conformity with a method proposed by other investigators in the Southeast. (Southeastern Pottery Conference, 1938; Ford, 1936). Our system of naming types differs from that of other investigators in that a single site name is given to all the types of a complex.

A pottery complex is conceived as a group of separate types exhibiting the total attributes of pottery manufacture at a site or group of closely related sites at a given time. The time span itself is arbitrarily selected as being without major changes in pottery manufacture.[3]

The following pottery types were recognized at Irene Mound:

1. *Irene Filfot Stamped*
2. *Irene Incised*
3. *Irene Plain*
4. *Savannah Fine Cordmarked*
5. *Savannah Check Stamped*
6. *Savannah Burnished Plain*
7. *Savannah Complicated Stamped*
8. *Wilmington Heavy Cordmarked*
9. *Deptford Linear Check Stamped*
10. *Deptford Bold Check Stamped*
11. *Deptford Simple Stamped*
12. *St. Simons Incised and Punctated*
13. *St. Simons Plain*

The description of these types is to be found in the section on ceramics.

Following the establishment of the types, it became necessary to determine whether they were grouped into complexes. The test of a complex was to ascertain that a given group of types was nearly always associated, in undisturbed deposits, to the exclusion of other types.

It was also necessary to determine whether the respective complexes could be assigned to particular

and if it superseded, and was in its turn superseded, in vogue only during a particular period of time, stratigraphic positions, *i.e.*, if each could have been by other pottery complexes.

Excavation showed that the large mound at Irene consisted of eight superimposed mounds, several of which had well defined occupation levels on their summits. The separate burial mound was made up of a central shell deposit flanked by layers of sand and shell. The area around the mounds contained scattered deposits of shell and other occupational debris.

The fill of the last of the superimposed mounds (Mound 8) contained specimens of all the pottery types occurring at the site. From this it may be presumed that no new types were made after its completion and that all the earlier types were available to be incorporated in the mound fill.

The occupation zone on the summit of Mound 7 contained only three pottery types: *Savannah Fine Cordmarked, Savannah Check Stamped,* and *Savannah Burnished Plain.* However, the fill of Mound 7 contained most of the pottery types occurring at the site, including the three Savannah types found on the summit, but it did not contain the three Irene types: *Irene Filfot Stamped, Irene Incised,* and *Irene Plain.*

Thus we presume that most of the pottery types had been in use at one time or another before the construction of Mound 7, but that during the period of use (occupation zone) of Mound 7 only the three

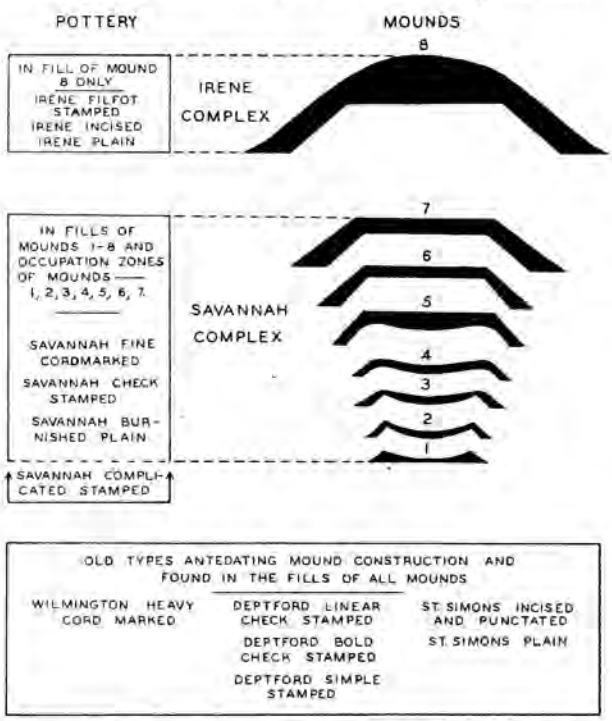


FIGURE 1.—STRATIGRAPHIC POSITION OF POTTERY TYPES IN THE LARGE MOUND

Savannah types were being made. Furthermore, the Irene types were not made until some time between the abandonment of Mound 7 and the building of Mound 8, in the fill of which they made their first appearance.

These assumptions are validated by the non-occurrence of the Irene types either in the fills or on the occupation zones of any of the six earlier mounds. The three Savannah types were again found to the exclusion of all others on the occupation zone of Mound 6. In all the preceding occupation levels from which sherd counts were available, small proportions of a type called *Savannah Complicated Stamped* occurred with the other Savannah types. It appears, then, that the earliest Savannah complex at Irene contained all four Savannah types but that at a later date the *Savannah Complicated Stamped* type was omitted.

The excavation of the burial mound confirmed the stratigraphic work in the large mound. The initial shell deposit contained pottery of the Savannah complex only; the later flanking shell layers contained Irene pottery as well.

No later pottery than that of the Irene complex was made at the site. Deposits which were stratigraphically later than the large mound, however, indicated that this complex persisted for a considerable time. The examination of five small shell middens, which were definitely associated with features of construction around the mound (collapsed wall deposits), yielded a considerable amount of pottery which was exclusively of the Irene types.[4] A large collection of burial and other vessels found in association with a mortuary structure was altogether of these types.

Figure 1 shows the stratigraphic position of the pottery types and complexes, and the superimposed mounds.

The reader will note that we have not yet indicated the stratigraphic position of all the pottery types listed. The remaining types, *Wilmington Heavy Cordmarked, Deptford Linear Check Stamped, Deptford Bold Check Stamped, Deptford Simple Stamped, St. Simons Incised and Punctated,* and *St. Simons Plain,* occurred as minority groups in all mound fills and were somewhat scattered over the site. It seems likely that these types were on the site before any mound or other construction was undertaken. Since they did not belong to the two main complexes, and occurred below sealed deposits from which they were excluded, these types must have been earlier. Evidence comes from other sites in which the mutual occurrence of a few specific types as definite complexes and the sometimes exclusive occurrence of the complexes themselves permit their classification as the Wilmington, Deptford, and St. Simons ceramic complexes. The stratigraphic data which served to define the positions of these earlier complexes at other

sites will be discussed in a later report. The Irene pottery showed beyond reasonable doubt that they antedated the main mound building periods.

Figure 2 shows the position of the Irene site in the ceramic history of Chatham County.

The Irene ceramic period was protohistoric, in Chatham County probably just preceding the general abandonment of pottery making on the Georgia coast after European contact. For a considerable distance south along the coast pottery of this complex is, as far as we know, always the latest wherever it occurs.

A. R. Kelly (Kelly, 1938) has already called attention to the widespread distribution in Georgia of pottery similar to at least two types of the Irene complex. He calls sites which exhibit this pottery "Lamar-like" since the pottery itself resembles his *Lamar Complicated Stamped* and *Lamar Bold Incised*. He enumerates Irene among the large number of sites of this type. Naturally, he is referring only to the Irene ceramic complex at Irene, not to the earlier Savannah manifestation.

Pottery showing a later development of the same complex has been reported from the Ocmulgee trading post at Macon, Georgia. (Kelly, 1938, 1939) and at the Kasita site near Columbus, Georgia. (Willey, MS). At Macon it has been tentatively identified as pottery of the historic Hitchiti Creek location (1690-1720), and at Columbus with the Kasita Creek. The complex consists of an incised type[5] which is very similar to *Irene Incised*, a roughened or brushed type[6] which in form and rim decoration resembles both *Irene Incised* and *Irene Filfot Stamped*, and a red filmed type[7] not yet found in Chatham County. This complex is also represented at the historic site of Appalachicolas, fifty miles upstream from Irene on the Savannah River.[8]

It is significant that Spanish pottery of the "olive jar" type (Holmes, 1903, pp. 120, 129-130) is found on the Georgia coast at sites which exhibit the generalized Irene-Lamar complexes instead of the later pottery of central Georgia. Spanish pottery has been noted in surface collections from sites of this type on Creighton Island[9] and in archaeological association with Indian remains, possibly of the historic Huspaw, at the site of Fort King George at Darien (Caldwell, MS). This properly reflects the lapse of time between the historic penetration of the coastal regions and the hinterland.

The Historic Indians of the Savannah Region

No specific connection is known between the inhabitants of the Irene site and the Indians encountered by the early explorers of the Georgia and South Carolina coasts; consequently the identification of the site with any particular group cannot be considered. However, the work of Swanton (Swanton, 1918) permits a tentative identification of the site with the immediate culture area and a comparison with specific groups of Indians who are known to have lived in the region.

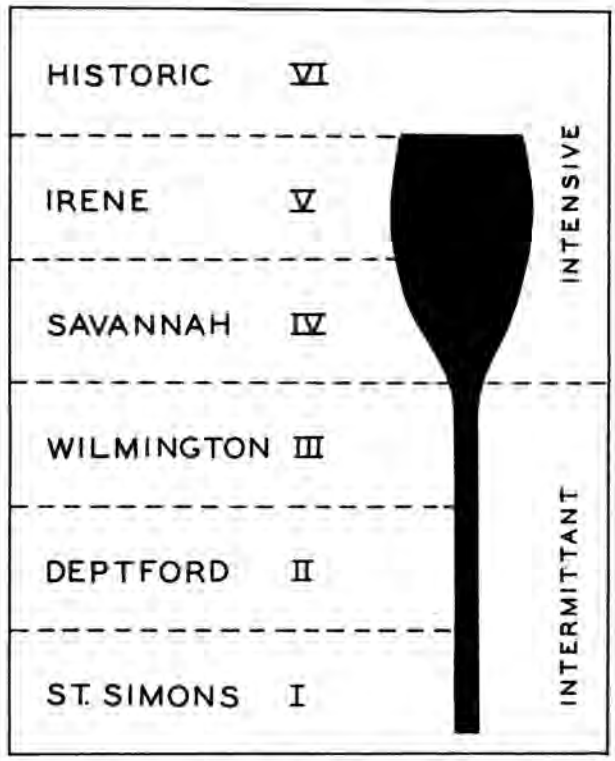


FIGURE 2.—THE POSITION OF THE IRENE SITE IN THE CERAMIC HISTORY OF CHATHAM COUNTY

This is possible only because the last occupation of Irene continued almost to the historic period. It has already been shown that the pottery of the Irene ceramic period bore significant resemblances to the historic pottery of Ocmulgee, Kasita, and Appalachicolas.

During the early period of Spanish exploration, the Savannah River was the boundary between the provinces of Guale and Santa Elena. The former extended southward to St. Andrew Sound, approximately at the border of modern Florida. Santa Elena included territory as far north as present Charleston, South Carolina.

Swanton tentatively identifies the mouth of the Savannah with the location of Gualdape, where the Spaniard Allyon made his unsuccessful attempt at colonization. He concludes that ethnological information from the immediate region would apply to the Guale Indians or to the Cusabo.[10] Furthermore several of the places visited in 1562 by the French under Ribault are identified by Swanton as near Port Royal and the Savannah River, and many of the customs recorded by Laudonniere and Le Moyne

might be comparable to those of the Irene Indians.

Rogel, a Jesuit missionary, visited Santa Elena in 1569 and sent back reports of his work among the Indians of the neighborhood. The English encountered these tribes in 1663 and 1666, and Hilton and Sandford recorded some details of their culture.

Swanton presents a considerable amount of ethnological information concerning the Cusabo, but virtually none about the Indians of Guale. Rather late in the Spanish colonization, the Guale Indians became merged with the Yamassee, who formerly belonged to the hinterland of the province (Swanton, 1918, p. 94). The Yamacraw, for whom at a much later time the Moravian schoolhouse (Appendix I) was built on the summit of the large mound, were intimately connected with the Yamassee (Swanton, 1918, p. 108). There is no known connection between the Yamacraw and the prehistoric Indians of the Irene site.

The town of Cofitichiqui, which was visited by De Soto, has been tentatively located by Swanton at a point about fifty miles upstream from Irene. It was probably inhabited by the Kasita Creeks. It may also have been the Chiquola or Chicora mentioned by Oviedo and Laudonniere (Swanton, 1918, pp. 218-219). It was close to Parachuckle or Palachocolas Fort where the Appalachacolas lived for a short time before the Yamassee war in 1715.

The town and temple of Talimeco which were found by De Soto's expedition were in the lower Savannah neighborhood, evidently close to Cofitichiqui. The people were Chiaha, either Yamassee or Guale (Swanton, 1918, p. 169). It is most interesting to note that the relationship of Talimeco to Cofitichiqui and the surrounding area is not satisfactorily defined, although both of De Soto's chroniclers called attention to it. The Queen of Cofitichiqui spoke of it as "her village," oddly enough, and Ranjel stated that ". . . this Talimeco was a village holding extensive sway." (Swanton, 1918, p. 168). Garcilasso recorded that Talimeco " . . . was the residence of caciques." and that " . . . the temple contained the coffins of the lords of the province." (Swanton, *Ibid.*). The implication that Talimeco was a political or other sort of center offers a possible explanation of the function of the Irene site, which actually contained many more presumably public buildings and large inclosures than dwellings.

There is every reason to suppose that the Yuchi and Savannah (Shawnee) were late arrivals on the lower Savannah River.

There was little difference between the languages of Guale and Santa Elena (including the Cusabo). They were forms of Muskhogean during the early historic period but Swanton is not certain that they were always so (Swanton, 1918, pp. 16-19).

Description of the Irene Site

The Savannah River, on which Irene Mound is located, enters the coastal plain at Augusta, Georgia, and after meandering for about two hundred miles through a rather wide, flat-bottomed valley, flows along the boundary of Chatham County, to empty into the Atlantic Ocean at Tybee Roads. On both the Georgia and South Carolina sides swamps lie along the river's edge, rendering landing difficult in all but a few places. In addition, swamp islands, both large and small, dot the river throughout most of its navigable length. However, bluffs ten to sixteen feet high extend on the Georgia side from the city of Savannah upstream to Port Wentworth, a distance of seven miles. The topography of the region is more or less level except for a number of low sand ridges paralleling the coast. The immediate locality is drained by the Savannah and Ogeechee river systems, the former having as its principal tributaries Augustine Creek, Dundee Creek, Musgrove Creek, and Pipemakers Canal.

Irene Mound is located on the western bluff of the Savannah River, immediately south of its juncture with Pipemakers Creek (or canal), at a distance of about five miles above the city of Savannah. The site proper comprised a roughly triangular tract embracing about six acres. Formerly its extension eastward was somewhat greater, but as a result of the lateral erosion of the Savannah River, the bank has been cut towards the mound.[11] With the Savannah River forming its eastern boundary, the Irene site is further delimited on the north and east by Pipemakers Creek, and on the south by a shallow draw which was the bed of a former tributary of the same stream.[12]

At the period during which Irene was occupied by the Indians, the site seems to have been entirely surrounded by water, except for a narrow section of the river bluff in the southeast portion; this formed a natural divide or watershed between the tributary of Pipemakers Creek and the Savannah. However, headwater erosion finally lowered the bluff to such an extent that at high tide some water from the Savannah River was permitted to enter the draw. As a consequence the Irene site then became an island, or more accurately, an intermittent island, *i.e.*, at the period of high tide and during seasonal floods.[13]

The subsoil of the site is a light tan sand, sometimes as much as three feet deep. In most places, however, its thickness has been considerably diminished by erosion. The light tan sand is underlaid by a stratum of orange and red "calico" clay which extends downward to an unknown depth. These deposits are part of the Pamlico Terrace and as such are of Pleistocene origin. Both the fine sand and the calico clay were extensively borrowed in aboriginal mound-building activities.

The natural beauty derived from the proximity of the site to Pipemakers Creek and the Savannah River is enhanced by well spaced moss-covered trees of oak, pine, cypress, sweet gum, and dogwood. At the beginning of operations, however, it was necessary to clear away a heavy growth of underbrush which well-nigh obscured the aboriginal features.

The large mound, from which the site derived its name,[14] occupied the east central portion. It was approximately circular and round-topped. Its height was fifteen and one-half feet above the surrounding terrain and the diameter across the base was approximately one hundred and sixty feet. A smaller mound, roughly fifty-five feet in diameter and two and one-half feet high, lay immediately west of the large mound, so close that their edges overlapped. The only other features revealed on the surface of the site were two large borrow pits, which were situated, respectively, to the north and northwest of the large mound.

When Clarence B. Moore, of Philadelphia, visited the site in 1897 (Moore, 1898b, p. 168), he dug into portions of both mounds. He did very little digging in the large mound, which he stated in his report to be composed of "clayey sand with oyster shell in places." He excavated a considerable section of the smaller mound, however, and the outlines of his pit on the south side were still visible in 1937. His work determined that the smaller mound had been used for burial purposes, and he reported that "human remains were met with at eighteen points—the usual flexed burials."

An additional incursion into the large mound was made in 1907, when almost the entire north side was removed by the Chatham County Engineering Department in order to obtain fill for the building of flood gates at the mouth of Pipemakers Creek.

The existence of Irene Mound was known shortly after the founding of the colony of Georgia. In 1736 a mission schoolhouse, the first Protestant school building erected in Georgia, was built on the summit of the mound. The conversion of the nearby group of Yamacraw Indians was the express purpose of the mission, which was built by Moravian missionaries with the aid of such noted men as Governor Oglethorpe, John Wesley, Benjamin Ingham, and Tomochichi, who was mico of the Yamacraw. The available historical data on this period have been drawn upon in considerable detail by Dolores B. Floyd, who is quoted at some length in Appendix I.

History of Excavation and the Method Employed

Excavation of the large mound was begun early in October, 1937. At the start, considerable time was occupied in clearing out the extensive disturbed area on the north side. Trimming the sides of the original excavation resulted in a series of large profiles. In obtaining profiles, the size and the predominantly sand composition of the mound necessitated the cutting of step faces approximately five feet high with a three- or four-foot extension in each step. Cultural objects were recorded in arbitrary three-inch levels until it became possible to distinguish physical (soil and cultural) levels. A rather complex picture of the mound construction was revealed.

The southwest slope of the mound was the first area to be systematically excavated; later, work was conducted over almost the entire mound. The general procedure was to remove whole physical and cultural layers, thus uncovering successive surfaces of construction or occupation. The large profile faces on the north side of the mound were necessary to this operation, for the digging was guided by the separating lines of deposition.

The first examination of the north profile faces seemed to indicate that the mound was composed of three superimposed, separate mounds. Excavation later showed that there were actually eight building stages.

The superimposed mounds which comprised the total mound structure were identified on the basis of the appearance of the separate mound fills, occupation levels on the summits of several, and the disposition of various layers of shell and clay flanking and capping. The sides of each mound were exposed and the summit features examined. Cultural material, chiefly pottery, which seemed to lie in visible occupation zones, was carefully segregated from material found in the various fills.

Excavation of the burial mound, the small mound immediately west of the larger one, was begun shortly after the inception of operations. A five-foot trench was dug toward the center from a point outside the northern margin. When the first burial was discovered, the trench was expanded laterally to permit the recording of the profile of the northern side. Then the profile face was carried forward for a distance of ten, then twenty feet; at the same time burials which were encountered were exposed and removed. In the meantime, the pit left as a result of Moore's excavation in 1897 was cleared out, and the resulting profiles, used in conjunction with the north faces, permitted horizontal stripping operations. Alternate sand and shell layers and the burials they contained were exposed, mapped, and removed as units.

Intensive work in the area around the mounds was begun in order to investigate several features which were indicated in an extensive series of exploratory trenches, and also to examine the remains of three outlying inclosures situated partly on the slope of the last mound. In the course of the work it was found that architectural and depositional remains were numerous enough to warrant stripping most of the site.

Depositional features (chiefly shallow middens) lying fairly close together were partly exposed and their stratigraphic positions were sometimes determined by narrow correlation trenches. The horizontal extent of each was ascertained by excavating marginally until the clean subsoil was reached. Thus it was sometimes possible to discover nearby postmold patterns or other architectural features which might have had a stratigraphic relationship to the depositional layers. Such architectural details were exposed, and where possible, left in relief. Occasionally, the vertical section of part of an architectural feature would appear on the profile block of the depositional feature. After some of the more apparent relationships were determined, the depositional layers themselves were removed as single units, or by squares and levels if they were extensive.

Notes

1. Unpublished.
2. Unpublished.
3. For example, the type called *Irene Filfot Stamped* occurred at several sites and had a constant decoration, distinctive vessel shapes, was grit or sand tempered, and was always associated with two other types: *Irene Incised* and *Irene Plain*, each of which had specific constant ceramic features of its own. The two latter types were considered as being related to the *Irene Filfot Stamped* type in a single pottery complex.

   According to the method of defining types it is requisite that a type exhibit a reasonably constant association of ceramic features wherever it occurs. The similarity demanded of two representative groups of a particular pottery type is more or less at the discretion of the investigator, and depends upon the use to which he expects to put the pottery types and the amount of ceramic variation which he has been led to expect by his experience in the area. In Chatham County it is found that types and complexes will vary considerably in certain ceramic features and that each variation may be somewhat different at each site. Sometimes it will be in decoration, vessel form, or temper, and sometimes in the addition or subtraction of one of the associated types of the complex.

   While the similarity between pottery types occurring at two or more sites indicates some sort of contact or relationship, differences are regarded as resulting from cultural change through the duration of time and by geographical separation. Each pottery complex is regarded as a sequence undergoing change, and while the geographical position of sites is a factor in determining the amount of change in the complex, in the small area of Chatham County we consider change as reflecting duration of time, although there may have been a geographical reason for the change as well. Thus, sites which exhibit ceramic dissimilarities within a single pottery complex probably owe this to their having been occupied at different times.

   From work at other sites as well as at Irene it has been possible to divide the prehistory of the Lower Savannah Basin into a series of arbitrary chronological intervals during each of which a more or less typologically distinct pottery complex was in vogue. Each pottery complex represented a time interval of unknown duration but with a definite position relative to earlier and later intervals. It should be stressed that the established time periods were in reality ceramic periods, and since they are based upon a single trait complex were not necessarily integrated cultural periods. Thus, there is no reason to suppose a break in cultural continuity with a change in pottery type. In fact, it will be shown that the ceramic changes which distinguished the transition between the earlier Savannah and the later Irene periods were only gradual replacements of certain ceramic elements of form and decoration. Changes in other traits of culture were not necessarily concomitant with the ceramic changes. In a number of cases presumably finer definitions of time have been made on the basis of the approximate numerical occurrence of a type within a complex or its omission altogether. Sometimes particular features, such as rim treatment, are found to vary stratigraphically over several sites and are thus definitive of particular intervals. Increasing familiarity permits the assignment of a relative temporal position to less obvious ceramic features than was possible in the beginning. This is particularly true of the undecorated types.

   When work in Chatham County is completed, the picture will be a series of superimposed, rather arbitrary time periods. Each will necessarily be analyzed as a static unit. Certain of the pottery traits and all the other traits of culture which can be determined will then be used in a cultural analysis of each period somewhat similar to that proposed by W. C. McKern for the entire Mississippi area (Cole and Deuel, 1937).
4. The excavation of a number of other shell middens did not yield such clear results. Apparently the only layers which did not contain a mixture of complexes were those deposited during the last period.
5. The type is called *Ocmulgee Fields Incised* (Southeastern Archaeological Conference, 1939b).
6. *Walnut Roughened* (Southeastern Archaeological Conference, 1940).
7. *Kasita Red Filmed* (*Ibid.*)
8. This site, also called Appalachicolas Fort or Parachuckle, was visited by the writers while in the company of Marmaduke Floyd of Savannah. The town was burned by the English in 1715 during the Yamassee War.
9. Personal communication from A. J. Waring, Jr.
10. The following data on the ethnology of the Cusabo is summarized from Swanton (1918, pp. 31-80).

    The Cusabo tribes were always small, but there is no data regarding the population until 1715 when a total of 535 people was recorded.

    According to Alexander Hewat, the Cusabo were of medium stature and undeformed. Their brown skin was shiny with bear fat and paint, and was hairless. All the hair on their heads was removed except a tuft on the crown. The country in which they lived furnished them with deer, bear, fish, and shell fish along the coast. The food supply was irregular. Agriculture was practiced by the women since it was considered a task beneath the men. The good land was covered with timber, but even on the unforested, poorer land they grew plenty of corn, "pompions," watermelons, and muskmelons. The corn was parched and ground into meal. Acorns and nuts were used, especially when other food was scarce, and bread was made from a root that grew in the marshes.

    Little is known concerning their dwellings. Hewat referred to them as "mean, foul, and offensive." Sandford, however, observed at least one large house. It was round, twelve feet high, and completely covered with palmetto leaves. Opposite the entrance was a seat

higher than the rest, probably reserved for the chief or eminent persons. It is likely that this particular house was similar to the rotunda (see pp. 30 ff). Oviedo described large houses of a rectangular shape and observed that each was considered a village and was used communally by all the Indians in one place, perhaps two hundred men to a house. His description is reminiscent of the Iroquois long house. He also claims to have noted ossuaries made of stone and mortar.

Observers are at variance in regard to clothing. Hewat reports nothing but breech-clouts while another observer (Swanton, 1918, p. 73) mentions dressed bear or deer skins, sometimes decorated with black and red checks. It is also stated that they painted their faces with red figures. Other observers say that they oiled or painted their hair and stuck feathers in it.

For hunting the Cusabo used bows and arrows, the latter made of reeds with stone or fish bone points. The men made considerable use of dugout canoes. Laudonniere judged from the cords these people supplied the French that they used fishing lines and nets. Pearls were obtained from the rivers and pierced for stringing.

Baskets were made of painted reeds, and in one chief's house the French found white mats with a red decorated fringe which Swanton thinks were made of cane or mulberry bark.

The Cusabo were united under a leader who was chosen for courage and wisdom. He held this position as long as he had the confidence and good will of his people. His chief duty was to lead in war, but in all other matters of importance a public forum was held in which everyone had a voice. The same attributes which the chief possessed were used as criteria in determining the rank of other individuals. There were judges and conjurers called "beloved men."

Meetings were held between deputies to discuss the settlement of injuries done by one tribe to the other. In case of murder, the members of the murderer's tribe killed him, or the victim's family were satisfied by killing the same number of persons as they had lost.

The only game mentioned is chunkey, played in a space near the large house (rotunda). Balls and staves were used and bets laid as to the outcome.

Polygamy was permitted but seldom practiced, possibly because of the expense. Divorce was easy; if the divorced wife were pregnant she usually took revenge by causing an abortion. In adultery the wronged husband had only to kill the other man or cut off his ears to avenge himself and prove his courage. The Cusabo believed in both good and evil spirits which they invoked before any undertaking of importance, usually in some sort of ceremony. The treatment of sickness was accompanied by ceremonies and magic arts. Laudonniere described a ceremonial feast held, as in other southern tribes, at the time of "first fruits" (probably the green corn dance or busk). Nothing of mortuary customs can be said to refer with certainty to the Cusabo. Oviedo, however, in the country of Gualdape found ossuaries in which the bones of the elders were separated from those of the young.

11. This statement and those contained in the ensuing paragraph are based upon an investigation of the mound site by Arthur C. Munyan, geologist, State Department of Natural Resources, Atlanta, Georgia. Mr. Munyan personally inspected the Irene site for several days in November, 1938. In a letter dated December 8, 1938, he wrote: "It is obvious that the Savannah River is also cutting laterally into the bank on the east side of Irene Mound. Consequently the dedication may be made, that this area now occupied by the river, was at one time, land. [This is borne out by the occurrence of numerous potsherds scattered along the river's edge at this point.] How far this land extended to the east cannot be determined." Historic evidence exists to show that even in the Colonial period the river bank extended at least forty feet farther east, a fact of interest in indicating the greater extent of the site in aboriginal times.
12. As a result of his inquiry into the physiographic history of the Irene site, Mr. Munyan concluded with regard to the origin of the small draw located south of the mound: "It is my opinion that the draw (or dry creek bed) has been formed in a normal manner as a tributary of Pipemakers Creek and consequently, originally and at present, carried off all rainfall in its drainage basin into Pipemakers Creek."
13. At a somewhat later date, presumably in the historic period connected with rice cultivation, an artificial earth fill was placed along the top of the former divide, forming a dam which again effectively prevented water from flowing across into Pipemakers tributary at high tide.
14. The identification of Irene Mound was established by Dolores B. (Mrs. Marmaduke H.) Floyd (Floyd, 1936).

The Large Mound

During the Savannah ceramic period a series of seven superimposed mounds, probably all containing buildings on their summits, was built in the east central portion of the site. Somewhat later, during the Irene ceramic period, still another mound was built, but it was altogether unlike the earlier mounds. These eight structures comprised the large mound.

The first mound consisted of a saucer-like embankment of shell and sand. It had an elongated pentagonal ground plan and an ascending ramp, constructional features which were retained in the succeeding six platform mounds, indicating a nearly continuous tradition in regard to mound form throughout the duration of the Savannah ceramic period.

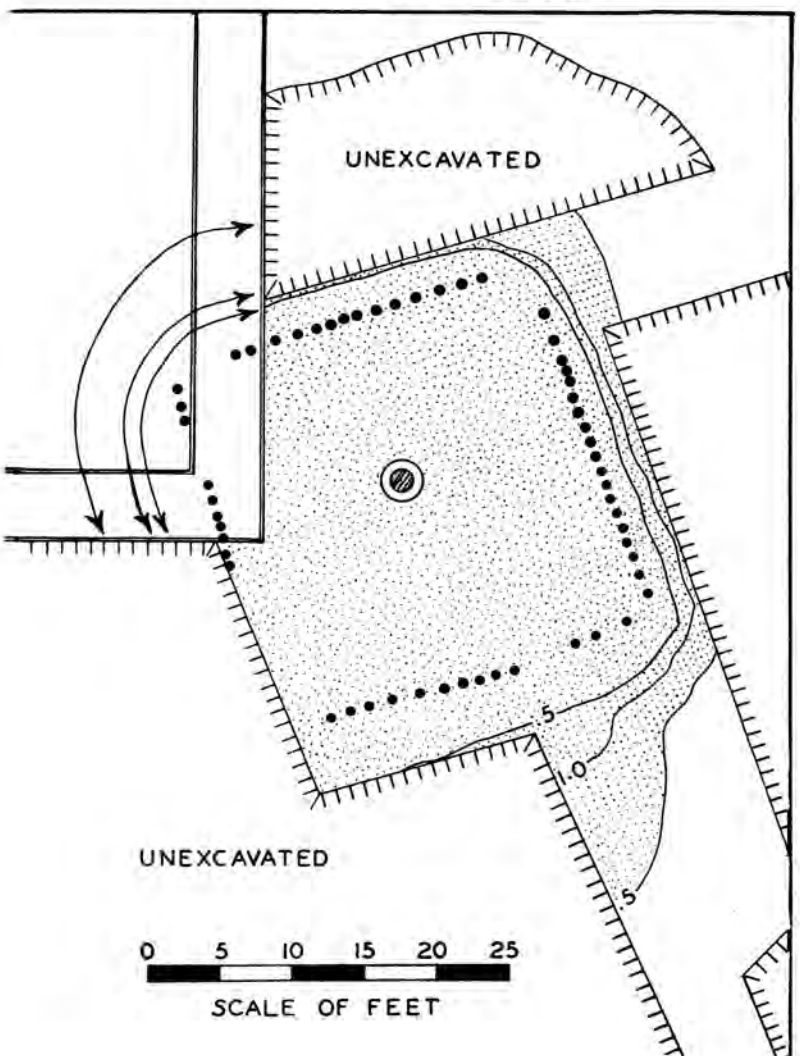
The purposes of the summit structures of the successive mounds could not be determined by excavation. In historic times such mounds were used variously as platforms for temples, other public buildings, and the residences of important persons.

The eighth and last mound, built during the Irene ceramic period, was quite different from those preceding. The ground plan was circular and the mound had a rounded summit instead of a flat one. There was apparently no ascending ramp. No traces of a summit structure were found, although the walls of several outlying inclosures encroached upon the mound slope. The mound contained six burials; in the earlier mounds burial occurred only in one doubtful instance.

The following description of the large mound is not a chronological account of the excavations. It is actually a series of separate descriptions of the eight superimposed mounds in the order in which they were built.

FIGURE 3.—PLAN OF MOUND 1

The plan shows the contours of the inner and outer slopes, the ramp, the position of the prepared fire basin, and the wall posts of the structure.



Mound 1

Mound 1 consisted of a pentagonal embankment of sand and shell surrounding a single rectangular building. The building itself was placed directly upon the old ground surface[1] and the entire arrangement had a saucer-like appearance.

The long axis of the mound ran north northwest and south southeast. The dimension of the base measured fifty-five by thirty-eight feet. The northeastern and southwestern sides were straight and the northwestern end was round. The two sides of the southeast slope joined in the middle at an angle of ninety degrees, and the resulting point was widened to form a ramp perpendicular to the slope. The maximum height of the embankment was fifteen inches. The outside slope was inclined about ten degrees and the much shorter inside slope some forty degrees. The ramp was approximately ten feet long, eighteen feet across at its widest part, and ascended at an angle of six degrees. The embankment[2] and the ramp were constructed of shell, chiefly oyster, and were covered by a thin deposit of sand.

The central building was rectangular with squared corners and measured twenty-six by twenty-five feet. It was squarely aligned with the long sides of the embankment. The walls consisted of five- and six-inch posts, spaced from nine to sixteen inches apart in a wall trench.[3] The wall trench was slightly wider than the posts and its depth was about two feet; it was straight-sided with a rounded bottom. The posts penetrated four to seven inches below the bottom of the trench. A four-foot gap in the southeast wall, opposite the ramp, served as the entrance to the

building.

The use of wall trenches in the construction of the walls was perhaps to facilitate the placement of posts. Similar wall trenches were a frequent occurrence at the site. The exact nature of the walls themselves is not known. There is evidence that most of the buildings on the summits of the later mounds were constructed of wattle and daub; that is, wattling of cane or reed was woven between the wall uprights and then plastered with clay. There was no fallen clay present to indicate that this was the case with the building under consideration but it may have been removed. On the other hand, the walls may have been composed of mats of cane or palmetto as was sometimes the case in historic times (Swanton, 1918, pp. 48, 62, 352-353).

The building was not completely exposed, but enough work was conducted to determine that it had a central, raised fire basin, a prepared clay floor, and a series of inner roof supports placed close to the walls. The fire basin was circular with an overall diameter of thirty-three inches. The diameter of its cavity was fifteen inches. The rim of the basin was raised three inches above the floor and the cavity, which contained a considerable deposit of ash, penetrated about two inches below. The basin was carefully modeled of sandy clay and fired to a dull red. The clay floor surrounding the fire basin was carefully constructed. It was about one inch thick and was covered by a thin cultural deposit of fine ash, charred wood, animal bones, shell, and potsherds of the Savannah complex.

Nothing is known concerning the use of this building. The height could not be determined, nor could the type and materials of the roof. However, its position on a mound and its elaborate construction indicated that it was quite important.

Mound 2

Mound 2 was almost identical with Mound 1 but was slightly larger and had a more elaborate central structure. It was constructed by placing additional sand upon the embankment and probably upon the ramp.[4] The length and width of the embankment were approximately the same as those of Mound 1, but the height was increased to twenty inches. The central structure was exactly superimposed over the position of the building below, and was aligned in the same directions. In spite of the increased height of the embankment, it lay only two inches higher than the first building, and since it was built directly upon the floor, the whole arrangement retained a saucer-like appearance.

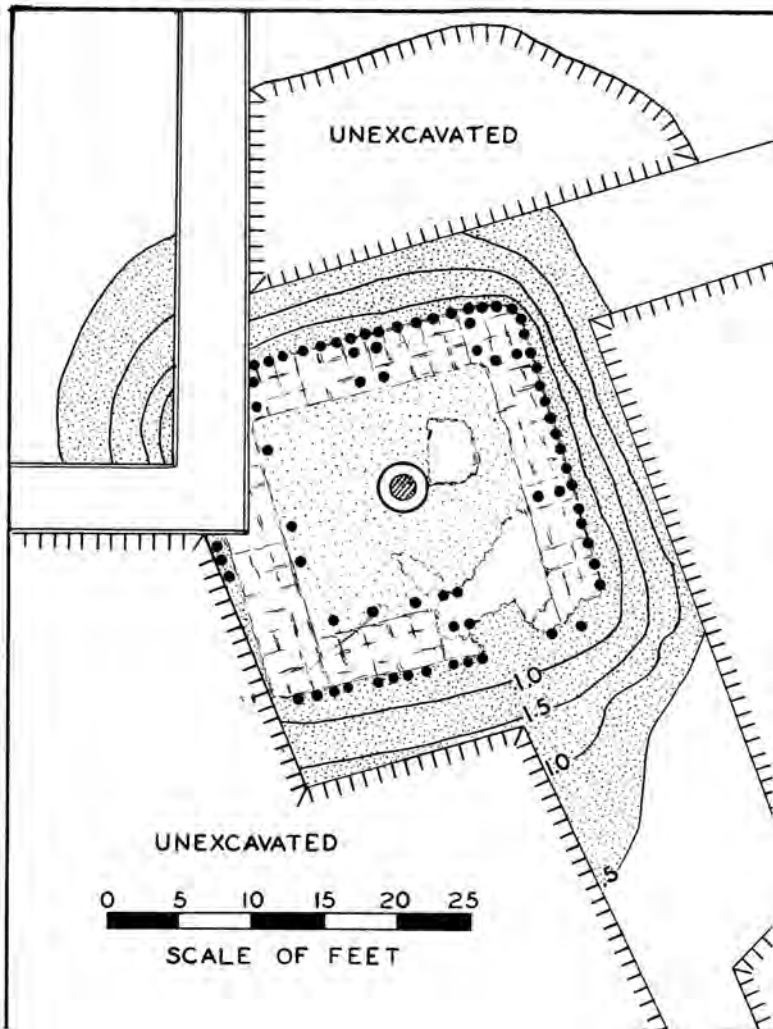
The central structure of this mound was rectangular with rounded corners and measured twenty-four by twenty-three feet. Unlike the walls of the structure below, the sides of this building were composed of single posts not set in a wall trench.[5] The posts were of nearly uniform size, averaging five inches in width and spaced from nine to sixteen inches apart. The entrance was indicated by a four-foot gap in the southeast wall opposite the ramp, and was almost exactly comparable to the entrance of the Mound 1 building. In contrast with the remains of the latter, there was a certain amount of clay which might have been fallen wall plaster, but it is likely that the walls of the two buildings were similarly constructed.

Inner roof supports were placed in an elaborate pattern around the wall (see figure 4). They were variously arranged in groups of two and four and in straight alignments parallel to the walls.

A low, carefully modeled ledge of clay, probably for seating purposes, ran along the entire interior of the wall and was packed around the bases of many of the inner roof support. The height of the ledge was approximately one inch, except at the edges where it was raised about three-quarters of an inch higher. The upper surface displayed impressions of reed or cane which repeatedly recrossed at right angles to each other. It seems probable that the impressions

FIGURE 4.—PLAN OF MOUND 2

The plan shows the contours of the inner and outer slopes, the ramp, the wall posts of the structure, the clay bench around the interior, and the prepared fire basin.



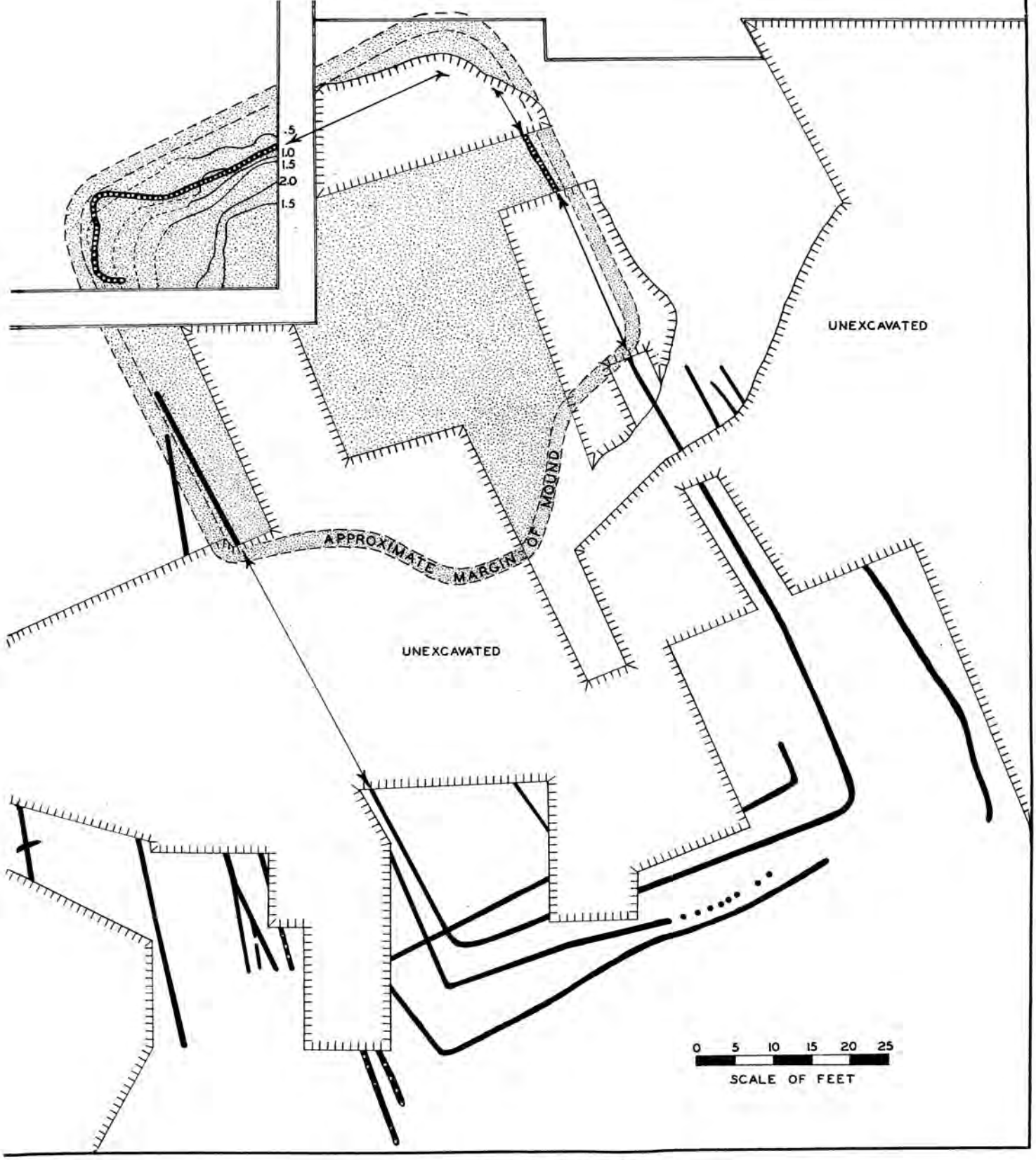


FIGURE 5.—PLAN OF MOUND 3

The plan shows the palisade (connected by arrows) and wall trenches belonging to a number of rectangular inclosures at approximately the same stratigraphic level.

were those of cane mats. There were additional clay deposits in the southeast corner and in the central portion of the structure, but their significance was not understood. The floor of the building was composed of a layer of clay about one inch thick. It was covered by a thin cultural deposit of fine ash, charred wood, some shell, animal bones, and fragments of two large pottery vessels.

There was a circular raised fire basin in the center of the structure. It was composed of fire-hardened sandy clay and contained considerable amounts of ashes. The diameter of the outer edge was forty-five inches, and that of the inner cavity sixteen inches. The depth of the cavity was four inches and the entire basin was raised about two inches above the level of the floor.

As in the case of the Mound 1 structure, nothing is known concerning the height or nature of the roof, or of the particular use which the building may have served.

Fragments of two large pottery vessels[6] were found on the floor. Both were typical examples of the *Savannah Fine Cordmarked* type. There were enough sherds of the larger to permit reconstruction.[7] The entire lower portion of this vessel had been intentionally broken away and the position of the fracture was defined by an encircling groove. Also encountered were a few other sherds of Savannah types including *Savannah Complicated Stamped*. One fragment of graphite was found.

Mound 3

Very little is known about this mound. It could be traced only at its peripheries where its position was indicated by deposits of waterlaid sand, clay, and charred organic material, probably cane. No cultural or erosional deposit existed to show the original position of the summit, and the fill of the mound appeared to be identical with the fills of the mounds above and below. A possible explanation for the absence of a well marked summit differentiation is the suggestion that the entire summit was removed in an aboriginal disturbance and subsequently replaced with a homogeneous fill during the building of the succeeding mound.[8]

The mound was constructed by placing sand over the remains of the embankment of Mound 2. It was slightly larger than the preceding mound, but had virtually the same shape. The northeastern and southwestern sides were straight, the northwestern side was semicircular, and the two flanks of the southeastern side probably joined at the ramp. The length and breadth of the base were respectively seventy and sixty-four feet. The summit dimensions, naturally, could not be obtained. The slope of the sides appeared to be inclined about six degrees.

Since the summit could not be established, there was no indication of a summit structure corresponding to those of the previous mounds. However, the remains of a palisade were found just inside the edge of the mound and evidence of at least nine other distinct systems of walls were found at the mound peripheries. The palisade appeared to have followed the edge of the mound on all sides except the southeastern. There it extended seventy feet farther, inclosing a roughly rectangular area adjacent to the mound. The arrangement of the entire palisade was rectangular except in a locality on the northwest side which was probably the entrance.

The palisade consisted of five-inch posts placed about four inches apart in a slightly wider wall trench. The trench was from two to two and one-half feet deep. The posts penetrated from four to six inches below the bottom of the trench. Several deposits of charred cane and slightly fired clay were found on the outside edge of the postmold alignment. These deposits were most frequent on the northwest side and probably represented remains of wattle and daub used in the construction of the palisade, which was very likely burned.

At least three and possibly all nine of the other systems of wall trenches were built around Mound 3 within a comparatively short space of time. All of them appeared to have been rectangular, although only portions were exposed. The width and appearance of the wall trenches was similar to that of the palisade except that visible postmolds were much less frequent. Three of the wall trenches appeared to have inclosed Mound 3, but were more peripheral than the palisade. This does not imply that more than a single system of wall trenches was in use at one time.

An adult human skull[9] was found partly under a small pottery vessel, just below the western margin of Mound 3. It could not be determined whether the interment was earlier or later than the mound. The vessel was inverted and rested partly on the skull but was not large enough to inclose it completely. The vessel was of the *Savannah Fine Cordmarked* type, but it was unusually small (height 13 cm., diameter of rim 15.5 cm.). The shape, a conoidal jar with straight sides and a straight rim, is not considered typical of the Savannah period at Irene.[10]

Mound 4

The shape of this mound might be considered transitional between the shape of the earlier saucer-like embankments and the succeeding series of true platform mounds. Although the central portion of the summit was still lower than the rim, it was apparent that it had been filled in to a considerable extent. The ground plan was similar to those of the mounds below, being an elongated pentagon with a

perpendicular ramp at the junction of the southeastern flanks.

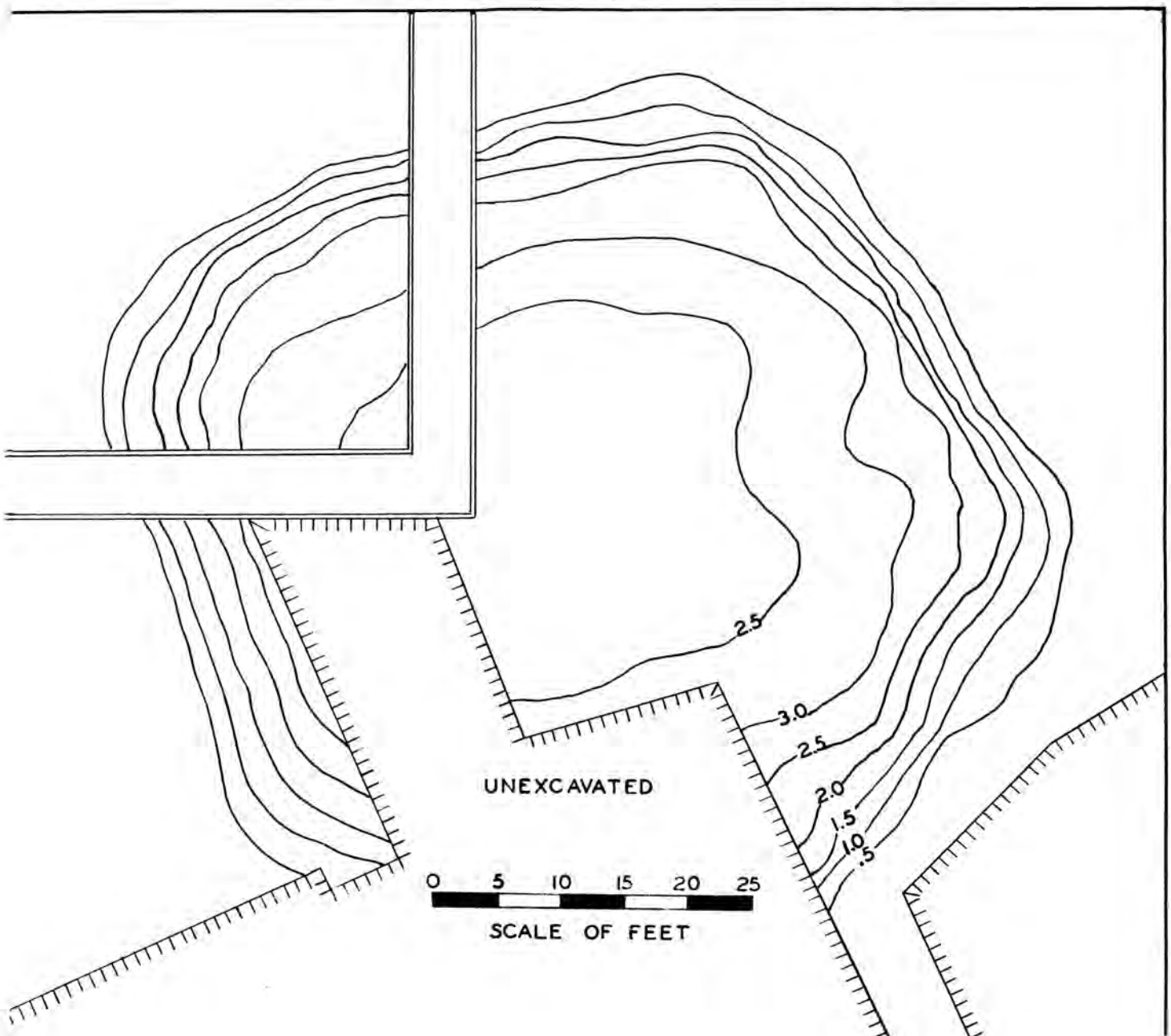
The elevation of the rim was three and one-half feet, and the central portion of the summit was six inches lower. The mound was aligned in the same directions as the earlier structures, but differed from those above and below in having its length and breadth approximately equal. The two greatest dimensions of the base each measured seventy feet. Each dimension of the summit was approximately forty-three feet. The slope of the outer sides was inclined about fifteen degrees.

The mound was constructed by placing a large sand fill on the slopes and the remains of the summit of the preceding structure.

While most of the summit did not contain a definite cultural or erosional deposit, and the postmolds found comprised only an incomplete pattern, there was enough evidence to indicate that at least one summit building had existed. Moreover, several large fragments of fallen, fired wall plaster and a considerable deposit of charred cane were found in the northwestern part.

The postmolds on the summit consisted of two parallel rows aligned northwest - southeast. The northeast alignment comprised six postmolds spaced about one foot apart in a line beginning near the central portion of the summit and extending a short distance on the outer slope. The postmolds were approximately six inches in diameter and were filled with clay. The other row of posts was parallel to the first and lay about fifteen feet away in the northwest quadrant. It was composed of a line about eight feet long, consisting of five postmolds four to six inches in

FIGURE 6.—PLAN OF MOUND 4
Note the definitely pentagonal shape. The ramp is at the point of the pentagon.



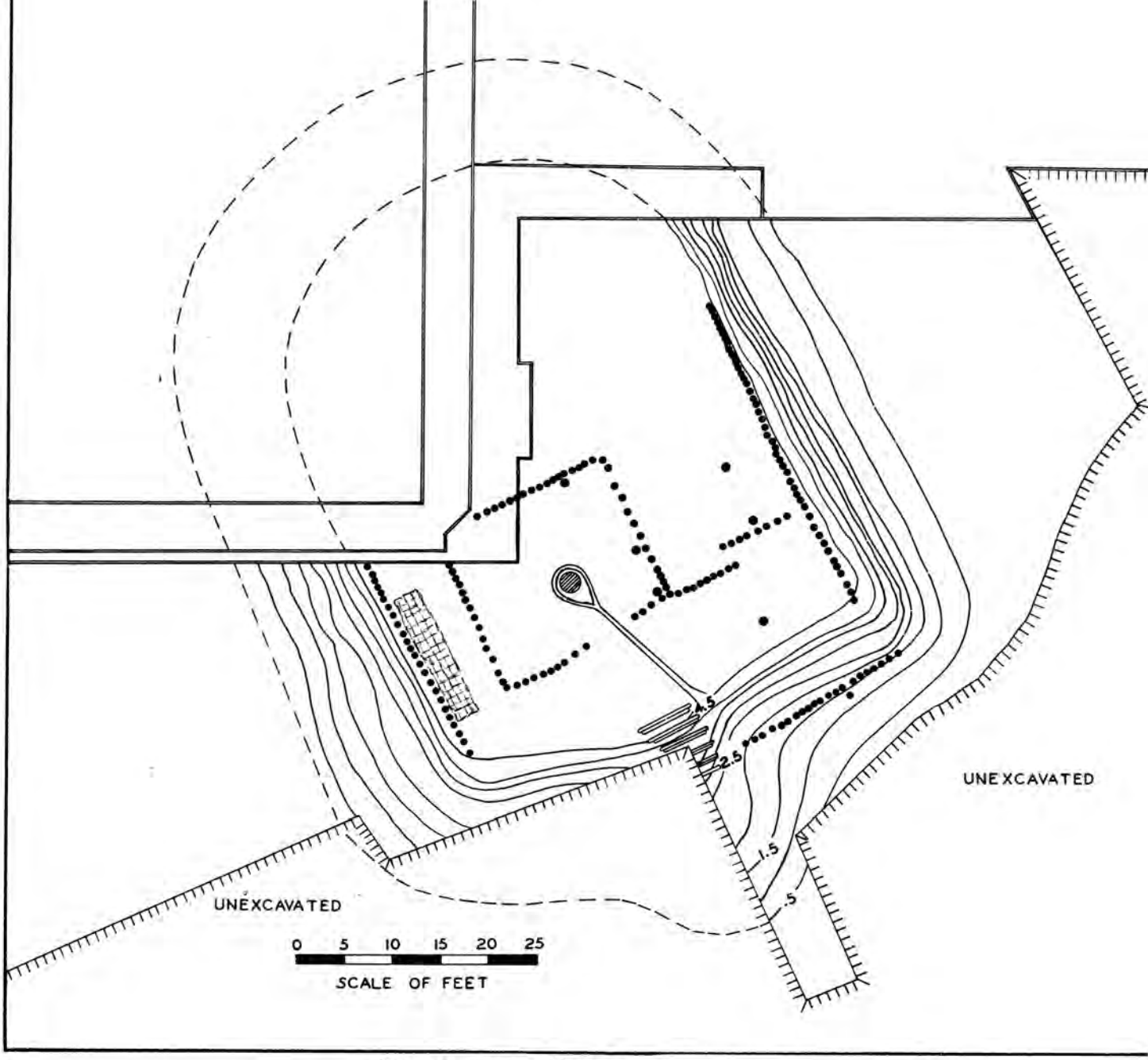


FIGURE 7.—PLAN OF MOUND 5

The plan shows the summit structure, the palisades, and the log steps at the top of the ramp. Note the "gutter" leading from the fire basin to the edge of the mound. To the left of the central structure is an oblong layer of clay with recrossed cane impressions on its upper surface. To the right of the structure are two overlapping postmold alignments which may have represented partitions.

diameter and spaced from one to two and one-half feet apart. These, too, were filled with clay. Several other scattered postmolds were found in the northwest quadrant.

Mound 5

Mound 5 was similar to Mound 4. It had the same elongated pentagonal shape, sloping sides, flat-topped summit, and perpendicular ramp at the point of the pentagon. The summit was level and not depressed in the center as on the mound below.[11] This mound had the same alignment as the previous mounds. The summit and basal dimensions were considerably greater than those of Mound 4, amounting to fifty-one feet for the length of the summit, forty-nine feet for the breadth of the summit, and sixty feet for the breadth of the base. The length of the base was ninety-six feet. The mean elevation of the summit

was four feet, six inches, and the slope of the sides was inclined approximately twenty-five degrees.

Large portions of the summit and slopes of the mound were covered by an occupational stratum of dark gray sand, discolored by ash and other organic deposits. This layer had a variable thickness ranging from one-fourth of an inch to two inches. In several places it was absent, in others it was augmented by areas of fired sand.

A certain amount of additional mound building took place during the utilization of Mound 5. The exposed portions of the original mound were of sand, but later a layer of shell was placed on all sides except the southeastern.[12]

The ramp on the southeastern side was larger than that on the mound immediately below, but had the same general shape. It rose straight against the slope at an angle of thirteen degrees, becoming narrower as it approached the summit. It was eight feet wide at the top and fourteen feet wide at the bottom, and was composed of sand. The most remarkable feature, however, was a series of log steps which left recognizable traces as horizontal molds. The steps consisted of six pairs of logs, the upper of each pair serving as the step and the lower placed in a position to prevent the upper log from slipping. Probably the logs were held in place by stakes.[13].

Occupational features on Mound 5 included a central building and a system of partitions or inclosures. The arrangement is shown in figure 7. The function of the inclosures could not be determined by excavation. Examination of figure 7 will show that palisades situated on the northeastern and southwestern sides of the summit were joined by a palisade at the bottom of the southeastern slope. The southeastern palisade was left open at the ramp. Two shorter walls connected the summit building to the northeastern palisade and were overlapped, possibly to provide ingress to the area behind. This immediate locality was characterized by many postmolds which did not form a recognizable pattern.

The summit palisade and inclosures were constructed of five-inch posts set from seven to sixteen inches apart in shallow troughs, which were slightly wider than the posts, but only about three inches deep. The bottoms of the troughs were slightly rounded. The posts penetrated from sixteen to twenty-four inches below. The posts of the palisade at the bottom of the southeastern slope were not set in a trough.

The central building of Mound 5 was rectangular, measuring twenty by sixteen feet. The wall posts were of a nearly uniform thickness, averaging five inches in width and spaced from twelve to sixteen inches apart. They were set in a shallow trough similar to those used in the palisades and inclosures. The trough was completely filled with unfired clay and there was a quantity of clay in the immediate locality. The clay lay above the summit debris in flat deposits which seldom had a thickness greater than two inches. The upper surface of the clay deposit located just outside the building and immediately adjacent to the palisade (see figure 7 and Plate III F) showed recrossed longitudinal impressions of some slender material, possibly cane. The feature closely resembled the clay seating arrangement in the interior of the Mound 2 structure, and possibly had the same purpose, although it was outside the Mound 5 house. However, although this is less likely, it may have been the remains of fallen wattle and daub from the adjacent palisade. If it was wall material, the cane impressions might have resulted from a covering of mats.

Two large posts, each approximately ten inches in diameter, were found within the building. They were centrally located and probably served as roof supports. Close by was a square post seven inches thick.

The entrance to the building was a four-foot break just east of the center of the southeast wall and facing the ramp.

The building did not have a prepared floor, but the interior was partly covered by a cultural deposit of ashes and organically stained sand.

The building also contained a centrally located fire basin. Its shape was reminiscent of a teardrop with the apex toward the entrance. There was a narrow and very shallow "gutter" surrounding the basin and extending through the entrance passage to the edge of the mound. The basin itself was raised three inches above the floor and the cavity extended two inches below. It had an overall length of about four feet. The cavity was nearly circular and had a diameter of twenty inches.

It is possible that the arrangement of fire basin and gutter provided a means of disposing of unused liquids, possibly cassine. The liquid may have been used to extinguish the fire and the excess overflowed the rim of the fire basin on all sides. This appears to be the only way to account for the gutters completely surrounding the basin at approximately a constant width and depth and being evenly filled with fine particles of charred wood.

A similar but more complicated gutter was found around a fire basin directly above on Mound 6.

Mound 6

This mound was exactly superimposed on Mound 5 and had an elongated pentagonal base resembling the mounds below. The northeast and southwest sides were straight, while the northwest side was semicircular. The two sides of the southeastern slope joined at an angle of twenty degrees in a ramp which lay perpendicular to the slope. The summit elevation was about six inches higher than that of Mound

5. The other dimensions were as follows: height of summit, five feet; breadth of summit, forty-nine feet; length of summit, sixty-two feet; and breadth of base, eighty-five feet. The length of the base could not be determined exactly, but was in the neighborhood of one hundred and seven feet. The slope of the sides was inclined about fifteen degrees.

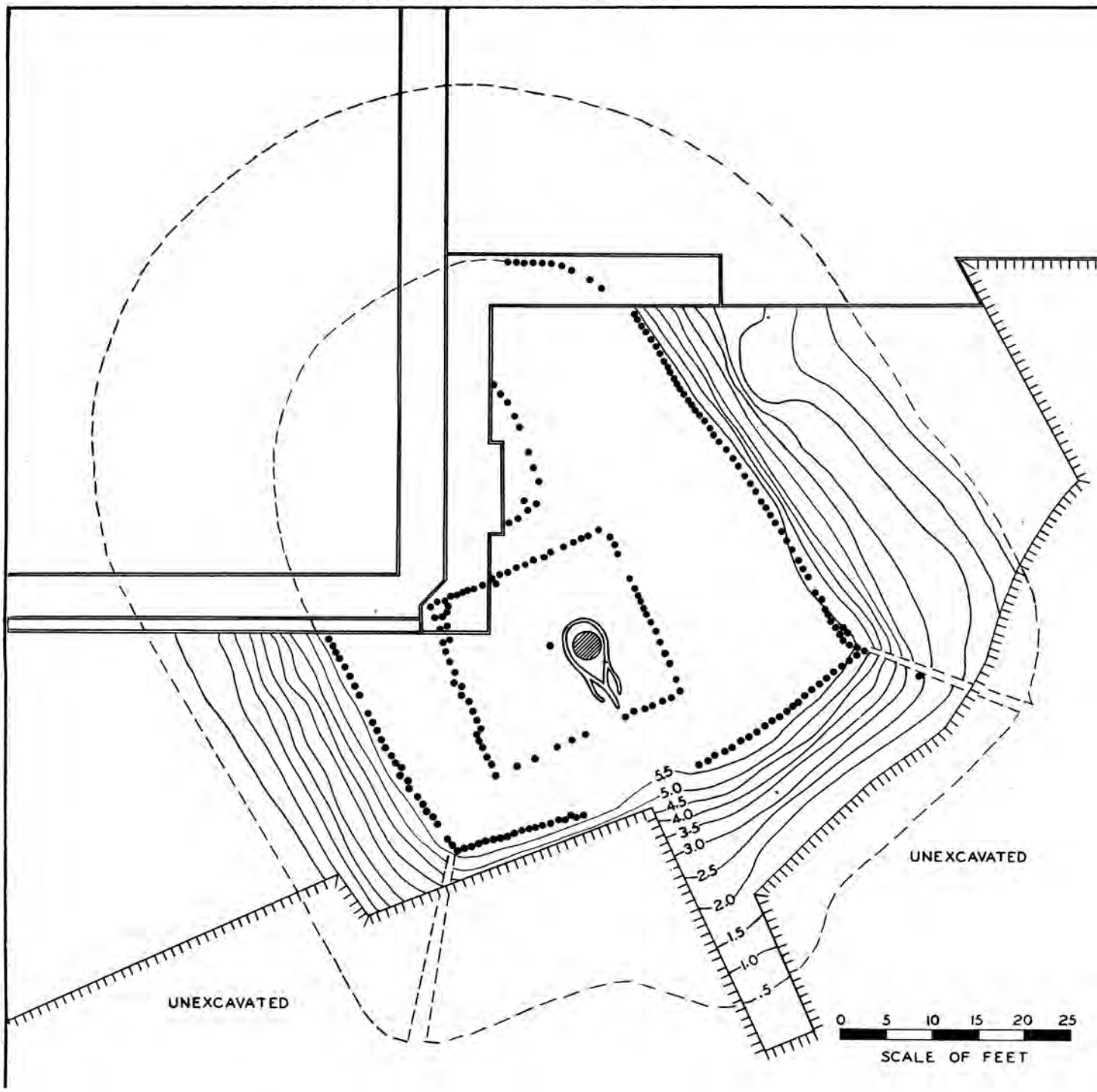
The mound was constructed by placing a thin deposit of sand over the summit and slopes of the mound immediately below.

An occupation layer consisting chiefly of ash and organically stained sand was found on the summit and on part of the slopes of Mound 6. It closely resembled the one found on the summit of Mound 5, but had a more continuous distribution. It was from one-fourth inch to six inches thick.

During the time Mound 6 was in use, there was additional mound building of exactly the same sort as had occurred on Mound 5. A flanking shell layer was placed on three sides, but the two southeastern sides were covered with sand. The absence of a shell layer on the latter permitted some erosion.

FIGURE 8.—PLAN OF MOUND 6

The plan shows the position of the two summit structures, fire basin, and palisade. The single remaining corner of one of the structures lies just above the one containing the fire basin.



The ramp leading to the summit of Mound 6 was exactly superimposed on the ramp which had led to the summit of Mound 5. It was composed of sand, and while it had the same shape as the ramp below, it lacked the log steps. It was eight feet wide at the summit, seventeen feet wide at the base, and ascended the slope at an angle of twelve degrees.

The summit of Mound 6 contained two central buildings and an inclosing palisade. The arrangement of the postmolds is shown in figure 8. The palisade extended completely around the rim of the summit with a single opening thirteen feet wide at the top of the ramp. Unlike the palisades of the mound immediately below, the posts were not set in a trough. The posts were approximately five inches thick, were spaced from two to five inches apart, and penetrated down to an average depth of twenty inches. The occupational stratum of the summit was largely covered by flat layers of clay, particularly in the proximity of the palisade and central buildings. Although the clay layers did not show cane or other impressions, it is likely that they represented fallen wall debris, and that the palisade and central structures were constructed of daubing upon wattles.

The foremost central structure was opposite the ramp while the other lay four feet behind the first. Both were aligned squarely with the two long sides of the mound, and lay slightly west of the center. The first building was directly above the remains of the central summit structure of Mound 5. Practically all of its original outlines were found, but most of the second building had been disturbed.

The first building was nearly square, measuring nineteen by twenty-two feet. Three sides each consisted of a single row of posts, but most of the southwestern wall was represented by a double row. Since not quite all of the southwest wall consisted of two rows, however, this may have been the result of repairs instead of part of the initial building design.

The wall posts had a nearly uniform thickness of five inches and were spaced eight inches to one foot apart. The posts penetrated an average depth of eighteen inches. All walls except the southeastern were indicated by shallow troughs containing clay. The wall posts were in the middle of the troughs and the clay reached a short distance into the postholes. The troughs were approximately seven inches wide and from two to four inches deep. The association of much clay with the postholes and the troughs was a further indication that the walls of this structure were probably composed of daubing upon wattles.

The entrance to the building was a four-foot gap just east of the center of the southeast wall. It should be noted that the entrances of all the buildings described so far had the same width and positions.

A large central post, evidently the major roof support, was found, as well as several scattered posts.

The floor of the building was covered by an evenly laid coat of fine white sand two to three inches thick. Thin layers of occupational debris, like that revealed elsewhere on the summit, lay above and below the sand. The sand did not extend outside the structure and represented a floor prepared during the period of occupation.

A prepared fire basin lay just west of the center of the building. In size and shape it was almost exactly similar to the fire basin found on Mound 5. It also had an encircling "gutter" similar to the one already described, but this extended only to the entrance of the building itself and had two tributary gutters in front (see figure 8).

The second summit building was situated four feet behind the first. Only the southeastern corner could be examined, as the remainder lay within the disturbed area. The building evidently had been rectangular with rounded corners. Judging from its restricted position it was perhaps smaller than the other building. The walls were probably of wattle and daub and remained as a single row of posts in a trough eight inches wide and eight inches deep. The trough was filled with clay which also penetrated into the postholes. The posts averaged five inches in thickness, were spaced from four to sixteen inches apart, and reached a depth of twenty inches. Instead of a prepared sand floor the building contained an occupational deposit six inches thick, resembling that found elsewhere on the summit.

Three fragments of sheet copper were found at different points on the summit. All of them bore repousse decorations, but the small size of the fragments did not permit determination of the designs.

Mound 7

This mound was aligned in the same directions as the preceding mounds, and probably had a similar shape; however, since large portions of it had been disturbed in historic times this could not be determined with certainty. Mound 7 resembled Mound 6 in having a flat-topped summit, straight northeastern and southwestern sides, and a ramp in the position occupied by the ramps of the mounds below; but it differed from the preceding mounds in having an additional ramp on the southwestern slope. It was not determined whether the northwestern side was rounded. Mound 7 was much higher than the mound below, and the sides were considerably steeper. The height of the summit was nine feet, six inches, and the slope of the sides had an angle of about forty-five degrees. The summit was sixty-five feet wide, and the base, eighty-five feet. The other dimensions were probably somewhat greater, but could not be determined accurately.

The mound was constructed by placing a fill of sand on the summit and slopes of the preceding

mound. During the filling operations a layer of shell was placed within the southeastern and northeastern sides.

The southeastern ramp was superimposed on the remains of the ramp leading to the summit of Mound 6. It had the same shape and was also composed of sand, but was larger. Unfortunately the ramp was not recognized until it had been almost completely removed. By analogy with the size and slope of the preceding ramps, as well as from the deposition lines on two profiles, the ramp of Mound 7 was calculated to be twelve feet long, and ten and nineteen feet wide at the summit and base respectively. It ascended the slope at an angle of about nineteen degrees.

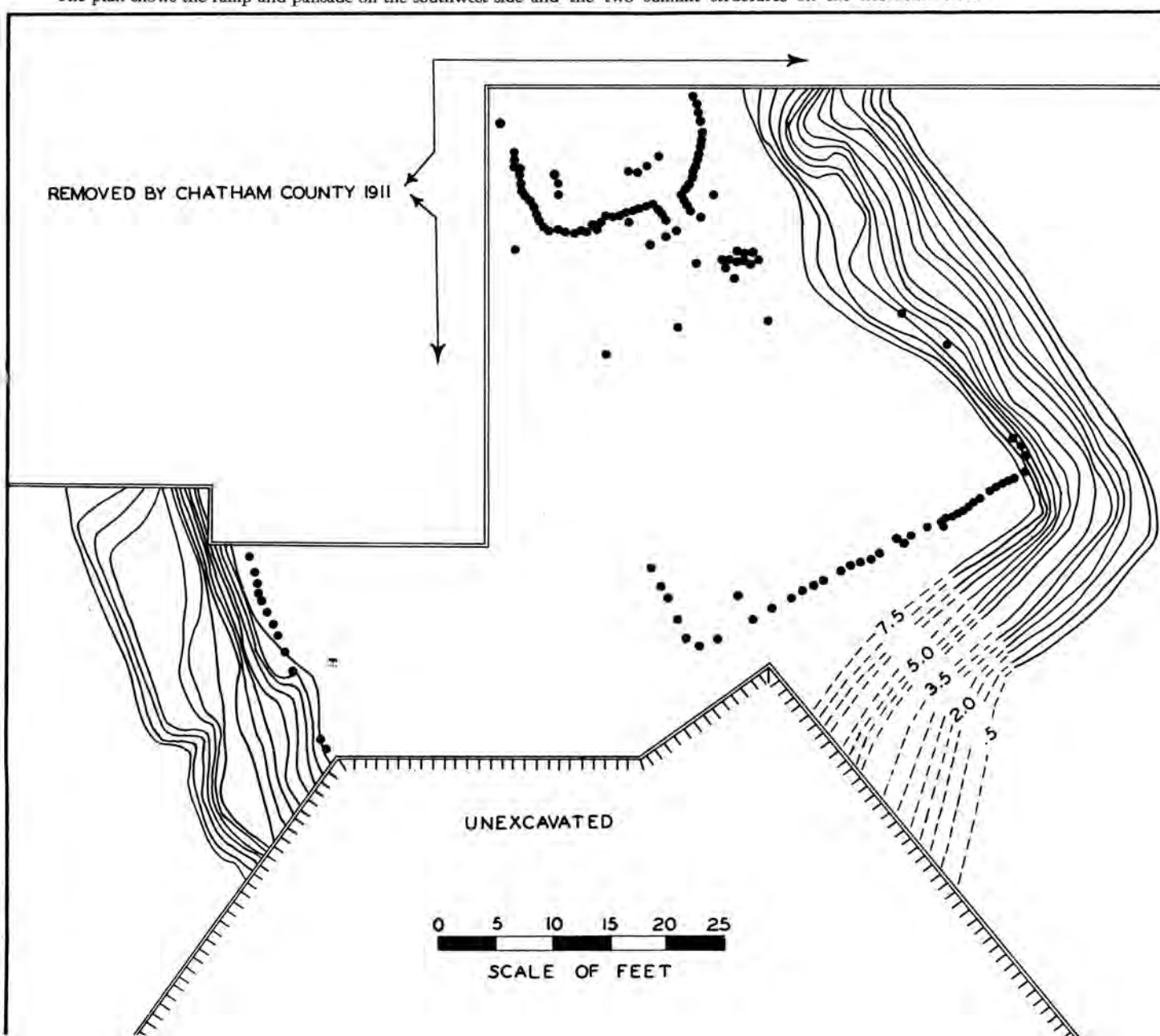
On the other side of the mound, the southwestern ramp rose parallel to the strike of the slope instead of against it; it was about five feet wide. Beginning at the middle of the southwest side, the ramp rose southeastward at an angle of twenty-two degrees. At the southwest corner of the mound the ramp was only halfway to the summit but its farther continuation could not be traced.

The summit of the mound had contained two buildings and a palisade. One structure occupied the entire southeast corner and replaced the palisade at that point. The other was situated in the northeastern part of the summit. The palisade entrance was on the southeastern side opposite the ramp. The ramp on the southwestern side presumably led to the same entrance since there appeared to be no other.

It was not determined whether the remains in the southeastern part of the summit represented a shed or merely an enclosure. It appeared certain, however, that one side was open. The postmold pattern was more extensive than that of the other building, but only the southeastern wall and small sections of the northeastern and southwestern walls were found. The walls of the structure were oriented to the sides

FIGURE 9.—PLAN OF MOUND 7

The plan shows the ramp and palisade on the southwest side and the two summit structures on the northeast side.



of the mound. The southeastern wall was thirty-three feet long and lay five feet inside the rim of the summit. It was composed of five- to eight-inch posts irregularly spaced about twelve inches apart. The posts penetrated the summit to a depth of from thirty to thirty-six inches. They were in a troughlike depression similar to those noted in the preceding mounds. The trough was slightly wider than the posts and was roughly two inches deep. Six posts of the southwestern wall were found, also in a trough, extending a distance of eight feet. No additional posts were found and this distance may have represented the width of the building, although oddly enough, the trough itself continued at least eighteen feet farther. The lower portions of the four posts of the northeastern wall were also located. This side of the mound had been considerably eroded in aboriginal times, and the tops of the postmolds and the other posts of the wall and palisade had been washed away. The posts of the southeast wall and presumably those of the other walls of this structure were surrounded by clay which completely filled the troughs and penetrated into the postholes themselves. As in the case of the summit structures of the mounds below, the clay was possibly daubed upon wattling interwoven between the wall posts.

A few scattered posts noted in the interior of the building may have served as inner roof supports.

The floor was covered by ash and organically stained sand to a thickness of three-quarters of an inch. There were also some shell and charred wood in the deposit. In most places it was underlaid by a similar occupation level separated by a layer of fine white sand three-quarters of an inch thick. Perhaps the white sand was a prepared floor: at any rate the three layers were probably deposited within a short space of time. The southeastern part of the floor showed the result of successive washing and redeposition of cultural material, probably after the destruction of the building. A deposit of sand and ash lay partly inside the building and partly on the outside slope. It should be recalled that similar deposits occupied identical positions on Mounds 6 and 5 below.

The building situated in the northeastern part of the summit was smaller than the one just described. It appeared to have been a permanent structure and probably had a roof. Only part of it could be examined because the disturbed area encroached upon its rear. It was aligned squarely with the larger building and the sides of the mound. The shape was more or less rectangular with rounded corners, and there was a projecting entrance passage. The southeastern wall and portions of the northeastern and northwestern walls were found. The southeastern wall was thirteen feet long. The remaining portions of the northeastern and northwestern walls measured eight and ten feet respectively. The walls were composed of four-inch posts set very close together in troughs similar to those already described, but slightly narrower and deeper. There was much clay in association with the walls and they probably had the wattle and daub construction already noted.

The projecting entrance passage was composed of seven posts, three on one side and four on the other, and extended thirty inches from the southeast side; it was twenty-four inches wide. A series of four postmolds lay inside the building proper and may have represented a screen for the entrance. Three closely set postmolds were found in the northeast corner but there was no suggestion of their function. There were no other posts which might have served as inner roof supports. The floor lay slightly higher than that of the other building and was composed of a prepared layer of clay about one inch thick. Some occupational debris lay on its surface, but very little ash.

The palisade on the rim of the summit was traceable only on the southwest side of the mound, but originally probably continued along the other sides as well. In the southeast corner the palisade was replaced by the outside walls of the southeast structure. The palisade was constructed of five-inch posts spaced from ten to twenty inches apart in a troughlike depression. There was clay in association, suggesting a construction of wattle and daub.

Cultural material found on the summit of Mound 7 consisted of a number of potsherds which were exclusively of the Savannah complex. *Savannah Complicated Stamped* did not occur, however. In addition, there was a large number of fragments of a small hemispherical bowl with an incurving rim.[14] It was a typical example of the *Savannah Burnished Plain* category. The shoulder was decorated with closely spaced, vertical tooling marks.

Mound 8

The mutual resemblance of the first seven mounds seemed to justify the assumption that they represented a continuous mound-building tradition. It has already been pointed out that in most respects the eighth and last mound was different. The ground plan of the last mound was circular instead of pentagonal and it had a rounded summit instead of a flat one. No ascending ramp or trace of a summit building was found, although the walls of several outlying inclosures encroached upon the southern slope. The mound contained six burials, a circumstance which did not occur in the earlier mounds. Three of these were interred during the actual mound construction and three possibly after its completion.

It will be recalled that analysis of potsherds found in the fill of the last mound indicated that a considerable time had elapsed between the abandonment of Mound 7 and the initial construction of Mound 8. This was also shown by the erosion of the slopes of

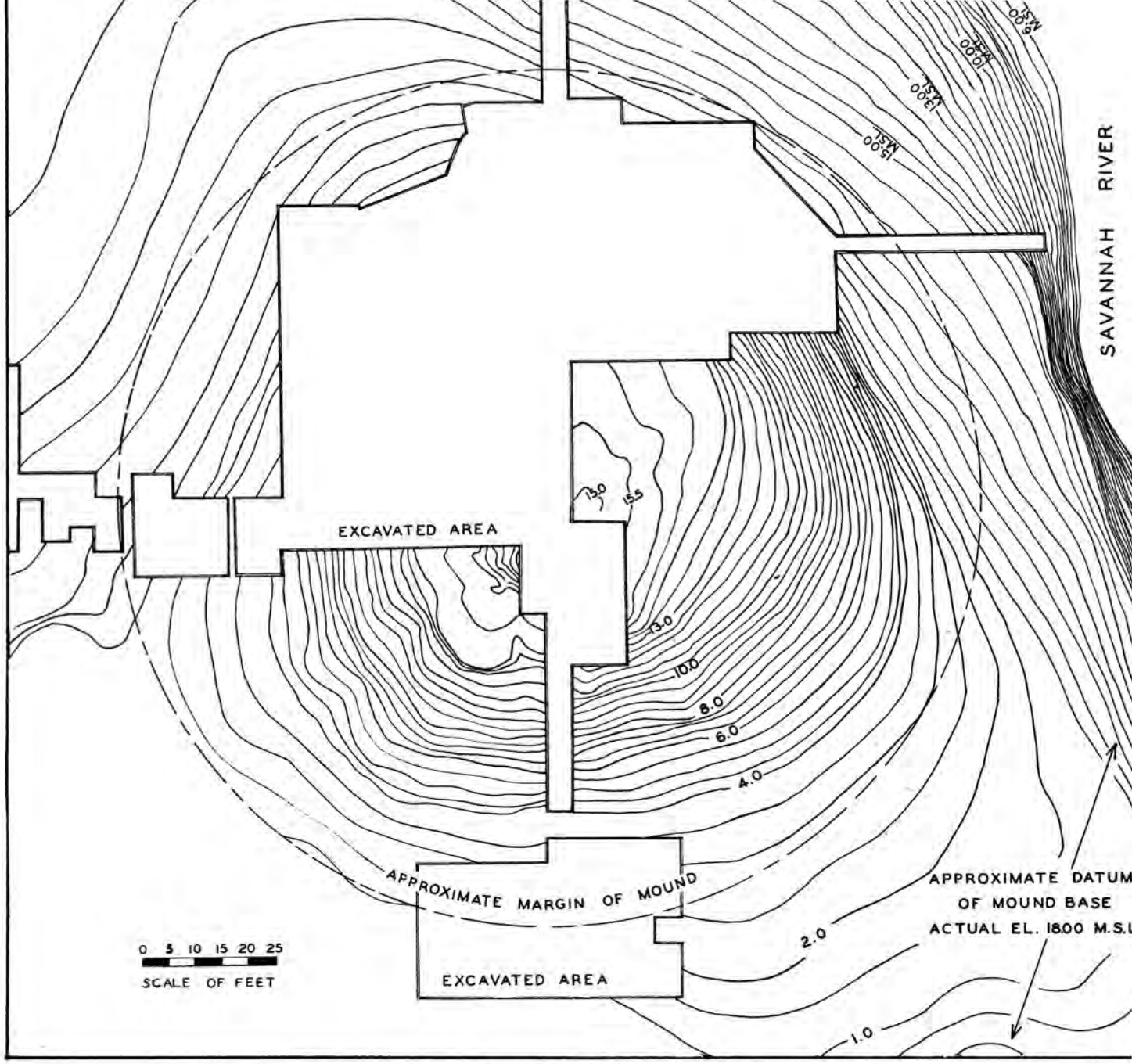


FIGURE 10.—PLAN OF MOUND 8

The plan shows the mound as it appeared subsequent to the removal of the large disturbed areas on the north and northwest sides and at the completion of the first exploratory excavation.

Mound 7. Evidently the interim between Mound 7 and Mound 8 was of long enough duration to permit the development both of transitional pottery forms and the Irene complex itself. The three new types consisted of *Irene Filfot Stamped, Irene Incised,* and *Irene Plain.* This complex was made to the exclusion of all others during the building of the last mound and later. It was the last pottery complex used at the site and was almost certainly protohistoric.

The last mound was much larger than the mound immediately below. Its basal diameter was approximately one hundred and sixty feet. The elevation of the summit was fifteen feet, six inches, approximately six feet higher than that of Mound 7.

The mound was constructed of sand, clay, and shell. Sand comprised most of the body of the mound, the shell being placed as an initial layer at the base and as two inner flanking layers on the sides. A flanking layer of clay was placed on all sides except a small portion of the western sector where the large mound adjoined the burial mound.

The ramp which had occupied the southwestern

side of Mound 7 appeared to have been used during the construction of Mound 8. The basal shell layer and the lower of the two inner shell flanks covered it in carefully laid coats which permitted a continued easy access to the summit. During the later phases of construction of the last mound, however, sand and shell were placed in such a manner as to obliterate the outlines of the ramp so that it did not appear on the completed mound. It was not determined whether the ramp on the southeastern side of the preceding mound might also have served in this manner.

An interesting feature was a separate sand fill lying between the large mound and the burial mound. It was an integral part of the western slope of the large mound, but its extension westward overlay the eastern edge of the burial mound. While it thus appears to have postdated the construction of the burial mound, evidence that the latter continued in use was revealed by five burials[15] discovered in the sand at points close to the original margin of the burial mound. At least one of these was intrusive, but intrusion was not certain in the case of the others.

In regard to burials placed in the large mound, another group of three interments[16] was found within the same sand fill, but well on the slope of the mound. These were at some distance from the graves in the burial mound and were not intrusive but were placed in the large mound during the filling process. All three burials lay upon a thin stratum of shell which was evidently prepared to receive them. The shell layer was about one inch thick and its horizontal extent was approximately twenty by thirty feet. The skeletons were adult, flexed, and were spaced each about ten or twelve feet from the others.

Four other burials[17] were found at various points in the fill of the mound. These were adult and flexed; it could not be determined whether or not they were intrusive.

During the excavation of the south side of the mound large quantities of fallen, fired wall plaster were found in a position restricted to the upper surface of the clay apron. Closely associated with the wall plaster were three parallel wall trenches belonging to a series of large inclosures which encroached on the south slope of the mound. The inclosures were successively built sometime after the completion of the last mound and may have been directly connected with its utilization. The presence of wall plaster, which bordered the wall trenches for a considerable distance, indicated that the walls themselves were constructed of wattle and daub. The inclosures will be described later as part of the series of features between the mound and the rotunda.

An interesting discovery was a miniature *Irene Filfot Stamped* pottery vessel[18] standing upright in the midst of the fallen wall plaster. It contained nothing, and no other associations could be determined.

A rather small, intact *Savannah Check Stamped* vessel[19] was found lying on its side in the sand fill. It appeared to have been carelessly covered during the construction of the mound. Typologically, it antedated the fill in which it lay.

An intrusive typical *Irene Filfot Stamped* urn[20] covered by an inverted *Irene Incised* bowl[21] was found in the south slope of the mound. The vessels appeared to represent a typical urn burial but contained nothing, a rather frequent occurrence. In these cases it is assumed that the vessels contained human infant remains which were too delicate to have been preserved.

Notes

1. The premound level was clearly distinguishable from the mound fill above and consisted of a layer of dark brown, organically stained sand upon light tan virgin sand. It was about six inches thick, but numerous root molds extended somewhat deeper. Apparently its distinctive appearance was due to the staining of the virgin sand by decaying vegetable matter rather than to accretion by human activity. The preserved portion of the premound surface occupied an approximately horizontal plane below Mound 1. Layers of similar appearance occupied increasingly higher elevations at the peripheries of each of the succeeding mounds.
2. The embankment was constructed by placing a ridge of shell nine inches high and twenty inches wide in a pentagonal outline. At the southeastern point of the pentagon the shell was deposited in the shape of the ramp. The shell structure then was covered with sand, while the central portion of the mound received none. The sand used in the construction of Mound 1 was remarkably similar to the sand used as the fills of the succeeding Mounds 2, 3, and 4. It was characterized by a flat gray color, sometimes brown, and by a very even disposition of a considerable amount of midden debris. Numerous small fragments of shell, charred wood, potsherds, and animal bones were found in the fill.
3. The wall posts of the Mound 1 building existed only as molds which were partly filled with sand. They were detected by the softness of the individual fills and by a slight color differentiation. The latter was sometimes due to staining by the decayed wood and sometimes to the postmolds having been filled by later and differently colored deposits.

   The wall trench of the Mound 1 structure was no softer than the surrounding sand. It could be readily traced, however, by the color of its fill which was repacked with mixed sand during the construction of the building.
4. The relationship between Mound 2 and its central structure was determined by tracing an extension of the clay floor to the embankment. The embankment was evidently built first.

   The sand fill used in the construction of Mound 2 appeared identical with that used in Mound 1.
5. The wall posts of the Mound 2 building remained only as postmolds and postholes.
6. Vessels numbered 124 and 125.
7. The diameter and estimated height of this vessel were each 54 centimeters.
8. Since Mound 3 could be traced only at its peripheries

and no recognizable summit level was found, it might be thought that the peripheries represented an embankment as in the case of the two preceding mounds, and that a summit did not exist. Evidence of the original existence of the summit, however, is offered by the circumstance that the waterlaid sand lying high on the slopes must have been washed from a higher summit deposit. Had it not been seriously disturbed in aboriginal times there would almost certainly have been remains of a summit building or occupational deposit such as those of the mounds above and below.

It is worthy of note that a separate investigation, conducted in the northwestern part of the summit, gave the impression that there had been considerable disturbance thereof in aboriginal times. This observation was made before the disturbance hypothesis was advanced. It is perhaps unwise to advance a hypothesis to account for the absence of a summit deposit on Mound 3. However, it seems that the only possible reason the Indians could have had for removing the central portion of the summit would be a desire to change the shape of the mound. Possibly Mound 3 was originally a platform mound with a level summit from which the fill was removed, to increase the height of the rim. We might well consider the appearance of the succeeding Mound 4 as the result of this activity.

9. Burial numbered 244.
10. Typologically the vessel numbered 129 is much closer to a category of cord decorated pottery which is found at several other sites in Chatham County but which is rather rare at Irene. This pottery belongs to a complex which is similar to the Savannah complex as defined at Irene Mound except that the cordmarked and check stamped decorated types have straight instead of predominantly flaring rims, and the associated plain type is not usually so highly burnished as *Savannah Burnished Plain*.

    Whether there is a complicated stamped type included in this complex is not known. This variant complex seems to have had a much more frequent occurrence than the Savannah and, inasmuch as it is possible to show a steady development from the Savannah types to the protohistoric Irene complex, it is assumed that the variant complex is somewhat earlier, but probably of the same line of development. If this should be the case, and the vessel numbered 129 is actually a representative of the earlier complex, then it is probable that the burial numbered 244 is earlier than any of the mound structures and earlier than the period of intensive occupation of the site. In this connection it may be significant that another vessel, numbered 95, of almost exactly the same size and appearance, was found inverted in the northern part of the site. It was not associated with any specific remains, however (see pp. 38, 39_Note_21.)
11. The fill of Mound 5 contrasted sharply with the fills of the four mounds below and was almost identical with the fills of the three mounds above. It was composed of variegated, unit loaded sand which ranged in color from light gray through light tan. Likewise, there was a rather marked absence of cultural material in the fill as contrasted with the mounds below.
12. During the construction of the mound, flanking shell layers were placed in the fill at the peripheries. There were two shell layers on the northeast side, five on the northwest side, and one on the southwest side. The size and thickness of these layers was rather variable. The length ranged from six to seventeen feet and the thickness from six inches to twenty-four inches. They were composed chiefly of oyster shell, but saltwater clam, marsh clam, freshwater mussel, and periwinkle occurred, and a variety of the conch was also represented. The reason for the shell layers is not understood, unless they were to strengthen and drain the mound slopes, two purposes which they actually served. On the other hand, at the time when the mound was built, shell may have been so abundant in nearby middens that it was as feasible to use shell as it was to borrow sand. The individual shell layers were mostly within the sand flanks and were not usually correlated with recognizable occupation levels. In the case of the five inner flanking shell layers on the northwest side of the mound, two parallel rows of postmolds were found in the sand fills between them, seemingly indicating additional unrecognized mound occupational surfaces. One row consisted of fifteen postmolds appearing in the sand which lay between the first and second of the flanking shell layers. The alignment was oriented parallel to the northwest side of the mound. The postmolds were about four inches in diameter and were spaced from two inches to two feet apart. The function of the alignment could not be determined, and there was no occupational debris in association. Since the interiors of the postmolds did not contain shell it is certain that they were not driven through the shell layer above, but were placed in position at a time when the sand layer represented an exposed surface. Another row consisting of only four postmolds was found in the surface peripheral to the first flanking shell layer; these had an average diameter of three inches.
13. Garcilasso, chronicler of the De Soto expedition, described a platform mound on which was situated the dwelling of the cacique Ossachile. The stairs to the mound, according to his description, bore a certain resemblance to the ramp of Mound 5. "In order to ascend to it [the mound] they draw, in a straight line, streets from top to bottom; each one fifteen or twenty feet wide, and unite them to each other with large posts, which enter very deep into the earth and which serve for walls to these streets. Then they make the stairs with strong beams which they put across, and which they square and join in order that the work may be more even. The steps of these stairs are seven or eight feet wide; so that horses ascend and descend them without difficulty. However, the Indians steepen all the other sides of the platform, with the exception of the stairs, so that they cannot ascend to it; and the dwelling of the chief is sufficiently strong." (Swanton, 1928a, p. 174.)
14. Pottery vessel numbered 65.
15. Burials numbered 91, 92, 156, 190, and 264.
16. Burials numbered 8, 20, and 22.
17. Burials numbered 85, 95, 142, and 230.
18. Pottery vessel numbered 3.
19. Pottery vessel numbered 71.
20. Pottery vessel numbered 82.
21. Pottery vessel numbered 81.

The Burial Mound

The burial mound lay immediately west of the large mound. It was very low, circular, and composed of sand and shell. The diameter was about fifty-five feet and the height about two and one-half feet. Structurally it consisted of a central shell deposit and a series of flanking shell layers separated by sand fills.

Ceramic and burial types showed an interesting sequence. The premound surface and the central shell deposit contained only cremated secondary burials and pottery of the Savannah complex, while the flanking shell layers contained chiefly flexed primary burials and some pottery of the protohistoric Irene complex as well as that of the Savannah.[1]

The tectonic arrangement of the burial mound was revealed in three successive profiles cut at five-foot intervals across the northern margin; on the profile walls of an excavation originally made by Clarence B. Moore; and by a horizontal stripping procedure which finally resulted in the total removal of the mound. The initial deposit was a circular layer of shell about eighteen feet in diameter and twenty-eight inches thick. It was overlaid by four small flanking shell layers on the east side but by only two large shell layers on the north and west sides respectively. The presence of intervening layers of sand was the only means by which shell layers could be distinguished from one another. Consequently it is possible that the large shell layers on the north and west sides were actually composite and comparable to those on the east side.

Burials

A total of one hundred and six interments was found in the burial mound. Many of these were in good condition and the bones suitable for measurement. As the work proceeded constant attention was given to the position of grave pits in order to investigate the possibility of a stratigraphy of burial type. The results of this endeavor were not particularly positive, however, because the largely shell composition of the mound did not readily permit the determination of deposition lines within individual layers. In some cases grave pits could be shown to start from higher deposits, but in others the graves could not be seen. In not a single case was it determined that a burial had been interred during the filling process, but it is rather doubtful if this information was obtainable. It was found that there was no recognizable stratigraphic differentiation of burial type among the primary burials in the flanking shell layers of the mound, but there was a decided difference between the primary group and the exclusively cremated burials in the initial shell deposit.

Five burials[2] were found in the subsoil immediately below the central shell deposit. All were cremated, and with four of them were associated intentionally placed objects. Two burials[3] were found in the central shell deposit itself; both were cremated and one was an urn burial in a narrow-mouthed conical *Savannah Burnished Plain* vessel[4] which was probably a bottle form.

These seven cremated burials represented the only occurrence of this type at the site with the exception of one found in the rotunda. The circumstance that they were the exclusive type in a stratigraphically definable deposit in the burial mound seems most significant.

Four of the five burials in the subsoil contained grave goods. Such frequency of associated artifacts was without parallel elsewhere on the site. It is particularly interesting to note that three of the six associated objects were pottery vessels.[5] This represents three out of only four certain instances of associated pottery vessels at the entire site.[6] Disregarding the necessary association of pottery vessels in the case of urn burial it should be noted that, for Irene at least, pottery vessels rarely occurred as grave furniture during the Savannah ceramic period and were totally lacking during the Irene period.

Three of the total of four pottery vessels found in the central shell deposit and the underlying subsoil seemed to resemble the pottery of the Savannah complex but were rare forms and other examples of their type were not noted at the site. (Plate XVI, bottom row.) One vessel appeared to be fairly typical.[7] The unusual vessel forms served to confirm the distinctiveness of the contents of the central shell deposit and the underlying soil.

The remaining associated artifacts consisted of a pottery elbow pipe and a large bowl made of a cut conch shell.[8] The latter had a hole at the small end, possibly to provide a means of suspension when the object was not in use.

None of the remaining burials in the burial mound were cremated, and all were of the types characteristic of the site as a whole. As such they contrasted with those within and below the central shell deposit. Most of them probably belonged to the Savannah ceramic period, but it is certain that the Irene period was represented as well.

Fourteen burials were found in the subsoil peripheral to the central shell deposit.[9] Although they

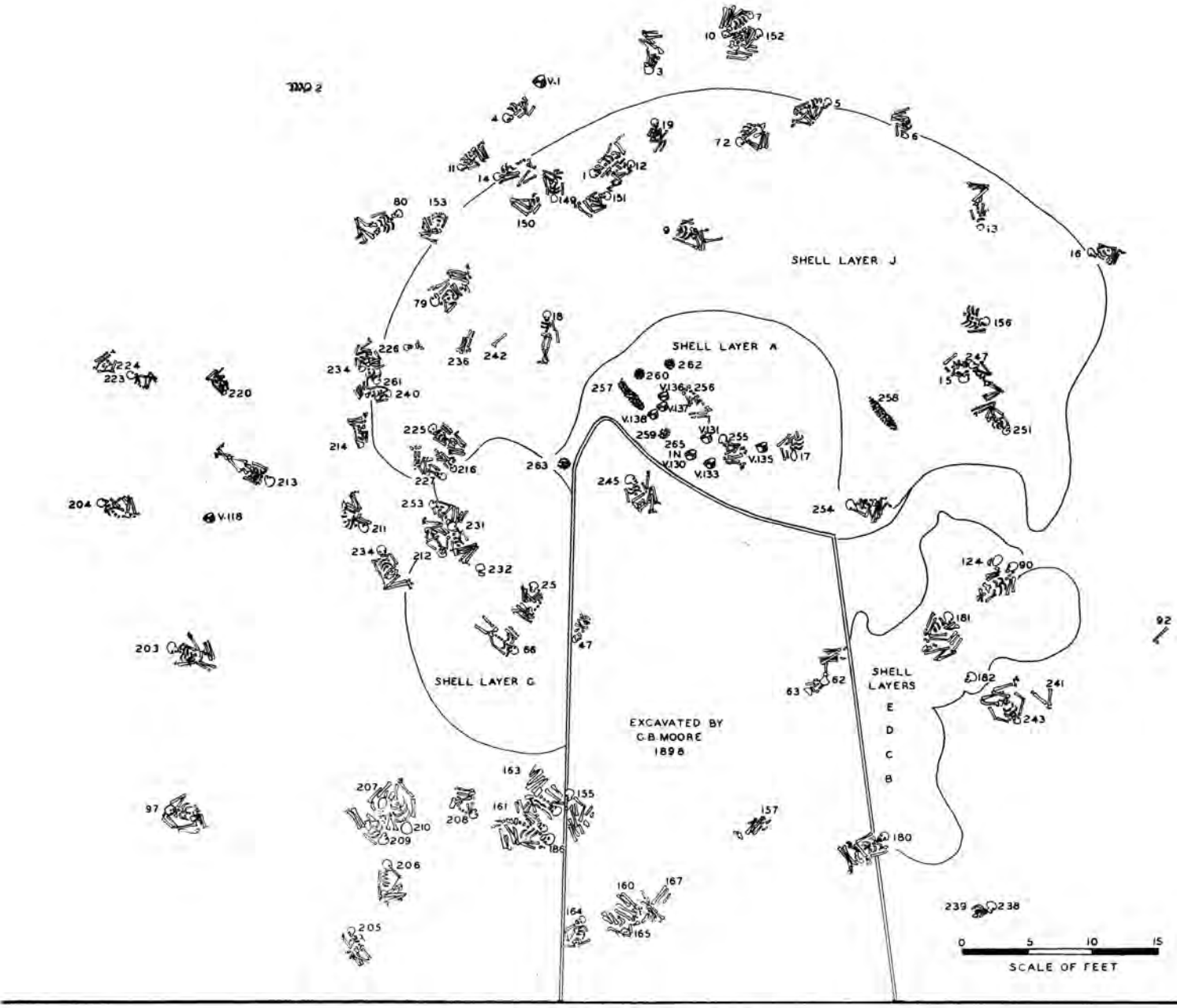


FIGURE 11.—PLAN OF THE BURIAL MOUND
The plan shows the location of shell layers, articulated and cremated burials, and pottery vessels.

occupied the same general level as the cremated burials under the central shell deposit, all of them were articulated flexed and probably later. With one of them were four disc beads,[10] and with another were fifty-seven beads, some tubular, some disc.[11]

Sixteen burials were found in or originating from a large shell layer which comprised the northern half of the burial mound. Eleven of these were flexed and single,[12] one was a flexed double burial,[13] two were either secondary or disturbed burials,[14] and one was extended prone.[15] There was one urn burial of an infant, in an *Irene Filfot Stamped* vessel without a cover.[16] Associated with one of the flexed single burials was a bone awl[17] and a conch shell bowl.[18]

Shell layer G occupied the southwestern quadrant of the burial mound and contained twelve burials. Eleven were in varying positions of flexion[19] and one represented either a single skull or a disturbed burial.[20]

In the southeastern quadrant of the burial mound were four rather small overlapping shell layers. These were numbered from bottom to top B, C, D, and E. Three burials were found in shell layer D, but the other layers apparently contained none. One of the burials in shell layer D was flexed single,[21] another was a flexed burial accompanied by the skull of an-

other individual,[22] and the last consisted of a skull alone.[23] There were no associated artifacts. A large group of burials was found at points marginal to the shell deposits in the burial mound. Twelve of these were flexed single,[24] one flexed double,[25] one consisted of a skull with the additional mandible of another individual,[26] and one consisted of two flexed skeletons with the addition of the leg bones of still another individual.[27] Another burial was extended prone.[28] Two of the flexed single burials[29] had associated disc and tubular beads respectively.[30]

Ten disturbed burials[31] were found in the fill of the Moore's excavation; with an undisturbed portion of one of these were several hundred disc beads of shell.

To summarize: in the entire group of Savannah and Irene burials other than those in and below the central shell deposit were sixty-two flexed single burials, two cases of flexed double burial of adults, two extended prone burials, one bundle burial, two burials of skulls only, one burial of a skull with the lower jaw of another individual, one instance of a skull with another flexed skeleton, two burials of skulls with portions of other individuals, three instances of burial of portions of the body other than the skull, one infant urn burial, and fifteen disturbed burials.

The exclusively cremated burials in the small central shell deposit underlying the later levels of the burial mound seemed to reflect a burial complex different from that exhibited by the rest of the burials on the site. Moreover, the high proportion of burial offerings (with 57 per cent of burials) and the circumstance that most of the offerings were pottery vessels (43 per cent of offerings), were extraordinary. While the scattered potsherds in the fill of the central deposit were typical, the mortuary vessels exhibited two additional shapes which did not occur in the other Savannah pottery at Irene. This circumstance raised the possibility that the burial mound was the oldest feature on the site.

However, we must hesitate in considering this a stratigraphy of burial type. Mounds with central deposits of cremated bone and peripheral articulated and bundle burials are fairly common on the coast and occur at the north end of Creighton Island, Crescent, Contentment, near the light house on St. Catherines Island, Ossabaw Island Mounds C and D, and Bluff Field Mound A (Moore, 1897, pp. 28-31, 44, 53-54, 112, 122, 131). This suggests the existence of some unknown custom which resulted in beginning burial mounds with the cremation of a number of individuals and making later interments mostly as bundle or flexed articulated burials.

The burial mound probably served throughout the building of the first seven mounds, permitting a guess that the burials represented a longer period and a smaller population than did the nearly equal number in the Irene period mortuary.

Notes

1. The small amounts of Irene pottery found in all of the shell layers except the central deposit was probably introduced during the digging of grave pits for additional burials made during the Irene period.
2. Burials numbered 257, 258, 260, 262, and 263.
3. Burials numbered 259 and 265.
4. Vessel numbered 130 See Plate XVI.
5. Vessels numbered 130, 136, 137, and 138.
6. Burial numbered 244 with vessel numbered 129, see p. 11, Note 9. The association of vessels numbered 101 and 103 with burial numbered 147 was doubtful, see p. 28, Note 61.
7. Vessels numbered 130, 136, and 137 were non-typical. Vessel numbered 138 was typical.
8. Pipe numbered 14-27; conch bowl numbered 40-117 (see Plate XIX).
9. Burials numbered 7, 9, 10, 79, 149, 150, 153, 154, 164, 165, 180, 234, 247, and 261.
10. Shell beads numbered 40-107 with burial numbered 153.
11. Shell beads numbered 40-108 with burial numbered 164.
12. Burials numbered 3, 4, 5, 6, 11, 14, 16, 19, 72, 151, and 240.
13. Burials numbered 216 and 227.
14. Burials numbered 15 and 236.
15. Burial numbered 18.
16. Burial numbered 266 in vessel numbered 1.
17. Awl numbered 30-32.
18. Conch bowl numbered 40-63 with burial numbered 151.
19. Burials numbered 25, 66, 155, 161, 163, 212, 218, 220, 231, 245, and 251.
20. Burial numbered 232.
21. Burial numbered 181.
22. Flexed burial numbered 90 accompanied by skull numbered 124.
23. Burial numbered 182.
24. Burials numbered 152, 186, 203, 204, 205, 206, 208, 211, 214, 223, 224, and 235.
25. Burials numbered 207 and 210.
26. Skull numbered 238 with jaw numbered 249.
27. Flexed burials numbered 243 and 253 associated with left femur, tibia, and calcaneum of another individual, numbered 241.
28. Burial numbered 213.
29. Burials numbered 203 and 235.
30. Beads numbered 40-105 and 40-111.
31. Burials numbered 47, 62, 63, 157, 160, 162, 167, 183, 184, and 185.
32. Burial numbered 47, beads numbered 40-44.

The Mortuary

The excavation of a mortuary structure which had been in use sometime after the building of Mound 8 provided a large body of data concerning the funeral practices of the protohistoric Irene period. The former situation of the building was marked by a slight rise which lay about eighty feet southwest of the large mound.

The mortuary had been semisubterranean and of wattle and daub construction. The ground plan was square with rounded corners. There was a projecting entrance passage. The amazing preservation of the remains was due to its destruction, perhaps intentional, by fire. Subsequently a sand fill was placed over the ruins and the locality was used as a cemetery. Two succeeding stages of interment, each marked by a palisade-like inclosure, were discernible. Vessels and articulated burials were found on the floor of the building, and urn and articulated burials were found in the fill above the ruins and in the area immediately surrounding.

Details of Construction

The mortuary was built in a shallow excavation from ten to sixteen inches deep. This penetrated several inches of older refuse deposits and cut into virgin sand. Wall posts five to seven inches thick were set at the edges of the sunken floor and spaced about eight inches apart, forming a square with rounded corners. Each side of the building was approximately twenty-four feet long. In several places the wall was represented by a single row of posts, in others by double or triple rows. Whether the multiple rows of posts represented corrections in the initial placement or later repairs is not known. Wall trenches were not used in the construction of the wall. The depth of the posts below the floor of the structure ranged from nineteen to twenty-three inches. A fallen beam, found in the northeast corner, indicated that the wall posts projected at least five feet, six inches above the floor. In four cases actual unrotted, unburned sections of posts were found in the postholes. They were of yellow pine and satisfactory for dendrochronological analysis.

Standing wall plaster was found intact to a height of fourteen inches in several places along the interior of the wall. It was fired to a brick red or bright orange. The thickness of the interior plastering was about one and one-half inches. Impressions of reeds and wall posts in the fired plastering indicated a typical wattle and daub structure. Bundles of reeds or possibly wild grape vines had been interlaced at relatively short intervals between the uprights.[1] The plastering itself consisted of clay of a sort which is readily available at the site. This clay, thoroughly kneaded, was heavily tempered with a vegetal binder, probably Spanish moss.[2] It was then applied to the interior surface of the wall probably to the eaves, where it may have terminated at a longitudinal log or stringer to which the lower ends of the roof poles were bound.[3] If the outside of the wall was covered at all, the covering probably consisted of a perishable material such as cane or palmetto matting.[4]

The roof was upheld by four large supports, which were set in about five feet from the corners of the structure and were seventeen to twenty-four inches in diameter.

The roofing consisted of a very light material. What may have been burned roof debris covered parts of the floor to a depth of one-quarter inch to one inch. Fragments of light poles three to four inches in diameter were noted and, in one case, charred platelets which might possibly indicate a roof of palmetto thatch. Ethnological data from early sources suggests that such roofs were in common use on the Georgia Coast.[5]

The entrance to the building was on the east side near the southeast corner. It was indicated by a gap in the wall and by parallel projecting wall trenches which extended for six feet outside the building. The wall trenches were two feet apart.[6] The floor of the entrance passage sloped gradually downward toward the structure and consisted partly of clay.

The floor of the structure itself was very poorly marked. It was traceable only because of the presence of burned roof material. The floor was lacking in occupational debris except for a small area two and one-half feet across, which contained a heap of mussel shells and bones of deer, turkey, and fish. In addition, a fragment of a pottery elbow pipe and a well made ulna awl were found in the deposit. There was no indication of a fire pit.

The wall base of the mortuary was made tight against water accumulating from the eaves by a deposit of clay on the west side and on the other sides by deposits of midden material which conformed to the edges of the depression into which the structure was set.

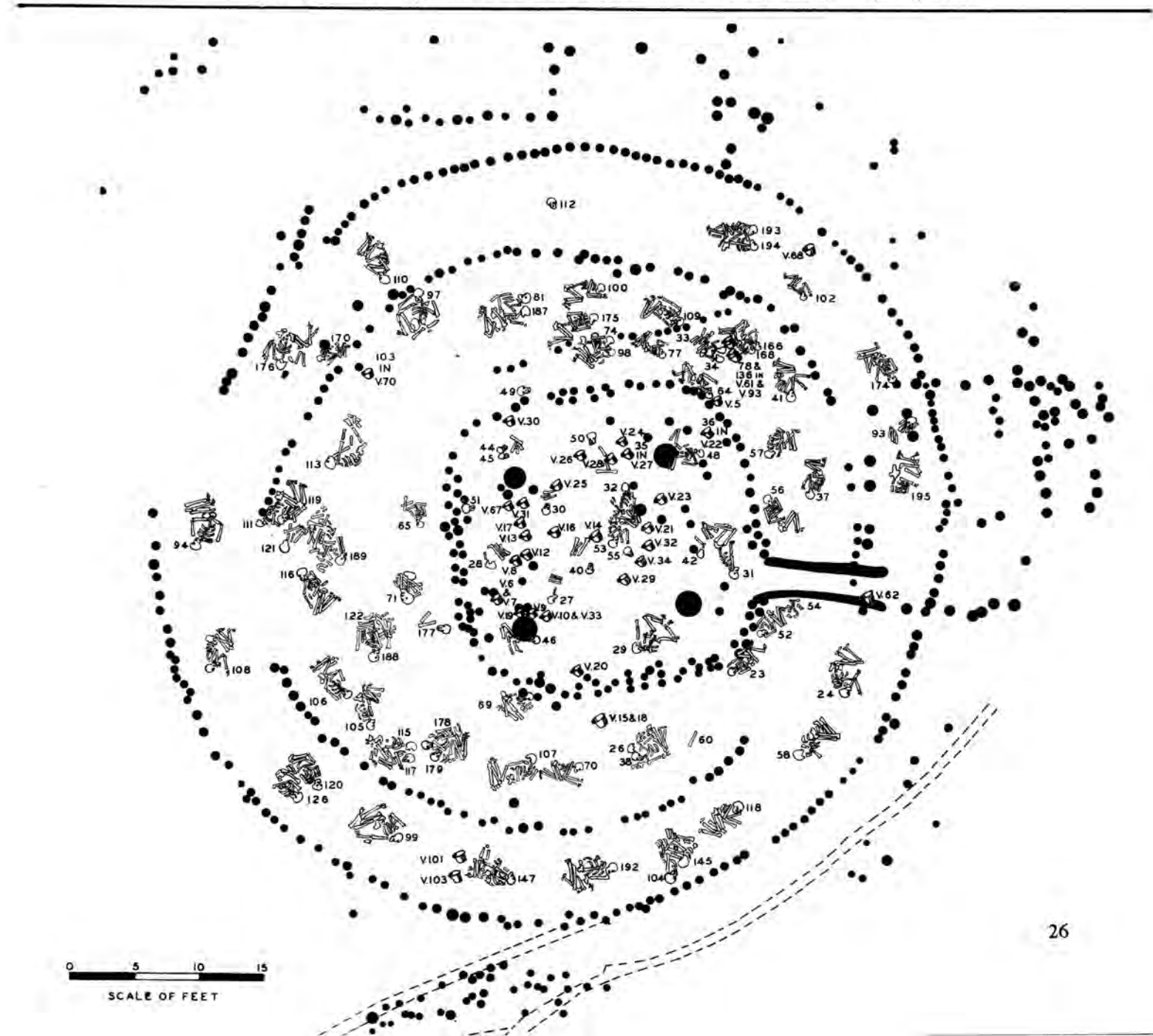
Burials on the Floor

Four burials, all in poor condition and with the bones somewhat disarranged, were found on the floor

of the mortuary. A pelvic bone of one lay about ten inches from the rest of the skeleton[7] and showed traces of burning; evidently the body had been partially disintegrated at the time of the burning of the building. Two of the burials were flexed single,[8] one was a flexed "jitterbug" (legs flexed in opposite directions),[9] and one burial consisted of a skull only.[10]

Five pottery vessels were found on the floor. One was an *Irene Plain* bowl[11] with a series of ovoid lugs around the shoulder (Plate IXa). It was intact and upright and lay under a fallen wall post. Two other vessels were very fragmentary *Irene Filfot Stamped* urns.[12] It could not be determined whether they originally were upright. Another vessel was an intact *Irene Plain* "bottle" which was found lying on its side.[13] The last was a small, rectangular *Irene Incised* vessel which was badly broken.[14] All the vessels were empty. However, it seems possible that they may originally have contained perishable offerings or may themselves have been offerings.

FIGURE 12.—PLAN OF THE MORTUARY AREA
The plan shows the position of the structure, the circular inclosures, burials, and pottery vessels.



Burials in the Sand Fill

Filling operations, resulting in a very low mound, apparently began immediately after the destruction of the mortuary, while a portion of the walls was still standing.[15] The completion of the destruction (by pulling down the walls) and the filling process probably proceeded simultaneously since sand fill was found above and below the wreckage.

During the course of fililng numerous vessels, probably mortuary, had been placed within the structure.[16] No evidence of intrusive pits could be found within the area of the walls.

Thirteen burials were encountered as well as many single fragments of human bone. Five burials were flexed single,[17] one was a flexed "jitterbug,"[18] three consisted of skulls only,[19] and the burial type of four was uncertain.[20]

The only burial with associated artifacts[21] was flexed and lay at the approximate center of the fill. With this burial were five stone celts, four stone discs, two polished pebbles, and an incised object of talcose shist (Plate XXI F).

Twenty-five vessels were found in the fill. At least twenty-one of these represented urn burials. In most of them traces of bone were found which, when identifiable, proved to be those of infants or children.[22] In others the bones seem to have been completely disintegrated.[23] One urn burial was notable because besides the remains of an infant, it contained two small pottery vessels, both of the *Irene Incised* type [24] (Plate IXb).

Of the pottery vessels found in the fill, twenty-one were *Irene Filfot Stamped* urns, two were the *Irene Incised* vessels already mentioned, and two were *Irene Plain*, hemispherical bowls.[25] One of the latter served as the inverted cover vessel of an urn burial.

Two small, polished stone celts were found lying side by side in the fill near the west end of the mortuary. [26] They were not associated with any burial and the reason for their presence alone in the fill is unknown. A turtle carapace was found in the fill near the east end of the structure.[27] A small hole had been bored through the center. A fragment of red ochre and a small piece of graphite were also found.

Burials in the Inclosures

Following the destruction of the mortuary, the immediate vicinity was used as a cemetery. Two circular inclosures,[28] each surviving as a line of postmolds, represented the boundaries of the cemetery at successive times. The walls of the inclosures did not overlap each other or the walls of the destroyed mortuary, an indication that perhaps the exact position and the significance of the mortuary were recalled when the inclosures were built and that the building of the mortuary and of the later inclosures were closely related events.

The entrance to the mortuary itself was blocked by one of the posts of the smaller inclosure, guaranteeing that at least these features were not contemporary. There is no evidence that the mortuary and the large inclosure were not contemporary, although this seems most unlikely.

A particularly interesting feature occurring in both inclosures was the use of burial pits sealed with clay plugs. Seven of these occurred in the inner inclosure and ten in the outer. Only two other clay-sealed pits were found on the site and those but a few feet west of the large inclosure.

It may be significant that no later burials were determined to be intrusive into the central part of the mortuary.[29] It is also significant that most of the interments in both inclosures were placed so that the long axis of each burial was nearly parallel to the sides of the inclosures.

A total of forty-one burials was found in the inner inclosure of the mortuary. Twenty-six of these were flexed single burials,[30] including one of the type called "jitterbug."[31] Three double burials were found,[32] each consisting of an adult female and a child. There were two cases of flexed double burial of children[33] and one case of a flexed double burial of adults.[34] Two separate burials were found flexed with the partially disarticulated skeletons of other individuals.[35] Separate burials of a partially disarticulated and a completely disarticulated skeleton were found.[36] There were two burials of parts, one consisting of a femur and the other comprising a skull and the bones of a left arm.[37] There was one instance of a double urn burial of children or adolescents.[38] The urns were nested and both skeletons were in the top urn. The skeletons were completely disarticulated and the bones badly broken. Both urns were typical vessels of the *Irene Filfot Stamped* type. Four upright *Irene Filfot Stamped* urns were found which did not contain recognizable traces of human bones.[39] It is assumed, however, that they had at one time contained the remains of very small infants. It is notworthy that none of the upright urns had cover vessels as did the majority of urn burials in other parts of the site. One of the urns contained a rodent skeleton, and since the intentional burial of the animal seems rather unlikely, it is assumed that it crawled into the pot and died subsequent to interment.

Grave pits were roughly oval or irregular in shape, and usually rather shallow. Six of the flexed single burials and two of the double burials were interred in clay-sealed pits.[40]

Fourteen burials totaling nineteen individuals[41] were accompanied by artifacts. Among these were seven knob-headed shell pins, three of them with a

single flexed burial.[42] There were four shell gorgets: one with a burial of an adult female and a child; another with the single burial containing the three shell pins; a third with the double urn burial; and a fourth in one of the upright urns.[44] Fourteen large conch columella beads were found with the part burial of a skull and bones of an arm.[45] One of the knob-headed shell pins and a considerable number of marginella beads were found with one of the partially disarticulated burials.[46]

Five bone awls were found, of which two were with the two individuals of a disarticulated and flexed double burial.[47] Two rather long, flat, and slender awls, possibly a specialized sort, were found with a flexed single burial. A problematical stone object (Plate XXI G) was associated with the same burial.[48] With another single flexed burial were three animal scapulae and a stone pipe (Plate XXI D). Two stone celts were found with the flexed individual of a double burial which also comprised a partially disarticulated skeleton.[50] A vein quartz net sinker or pebble hammer was found with a flexed single burial.[51] One of the flexed single burials in a clay-sealed pit had rather large flakes of mica covering the cranium.[52]

Twenty-three burials were found within the outer inclosure of the mortuary. Seventeen were flexed single.[53] Two double burials each consisted of an adult female and child.[54] One burial consisted of a skull only and another was of uncertain type.[55]

There were probably two urn burials although definite traces of bone were lacking. Both urns were of the *Irene Filfot Stamped* type. One of these was covered with an inverted *Irene Plain* hemispherical bowl.[56] There were ten burials in clay-sealed pits. These included one of the flexed double burials.[57]

Five burials contained associated artifacts. A shell ear pin was with one of the flexed single burials in a clay-sealed pit.[58] Two other flexed single burials contained a projectile point and large fragments of red ochre respectively.[59] In the case of the latter, the red ochre was in the pelvic region and had been clasped between the hands.

A clay elbow pipe was found with a flexed single burial.[60]

Two bone awls were found with a flexed burial. Close by and possibly associated were large fragments of three pottery vessels.[61] Two of these were of the *Savannah Fine Cordmarked* type and were respectively globular and cylindrical in shape. One vessel had a constricted throat and a flaring rim. The other had no shoulder and the rim was straight. The third vessel was either *Savannah Burnished Plain* or *Irene Plain*. It was a hemispherical bowl with a straight rim. Either the proximity of the skeleton to the Savannah vessels was fortuitous, or the skeleton represented an older interment antedating the placement of the other (Irene complex) burials in the outer inclosure.

Notes

1. Samples of fired mud daubing from the mortuary showed parallel impressions of the wattling upon which they were originally plastered. The impressions were usually multiple but certain large fragments did not exhibit wattle impressions at all and others showed them on a relatively small proportion of the surface. Thus it is assumed that the wattling of the mortuary structure was not continuous but consisted of bundles of reeds, canes, or wild grape vines woven at successive intervals between the uprights.

   The impressions were both concave and convex casts. The convex casts were not as frequent as the former but indicated that the wattling material was sometimes split, thus permitting an impression of the hollow interior to be made.

   The surfaces of certain wattling impressions showed close-set longitudinal striations characteristic of a variety of wild grape vine growing at the site. Others, lacking striations, indicated the use of reed or cane. In the case of convex casts of the hollow interiors of split wattling, the material would necessarily have been reed or cane. Clarence B. Moore reported on the construction of a large wattle and daub house at the base of the large mound at Little Island, South Carolina (Moore, 1898a, pp. 152-160). Pottery from this site closely resembles the Irene complex, indicating that the Little Island mounds belonged to the same general ceramic period as the Irene mortuary. The wall posts at Little Island were surmounted by stringers and the only wattling consisted of three widely spaced, single, cross pieces. While the wall plaster found at the Irene mortuary showed multiple impressions of wattling, the wall plaster from Little Island would probably exhibit only single impressions.
2. A large proportion of the fragments of fired daubing had a vermiculated surface and were filled with numerous tiny holes, often to the extent of appearing porous. An almost identical appearance was secured by firing samples of local clay thoroughly mixed with the Spanish moss which grows abundantly at the site. As a result of firing the extruded moss burned away, leaving the vermiculations characteristic of the wall plaster on the exteriors of the samples. It is assumed that the porosity of the interior of the original daubing was a result of the burning and gradual weathering of the Spanish moss. The wall plaster from Little Island had the vermiculated surface and porous interior characteristic of the daubing from Irene (Moore, *Ibid*).
3. At Little Island (Moore, *Ibid*) the roof poles were supported by a stringer, which left a clear impression at the top of the wall.
4. A small fragment of wall plaster from the fill of the large mound at Irene (Mound 8) showed impressions of woven cane (?) matting. The impressions were very shallow and the warp and weft crossings were too frequent (9-12 per square inch) and too regular to have been the impressions of wattling. This specimen suggested the possibility that, at one time at least, mats were placed on the walls of wattle and daub houses.

   Ranjel, describing Talimeco, one of the towns visited by De Soto, makes the following statement: "The caney, or house of the chief, was very large, high, and broad, all decorated above and below with very fine and handsome mats, arranged so skillfully that all these mats appeared to be a single one; and, marvelous as it seems, there was not a cabin that was not covered with mats." (Swanton, 1918, p. 168.) Other writers indicate that mats of various sorts were frequently used to cover the

walls of aboriginal houses in the southeast.

Swanton mentions the use of palmetto for covering houses, giving several references (Swanton, 1918, pp. 62, 352-353).

5. Concerning the use of palmetto as a roofing material, Le Moyne writes the following note about an Indian village which was probably near the mouth of the St. Marys River: "The chief's dwelling stands in the middle of the town, and is partly underground in consequence of the sun's heat. Around this are the houses of the principal men, all lightly roofed with palm branches . . ." This quotation is from Swanton (1918, p. 352), who also gives several other references.
6. Projecting entrance passages outlined by two parallel wall trenches occurred in several instances at the site. The wall trenches usually contained an organically stained fill, sometimes with small amounts of cultural material included. They were usually somewhat "boat-shaped" at the far end. In no case could individual postmolds be perceived in the fills or in the clean sand below. This rather surprising circumstance suggests a difference in construction between the projecting entrance passages and the walls of the houses themselves. Perhaps the entrance passages were constructed of horizontal logs placed in succession between rather slender uprights. No standing wall plaster was found in connection with the entrance passage to the mortuary.
7. Burial numbered 42.
8. Burials numbered 42 and 46.
9. Burial numbered 48. (See Plate XVb for an example of this type of burial.)
10. Burial numbered 51.
11. Vessel numbered 30.
12. Vessels numbered 31 and 107.
13. Vessel numbered 66.
14. Vessel numbered 67.
15. The interior of the structure contained a large amount of hard-packed light tan sand, which seemed to be intentional fill rather than an accidental accumulation. At least a part of the fill must have been deposited soon after the destruction of the house and while a portion of the wall was still standing, since some of the charred beams in the northwest corner were found lying in light tan sand eleven inches above the floor. When these beams fell, some of the fill had already been deposited, and light tan sand was subsequently placed upon them.

    Removal of the sand fill exposed a large mass of fired clay daubing which was piled in the center of the structure, at no point touching the wall. This daubing might at first glance seem to have been fallen roof debris, but most of the evidence indicated that it was wall plaster. Thus it appears that after the burning and abandonment of the structure, fallen wall plaster was systematically removed from the sides and incorporated into the center of the sand fill.
16. The vessels in the fill were present only in a fragmentary state. Previous plowing had apparently reduced the height of the mound by at least a foot and had also reduced the height of most of the vessels which were standing upright in the fill.
17. Burials numbered 27, 28, 31, 32, and 53.
18. Burial numbered 29.
19. Burials numbered 30, 45, and 55.
20. Burials numbered 40, 44, 50, and 83.
21. Burial numbered 32 with artifacts numbered 21-7, -8, -9, -10, and -11; 21-15.
22. Vessels numbered 6, 9, 10, 11, 12, 13, 14, 16, 18, 21, 22, 23, and 24.
23. Vessels numbered 20, 25, 26, 28, 29, 32, 33, and 34.
24. Vessel numbered 6 containing burial numbered 266 and vessels numbered 7 and 8.
25. Vessels numbered 17 and 27.
26. Celts numbered 21-2, -3.
27. Turtle carapace numbered 30-32.
28. Features numbered 51 and 52.
29. It is possible that some of the burials in the sand fill above the mortuary were actually intrusive. However, no grave pits or lines of intrusion could be detected.
30. Burials numbered 23, 37, 41, 52, 54, 56, 57, 64, 65, 69, 70, 75, 77, 97, 100, 105, 106, 107, 109, 113, 116, 121, 122, 166, 168, and 175.
31. Burial numbered 97.
32. Double burials numbered 81 and 187, 74 and 98, 111 and 119.
33. Double burials numbered 33 and 34, 71 and 188.
34. Double burial numbered 115 and 117.
35. Double burials numbered 26 and 38, 178 and 179.
36. Burials numbered 189 and 82.
37. Burials numbered 60 and 177.
38. Double burial numbered 78 and 136 in vessels numbered 61 and 93.
39. Vessels numbered 4, 5, 15, and 60.
40. Burials numbered 97, 105, 113, 116, 121, 122, and double burials numbered 81 and 187, 115 and 117.
41. Burials numbered 23, 26 and 38, 41, 57, 70, 74 and 98, 77, 78 and 136, 111 and 119, 122, 166, 177, 178 and 179, and 189.
42. Burial numbered 77 and shell pins numbered 40-22, -23, -24.
43. Double burial numbered 74 and 98 with gorget numbered 40-55.
44. Shell gorgets numbered 40-55, 40-21, 40-69, and 40-7.
45. Burial numbered 177 and shell beads numbered 40-71.
46. Burial numbered 189, shell pin numbered 40-76, and shell beads numbered 40-78.
47. Double burial numbered 26 and 38, bone awl numbered 30-1.
48. Burial numbered 41, bone awls numbered 30-4, -5, problematical stone object numbered 21-7.
49. Stone pipe numbered 11-3 and scapulae numbered 60-227 with burial numbered 70.
50. Burial numbered 178 and stone celts numbered 21-109, -110.
51. Burial numbered 57 with net sinker numbered 21-160.
52. Burial numbered 122 with mica numbered 20-64.
53. Burials numbered 24, 58, 93, 94, 99, 102, 108, 110, 118, 120, 126, 127, 147, 174, 176, 192, and 195. The skull of one of the flexed single burials, an adult female, was pierced in the occipital region, possibly by a weapon (see pp. 67 75.)
54. Double burials numbered 104 and 145, 193 and 194.
55. Burials numbered 112 and 170.
56. Vessels numbered 62 and 68, the latter covered by vessel numbered 69.
57. Burials numbered 93, 99, 102, 108, 110, 118, 120, 126, 192, and double burial 193 and 194.
58. Burial numbered 108 with shell pin numbered 40-40.
59. Burial numbered 110 with projectile point numbered 21-62 and burial numbered 120 with red ochre numbered 20-65.
60. Burial numbered 176 with pottery pipe numbered 14-17.
61. Burial numbered 147 with bone awl numbered 30-31 and possibly associated with vessels numbered 101, 103, and 141.

The Rotunda

Excavations in the extreme southeastern portion of the site revealed a pattern of six concentric circles of wall trenches and postmolds which probably represented the remains of a rotunda or winter council house similar to those described among the Creeks and Cherokees in the eighteenth century by Bartram (1791, pp. 367-369, 450-457), Hawkins (1848, pp. 71-72), Hitchcock, and Swan (Swanton, 1928a, pp. 177-180).

The rotunda of the historic Indians was a large circular building which was used for various councils and ceremonies. It was an important feature of the public grounds of the Creek Indians.

The rotunda at Irene was situated ninety feet south of the large mound. It lay at the opposite end of an extensive inclosure which connected it with Mound 8.

The situation of the rotunda was in an angle formed by the bank of the Savannah River and by the dry bed of an old draw which defined the southern boundary of the site. Originally, the draw was somewhat deeper and wider than at present, and it was possible to expose the edge of the ancient depression. An interesting feature revealed by the excavations was a pottery dump which lay on the slope of the draw.

The archaeological remains indicated that the rotunda had been a circular building of considerable size, the diameter of the outside wall measuring approximately one hundred and twenty feet.[1] There were five concentric inner walls which marked either the location of interior walls and roof supports, or possibly of similar, earlier buildings.[2]

Wall trenches were employed in the construction of the outermost and of the five inner walls.[3] There was no apparent difference between the aspect of the outermost and of the five inner wall trenches, and historic data suggests that the inner circles represented a series of inner walls containing roof supports.[4]

No archaeological data was found concerning the nature of the roof of the rotunda; however, from the statements made by Bartram, Hitchcock, and Hawkins it seems probable that the roof supports were joined by rafters which were strengthened and bound together by cross beams and laths. This supported the roofing material, which was possibly bark or palmetto thatch. At Irene there was no evidence that earth or sod had been placed over this. It should be noted that no large roof supports were found. Presumably a number of very large ones would have been necessary to support a roof of the great size indicated by the ground plan of the building. It is possible to account for the absence of such supports by assuming that the central portion of the roof was occupied by a large smoke hole. If the smoke hole were sufficiently large the small posts implanted in the six concentric walls would perhaps have been sufficient to support the remainder of the roof.[5]

The entrance may have been located at a seven-foot break in the outermost wall, on the north side of the building facing the mound. There were no comparable large breaks in the inner walls, but there were numerous spaces through which a man might pass. Regarding the entrance to the rotunda, Bartram (1791, p. 451) says:

> "There is but one large door, which serves at the same time to admit light from without and the smoak to escape when the fire is kindled; . . ."

There was an overlap in the wall next to the outside wall and opposite the break already mentioned. The overlapping wall curved around in a manner somewhat similar to that described by Hawkins (1848, p. 71), below:

> ". . . they have a small door into a small portico, curved round for five or six feet, then into the house."

It should be noted that no remains of a central fire basin were found in the Irene rotunda. If one had existed it probably would have been destroyed by erosion. However, historic data points to the fact that central fire basins were not used. Hawkins (1848, pp. 71-72) says:

> "In the center of the room, on a small rise, the fire is made, of dry cane or dry old pine slabs, split fine, and laid in a spiral circle."

The spiral circle was sometimes as large as twelve feet in diameter. One end of it was ignited at the beginning of the meeting, and when the entire spiral was consumed the ceremonies were supposed to be terminated. The ashes were swept away daily (Bartram, 1791, p. 451; Swanton, 1928b, p. 703).

Since the remains of the rotunda lay partly on the slope descending into the old draw, a considerable degree of erosion had resulted in the destruction of most of the floor level. A sample of cultural material was gathered from a limited section of the floor, how-

ever. The pottery belonged to the Irene ceramic period and consisted entirely of the *Irene Filfot Stamped, Irene Incised,* and *Irene Plain* types.

An important feature was a pottery dump located on the slope of the draw immediately adjacent to the outermost wall of the rotunda (Plate XVa). If our identification of the rotunda entrance is correct, the dump was at the rear (south) of the building. This extraordinary deposit consisted only of large fragments of pottery vessels, some as great as one-third and one-fourth portions. The dump covered a sloping area of sixteen square feet and was generally six inches deep.

Most of the vessels were urns of the type *Irene Filfot Stamped.* One urn was *Irene Incised,* and parts of *Irene Incised* and *Irene Plain* bowls also occurred. All the pottery belonged to the Irene ceramic complex and was made during the last occupation of the site, approximately contemporary with the rotunda.

The position of the deposit and the lack of midden materials suggest an explanation in terms of ceremony. Cassine drinking is reported to have been one of the chief activities carried on in the rotunda of the Creeks, and since this drink was sacred it is possible that the vessels used were sacred as well. Very likely such vessels which were broken either intentionally or accidently would have been discarded in a separate place where they would not have been defiled, and this might account for the absence of midden debris.

Seven burials were found near the center of the rotunda. Four were flexed, one of which was partially charred. Of the remaining burials, one was flexed with the head missing, the position of another was uncertain, and one was cremated. With the partially charred individual were three problematical objects of stone (Plate XXI, B, E, J) and nine small triangular projectile points.

Fifteen upright pottery vessels, presumably urn burials, were found in the same locality. Ten of these had inverted cover vessels.[7] Infant bones were found in only one of them.[8] Another urn[9] contained an undecorated water-bottle.[10] The urns were all of the elongated globular *Irene Filfot Stamped* type and the cover vessels were *Irene Incised* and *Irene Plain* bowls. One exception was an inverted urn covering another urn.

It is uncertain why so few of the urns contained bones. However, in case of infants which died at birth or soon after, the bones might have been too small and delicate to have been preserved.

Likewise it is impossible to say whether the urns and burials were interred beneath the floor of the rotunda or whether they were buried on the spot after its destruction. However, since all the interments were within the central ring it appears likely that they were buried while the building was in use.

Notes

1. In regard to the size of this building, Bartram (1791, p. 450) remarks that "The great council house or rotunda . . . is a vast conical building or circular dome, capable of accommodating many hundred people." Hitchcock (Swanton, 1928a, p. 179) states that "The main structure is supported on *twelve* posts or pillars. . . . They are disposed in a circle . . . making a space within of about 120 ft. circumference, in the center of which, upon the ground, is the sacred fire." It should be noted that Hitchcock's rotunda was one hundred and twenty feet in circumference while the much larger one at Irene was one hundred and twenty feet in diameter.
2. There was such a large number of walls in the rotunda area that it is difficult to believe that all of them were component parts of a single building. Examination of figure 13 shows that two of the large inclosures connecting the large mound with the rotunda (inclosures numbered 27 and 34) intercept the latter. The walls curve in a manner which indicates that the rotunda existed at the time they were in use. They inclosed only the three innermost walls, however, which suggests that these may have represented the original rotunda and that the outer walls were later additions.
3. Excavation showed the wall trenches to consist variously of organically stained sand; stained sand mixed with quantities of cultural debris; and relatively pure clay. The width of the trenches ranged from five to eight inches. In vertical section they were straight-sided with rounded bottoms. The original depth could not in all cases be determined, but seemed to average about two feet. It was not always possible to locate individual postmolds within the wall trenches, but it is assumed that they existed. Postmolds sometimes appeared as small circular areas of organically (wood) stained sand and sometimes as small circular areas of discrete particles of oxidized wood. In several cases postmolds were in alignment bordering the wall trenches.
4. In describing the historic rotunda of the Cherokee, Bartram (1791, p. 368) says: ". . . they first fix in the ground a circular range of posts or trunks of trees, about six feet high, at equal distances, which are notched at top, to receive into them, from one to another, a range of beams or wall plates; within this is another circular order of very large and strong pillars, above twelve feet high, notched in like manner at top, to receive another range of wall plates; . . ." It will be noted that Bartram describes concentric circles of inner wall plates. Additional reason to suppose that these inner circles at Irene were actually walls is found in another quotation wherein he mentions the use of clay walls in a different arrangement: ". . . the aged chiefs and warriors being seated on their cabbins or sophas on the side of the house opposite the door, in three classes or ranks rising a little, one above or behind the other; . . . a transverse range of pillars supporting *a thin clay wall about breast high, separating them.*" [The italics are ours.] (Bartram, 1791, pp. 451-2.) Porbably the inner roof supports of the Irene rotunda were set at intervals in the same wall trenches which marked the inner walls. In regard to the arrangement of the inner roof supports, Hawkins (1848, p. 71) says: "Eight posts are fixed in the ground, forming an octagon of thirty feet diameter. They are twelve feet high, and

large enough to support the roof. On these, long poles or rafters, to suit the height of the building, are laid, the upper ends forming a point, and the lower ends projecting out six feet from the octagon, and resting on posts five feet high, placed in a circle round the octagon, with plates on them, to which the rafters are tied with splits." Hawkins makes no reference to a major central support. None was found in the rotunda at Irene.

5. A suggestion by Charles C. Fairbanks, Ocmulgee National Monument, Macon, Georgia.
6. Burial numbered 217.
7. Vessels numbered 42, 43, 47 with cover 139, 48 with cover 49, 50 with cover 51, 52 with cover 53, 54 with cover 57, 59, 73 with cover 74, 75, 76, 84 with cover 83, 86 with cover 85, 116 with cover 117, 119 with cover 147.
8. Burial numbered 219 in vessel numbered 116.
9. Vessel numbered 73.
10. Vessel numbered 98.

Other Architectural Features on the Site

In addition to the large mound and burial mound the visible archaeological features occupying the six acres of the immediate mound site consisted of two borrow pits, respectively north and northwest of the large mound. Aside from the mortuary structure and the rotunda already discussed, excavation of nearly the entire area also revealed the remains of numerous extensive inclosures or fences, and six small buildings. Much of the site was found to be covered by discontinuous beds of shell (midden). The shell deposits were especially frequent along the western margin of the site and in the area south of the large mound.

As the work proceeded and the position of the various aboriginal buildings and inclosures was determined, it was found that there were numerous cases of overlapping of the areas bounded by specific inclosures, and occasionally an inclosure pattern would encroach upon that of a building. Thus it was apparent that the time factor would have to be considered in any conclusions regarding the general plan of building arrangement. While it never became possible to determine the exact order of succession of the various buildings and inclosures, it was certain that they once had comprised a series of more or less orderly arrangements. It appeared that there had been at least three, possibly more, distinct plans of building arrangement during the occupation of the site. However, the time during which each arrangement had been in use could be determined only within very broad limits. It was certain that one arrangement was used after the construction of Mound 8, but it could only be determined that the other arrangements had been successively used at some time prior to its building. Examination of figure 13 shows the various architectural features, and it is evident that there must have been considerable modification of each arrangement.

Walls and Enclosures

One of the most striking features of the site was the large number of walls and inclosures, many of them extensive. While in some cases it is possible to ascertain their relationship to various other features, in hardly a single instance can we be certain of their use. One wall may have been a stockade, but none of them appear to have had much strategic value. The most likely explanation is that they served a ceremonial or political function, perhaps comparable to the elevated banks surrounding the town square or chunkey area of many of the old Creek villages (Swanton, 1928a, pp. 175-188. See fig. 30). The former position of the walls was marked by wall trenches and alignments of postmolds. Presumably most of them were closely set rows of posts but a number are known to have been constructed of wattle and daub.[1]

No walls or other architectural features were found which could be shown to be older than the Savannah ceramic period. During this time span, however, there were probably at least two successive arrangements. During the Irene ceramic period there was at least one general plan, but with a number of minor modifications.

A glance at figure 13 shows a large curved wall[2] skirting the western edges of the large mound and burial mound and terminating in the area occupied by the rotunda. The wall almost completely inclosed the mound area, separating it from the rest of the site. It is thought to belong to the Savannah ceramic period because it was intercepted by the Irene period mortuary, by all the Irene period walls connecting Mound 8 with the rotunda, and by the rotunda itself. There were buildings on both sides of the wall, but it was probably the most substantially constructed of any on the site and may have served as a stockade.[3]

Another wall,[4] with a number of branching walls and with two curious completely inclosed areas, ran approximately parallel to the river bank in the southeastern portion of the site. In the area of the rotunda it turned sharply westward, forming an acute angle, and after proceeding for more than one hundred feet, turned northwest. This wall is also thought to belong to the Savannah ceramic period because both it and its branching walls were oriented like the first seven platform mounds and were also intercepted by the Irene period walls and rotunda. It appears likely that this wall had some connection with at least one of the platform mounds, and is possibly related to the series surrounding Mound 3 (figure 5). The appearance of this wall suggests that part of the site was divided into a number of walled inclosures, perhaps with a definite relation to the large mound. Garcillasso, describing a mound and town in Florida, indicates that the *walls of streets* [the italics are ours] lead up the slopes of the mound. Whether these "streets" also formed part of the village is not clear.[5]

The major walls just described were probably built at different times.

The chronological position of the series of walls in the extreme southwestern part of the site[6] is not

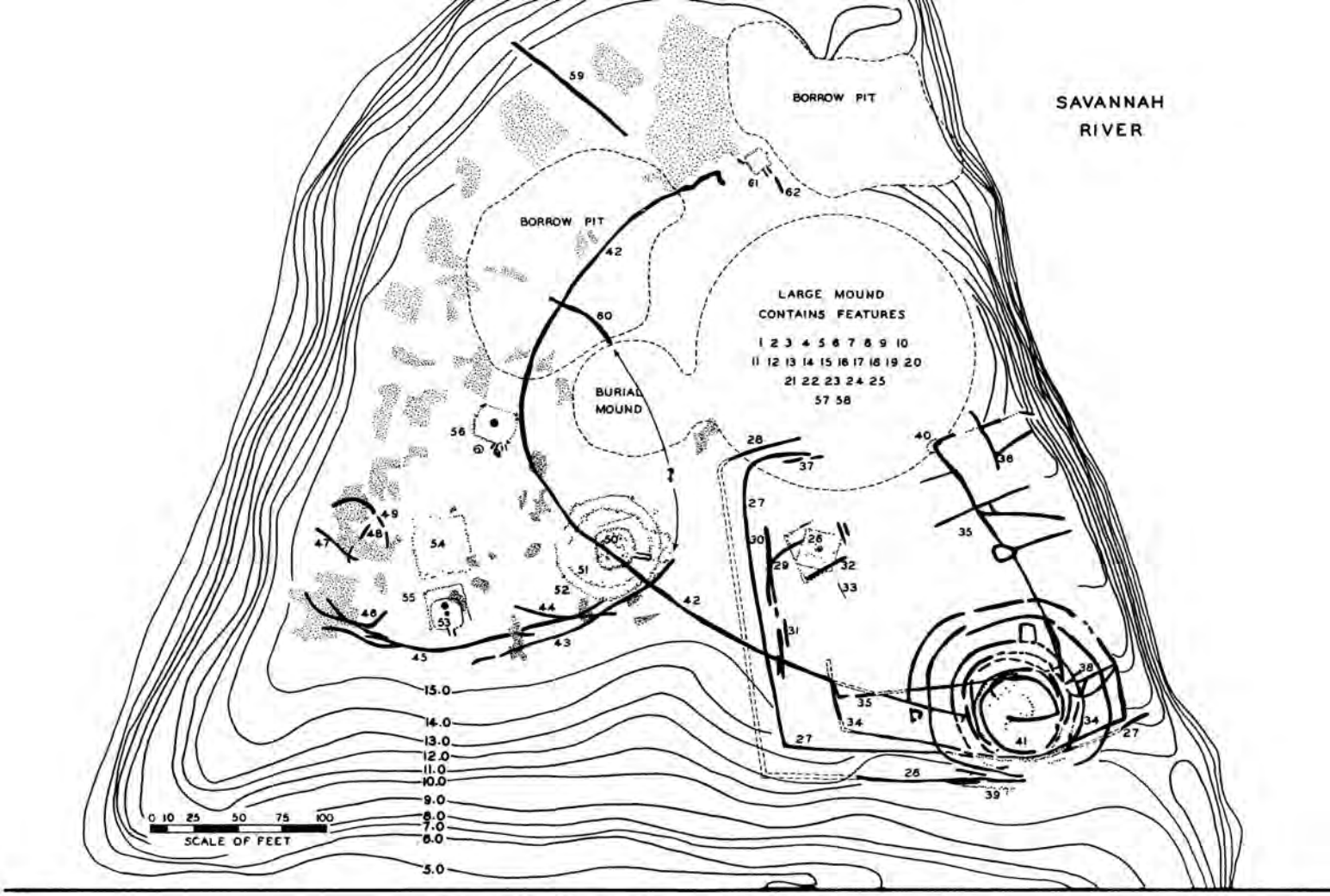


FIGURE 13.—MAP OF ARCHITECTURAL FEATURES ON THE SITE

known. Since two of them are tangent to the outer inclosures of the mortuary structure it is possible that they were built in the Irene ceramic period. Another wall[7] in the western part of the site may have belonged to this series, forming a large, circular inclosure.

Figure 13 shows the evident relationship between Mound 8, the rotunda, and the connecting walls.[8] These features were built during the Irene ceramic period. The walls of this group which encroached on the large mound were statigraphically later, but only one[9] is known to have been later than the rotunda as well. A number of other walls[10] appear to have been modifications of the same plan. The position of at least two of them[11] suggests that they connected the large mound and rotunda when the latter was somewhat smaller than it appears on the complete plan.

Feature 26

The postmold pattern of a rectangular building was found close to the southern edge of the large mound (Plate XIII). It was approximately twenty feet square, and the walls were constructed of single six-inch posts spaced from eight to twelve inches apart. The posts extended approximately two and one-half feet below the assumed floor level at the bottom of the humus line. A small gap in the northeast corner possibly represented an entrance. A number of postmolds were found in the interior of the structure but it was impossible to determine which of them represented inner roof supports. There was no prepared floor. A rather carelessly modeled clay fire basin was found in the approximate center of the structure, raised about three inches above the floor.

The cavity was nine inches deep and the diameters of the inside and outside were respectively one foot and three feet.

Secondarily fired sherds found in the cavity of the fire basin and in a tiny, fired mussel shell deposit immediately adjacent indicated that this building was used during the Savannah ceramic period.[12]

Feature 53

The remains of two superimposed houses were found approximately two hundred feet southwest of the large mound. Feature 53 was the earlier house and was probably built some time during the Savannah ceramic period. Feature 55 was the later house and appears to have been built during the Irene ceramic period. It will be described later.

The earlier house was semisubterranean and rectangular with rounded corners. It had a projecting entrance passage and a prepared fire basin. It was fifteen feet wide and seventeen feet long. The walls had been constructed of single posts, approximately seven inches in diameter, which were placed from three to ten inches apart. The entrance passage was defined by two parallel wall trenches which were about five feet long and two and one-half feet apart. The wall trenches did not contain visible postmolds.

The entrance passage sloped down to the semisubterranean floor about one foot below the surface. The fire basin (figure 14 B) lay in the center of the building. It was three inches deep and eighteen inches across. It was carefully made and sunken, the rim flush with the floor level. Several potsherds were found in the darkly stained sand which appeared to be the floor deposit. A very few of these belonged to the Irene ceramic period, but the rest were of the Savannah. The abundance of the Savannah pottery at the immediate floor level seems to preclude the possibility of its having been redeposited. Consequently, it is probable that the building was in use before the close of the Savannah ceramic period.

Feature 54

This was a rectangular arrangement of postmolds located in the southwestern portion of the site. The dimensions were about thirty-three by thirty feet. The sides had been composed of approximately six-inch posts which were variously spaced from six inches to two feet apart. It was not determined whether this structure had been semisubterranean. There was no fallen wall plaster in association with the remains, no fire basin, and the position of the entrance could not be determined with certainty. It is not known whether this feature represented a house or a small inclosure.

Feature 55

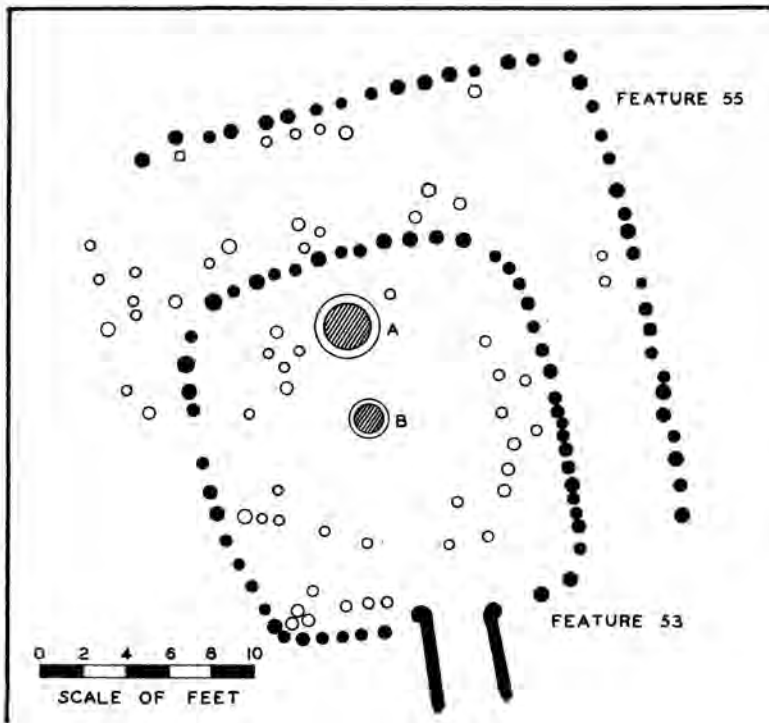
This house was built during the Irene ceramic period on the spot where an earlier house (Feature 53) had stood during the Savannah period.

The only remains of the later house (Feature 55) consisted of postmold alignments of the northwest and northeast walls, a large fire basin, and numerous fragments of fallen fired wall plaster. A glance at the plan (figure 14) will show that this house was considerably larger than the Savannah period structure. It was rectangular, with squared corners. The walls consisted of single posts averaging seven inches in diameter and spaced from three inches to one foot apart. The numerous fragments of fired wall plaster in the immediate vicinity indicated that the walls were constructed of wattle and daub. The house was not semisubterranean as had been the house before it and probably it was necessary to fill in the old excavation before it was built. Nothing is known concerning the entrance, nor could the presence of specific inner roof supports be determined. The fire basin was much larger than that of the earlier house, measuring six inches deep and almost three feet in diameter. It was carefully made of clay and fired to a brick red. Unlike the other basin this one was raised above the floor level.

Numerous potsherds, belonging chiefly to the Irene pottery complex, were found lying in the humus at the approximate level of the floor. Consequently the house was probably used during that period. Two large stone hones made of green shale were found at the humus level within the walls.

FIGURE 14.—FEATURES 53 AND 55

The plan shows postmolds in alignment, random postmolds, and the projecting entrance passage to feature 53. Fire basin A belongs to feature 55 and B to 53.



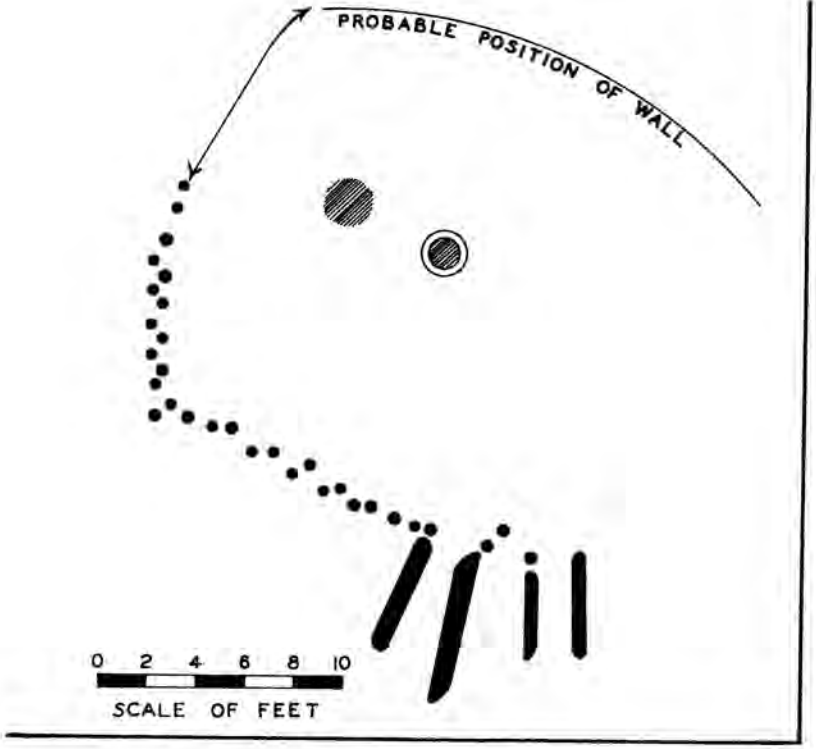


FIGURE 15.—FEATURE 56
The plan shows the double entrance passage and the permanent and temporary fire basins.

Feature 56

This was a small, semisubterranean building located approximately one hundred and eighty feet west of the large mound. As far as could be determined, it was rectangular with slightly rounded sides and corners. There were two projecting entrance passages and a prepared clay floor which contained two fire basins. A few secondarily fired potsherds found in one of the fire basins indicated that the house was used during the Savannah period.

The position of the walls was partly indicated by postmold alignments belonging to the southwestern and northwestern sides. The other two walls could not be found. The building faced south by southwest. Although the dimensions could not accurately be determined, it was assumed to be about seventeen feet square. A glance at figure 15 will show that the wall posts had been staggered. These remained only as postmolds. The posts were five to seven inches thick, spaced from three to six inches apart, and driven at least three feet into the ground.

Evidence that the building was semisubterranean is the fact the floor lay below the modern ground level and was overlaid by a sand fill which was slightly darker than the original tan sand outside the walls The floor of the house did not extend quite to the walls, an indication that the wall posts were set outside the edge of the excavation and that the sides sloped down to the floor. The floor itself was composed of a layer of rather evenly laid sandy clay about one inch thick. It could not be traced in all places.

The structure contained two fire basins which are shown in figure 15. The easternmost fire basin was centrally located in the building and was carefully lined with sandy clay fired to a brick red. It had a flat bottom and was three inches deep. The other was merely a shallow, circular concentration of charred wood. Each was about two feet in diameter.

Perhaps the most striking features of this structure were four projecting wall trenches in the eastern part of the southwestern wall. The wall trenches were paired and each resembled the entrance passages described in connection with other buildings on the site. The two pairs could either have been a double entrance or have represented a shift in the position of a single entrance. In the case of the latter alternative, however, one would expect to find one of the entrance passages blocked by a post to seal the opening. This was not the case.

Feature 61

A small, rectangular, wattle and daub structure was situated about eighty feet northwest of the large mound (Plate XIV). The building apparently had been occupied during the transitional period between the abandonment of the Savannah pottery complex and the adoption of the Irene complex. Pottery vessels found on the floor and in midden deposits outside showed a combination of the diagnostic ceramic traits of both periods.

The structure was very small, measuring about ten by ten feet. The position of the walls was indicated by a double row of postmolds. Although the wall posts were only about six inches in diameter, the corner posts measured ten inches. Two sections of standing plaster were found, one on the north side of the house and one forming the southwest corner. They consisted of fired clay daubing smoothed on the interior surface only.[13]

The floor of the structure was approximately level with the original ground surface. A shallow fire basin, three feet in diameter, was found outside the house ten feet from the entrance.

Two vessels were found on the floor. One[14] consisted of large fragments of a vessel of the *Savannah Check Stamped* type. The other[15] was an *Irene Filfot Stamped* vessel with a unique shape and a rim decoration of riveted nodes. The latter was standing upright just inside the north wall. In addition, a number of potshreds from the floor level represented both the Irene and Savannah complexes. An intact pottery elbow pipe with a decoration of incised lines was found in wall debris on the floor (Plate XVIII c). Outside the house, but probably contemporary, were two *Savannah Check Stamped* vessels[16]

One displayed an incidental rim decoration of riveted nodes similar to that of the vessel in the house. Both vessels illustrate the rim specialization which began in the latter part of the Savannah ceramic period (see p. 42).

Notes

1. The use of plaster on a number of the inclosures at Irene, particularly those built between the large mound and the rotunda, is paralleled by the use of plaster on the stockades of the historic Indians. The following description of a stockade is given by Ranjel (Swanton, p. 438): "They drive many stakes tall and straight close to one another. These are then interlaced with long wythes and then overlaid with clay within and without."
2. Wall numbered 42.
3. According to Swanton (Swanton, 1928b, pp. 705-706), "When danger of attack became very great a tribe might move to a palisaded town or palisade their own. In the latter case, as noted especially by Beverly in discussing the Virginia Indians, though what he says is equally applicable to other sections, they inclosed merely their sacred buildings, that of the chief and those nearest to them." The latter case could be represented by the semicircular wall at Irene which actually isolated the immediate mound area from the rest of the site.
4. Wall numbered 35, possibly including walls 30 and 38.
5. A more complete quotation from the same reference appears on page 21.
6. Walls numbered 43, 44, 45, 46, 47, 48, and 49.
7. Wall numbered 60.
8. Walls numbered 27 and 28.
9. Wall numbered 28.
10. Walls numbered 27, 30, 31, 34, 37, and 39.
11. Walls numbered 27 and 34.
12. The southwestern and southeastern corners of the structure were intersected by the postmold pattern of a corner of a rectangular inclosure. This appeared to be related to the series described in connection with Mound 3. The inclosure itself was constructed of single posts, and consequently it was impossible to determine its chronological relationship to the building.
13. Note that the wall plaster of the mortuary was also smoothed on the interior surface only.
14. Vessel numbered 96.
15. Vessel numbered 112.
16. Vessels numbered 113 and 114.

Burials and Vessels on the Site

Forty burials and forty-eight pottery vessels, found at various locations on the site, could not be stratigraphically correlated with specific mound or architectural features. The burials were in isolated graves, some of which probably were made during the Irene ceramic period, some during the Savannah. Most of the pottery vessels represented the usual type of urn burial and were made during the Irene ceramic period. Probably they had originally contained infant remains, too delicate to have been preserved. A few other vessels evidently had been lost or discarded.

Burials and vessels were frequently found in intensively occupied areas, but it is not known whether burial took place at the time these areas were in use.

Burials

Thirty-one burials were single individuals[1] lying in various positions of flexion, including one of the type called "jitterbug" (Plate XV b).[2] One burial consisted of two flexed individuals, an adult female[3] with a child[4] lying across her feet.

Two extended burials[5] were found close to the southern margin of the large mound. In both cases the skulls appeared to have been badly broken prior to internment. Since both burials were fully articulated and in good condition it is probable that death resulted from the crushing of the skull vaults. The fact that both were extended, a comparatively rare burial position at the site, may have some significance. According to Swanton (1928b, p. 697 Le Moyne, Plate XXII) in Florida an Indian who had failed in his duty as a sentinel was struck several times on the head with a club.

The position of another burial[6] was uncertain due to its very fragmentary state. One bundle burial[7] was found and one part burial[8]. The part burial was the skull and upper trunk of an adult male.

In practically all instances the graves were only large and deep enough to contain the individual.[9] The flexed position of most of the skeletons resulted in a somewhat oval grave shape. Two examples of clay-sealed graves[10] containing flexed skeletons were found. These were only a short distance west of the clay-sealed graves in the mortuary area and may have belonged to the same group of burials.

Burial offerings were infrequent, occurring in only five instances. A circular shell gorget[11] was found with the double burial of an adult female and a child. A bone fish hook[12] was presumably associated with one of the extended prone burials close to the southern margin of the large mound. A stone disc, a pottery elbow pipe, and a projectile point were found with flexed single burials.[13]

Vessels

Forty-two vessels were of types made exclusively during the Irene ceramic period. Three others were typical Savannah vessels and another was a non-typical, probably early Savannah type. Another was an example of the very early type called *St. Simons Incised and Punctated*. In addition, there was one vessel the type of which could not be determined.

The vessels of the Irene ceramic period consisted of fifteen pairs,[14] each an upright urn covered by an inverted hemispherical bowl, and nine upright urns without cover vessels.[15] Although human remains or significant traces of bone were found in only seven cases, presumably the total of twenty-four upright urns represented as many burials.

One urn burial was that of an adult;[16] six were children or infants.[17] It is probable that the remaining urns originally contained very small infants or still births.

A shell disc bead was found with one of the child urn burials,[18] and two of the covered urns without recognizable human remains contained a number of disc beads and massive columella beads, respectively.[19]

All of the urns were buried at shallow depths, usually just deep enough to be completely covered. In several cases the rims of single vessels and the covers of pairs had been partly destroyed as a result of their nearness to the surface.

There was only one urn burial belonging to the Savannah ceramic period. The vessel was of the *Savannah Fine Cordmarked* type and contained the remains of an infant. There was no cover.[20]

A non-typical Savannah vessel with a cordmarked decoration was found inverted in the ground. Its purpose was not determined.[21] Two other vessels belonging to the Savannah period and that of the St. Simons period were probably discarded.[22] The single unclassified vessel was a small tray-like form. It was probably discarded.[23]

Notes

1. Burials numbered 61, 67, 87, 88, 89, 101, 123, 127, 128, 129, 130, 131, 132, 134, 135, 137, 138, 139, 141, 143, 148, 152, 158, 169, 171, 196, 228, 229, 233, 237, and 246.

2. Burial numbered 171.
3. Burial numbered 172.
4. Burial numbered 173.
5. Burials numbered 248 and 249.
6. Burial numbered 59.
7. Burial numbered 86.
8. Burial numbered 159.
9. It is a distinct possibility that the procedure of digging no deeper than appeared to be necessary resulted in missing deep graves.
10. Burials numbered 101 and 138.
11. Gorget numbered 40-70.
12. Fish hook numbered 30-68.
13. Stone disc numbered 21-37 with burial numbered 89; pottery pipe numbered 14-8 with burial numbered 123; and projectile point numbered 21-94 with burial numbered 158.
14. Vessels numbered 35, 37, 39, 44, 46, 64, 72, 82, 88, 90, 92, 110, 121, 127 were respectively covered by vessels numbered 36, 38, 40, 45, 63, 147, 81, 87, 89, 91, 109, 120, 122, 126, 128.
16. Burial numbered 273 in vessel numbered 115.
17. Burials numbered 144, 68, 270, 272, 200, respectively in vessels numbered 37, 38; 39, 40; 44, 45; 77, 78; 104; 15. Vessels numbered 41, 56, 77, 79, 97, 105, 107, 108, 115. 56.
18. Bead numbered 40-54 with child numbered 68.
19. Disc and columella beads numbered 40-218 and 40-219 in vessels numbered 110 and 127.
20. Vessel numbered 55 containing burial numbered 271.
21. Vessel numbered 95.
22. Savannah vessels numbered 80, 99, and St. Simons vessel numbered 123.
23. Vessel numbered 106.

The Pottery of the Irene and Savannah Ceramic Periods

The pottery from the Irene site consisted of approximately one hundred and seventy vessels which were intact or restorable, and several hundred thousand potsherds. Most of the nearly complete vessels owed their preservation to the custom of urn burial, a few were intentionally deposited as grave furniture with burials, and some had been discarded.

Most of the potsherds came from the aboriginally redeposited fills of sand and shell in the large mound and the burial mound, and a large number was found in the excavation of the various features on the site. Pottery was also found in random shell deposits (midden) on the site and in sealed occupation levels in the large mound. A great number of sherds came from the back fill of C. B. Moore's excavations in the large mound and burial mound, and from sections of the large mound which had been disturbed in 1907 and later.

This discussion is limited as much as possible to the pottery of the Savannah and Irene complexes. These represent the last major periods of pottery manufacture in this region. The Irene period is historic or nearly so and roughly coincides with the occupation of the "Lamar-like" sites of central Georgia. The sequence of three older ceramic periods comprising all the known pottery manufacture in this vicinity has been determined and a number of the types themselves have been defined. It was thought advisable to withhold the complete description of these types for a later report on Chatham County. Most of them, however, occurred in minority proportions at Irene, evidence of a sparse habitation of the site in earlier times. Short descriptions of these minority types will be found under that heading below.

Construction

Pottery was probably made of local clays. At any rate, pottery making experiments have shown that very similar results can be obtained by the use of any of the clay deposits existing at the site.

Most of the Irene and Savannah pottery was made by segmental fillet construction (for terminology see Fewkes, 1940). Annular procedure, particularly the circuit variant, is amply demonstrated. True coiling (i.e., spirally wound course) is plainly revealed in some basal parts. Similar tectonic methods are indicated among the earlier complexes. The St. Simons pottery was probably modeled, although some annular construction by fillets is also in evidence (analysis by Fewkes).

The clay used in pottery making was usually tempered by the addition of particles of extraneous material. While some of the earlier ceramic periods are defined on the exclusive use of a particular kind of temper, the pottery of both the Savannah and Irene complexes was grit tempered. The Irene pottery in particular is notable for the frequent occurrence of large particles of quartz grit.

There is not a great range in the hardness of potsherds. Nearly all of them vary from 2.0 to 3.5, measured by the Moh scale.

A considerable range of colors was obtained in the pottery from the site, varying from light buff through red to dark gray. Frequently the surface color changed considerably over a single vessel. Sometimes the colors of the cores of potsherds were the same as those of the exterior surfaces; sometimes different; and frequently different exterior surface colors would be sharply demarcated at the core.

The finish of the undecorated exterior and interior surfaces ranged from a high, sometimes lustrous polish to careless smoothing.

Paddle Stamping

The major technique of pottery decoration consisted of stamping with a carved or a cord wrapped paddle. It is probable that the paddle was of wood rather than pottery since no paddles or fragments have been found. The actual process varied from careful and precise stamping to malleating. *Savannah Complicated Stamped* pottery is more carefully decorated than *Irene Filfot Stamped*, and the latter is much superior in this respect to the comparable type *Lamar Complicated Stamped* in central Georgia. The designs carved on the paddles sometimes consisted of elaborate arrangements of rectilinear or curvilinear lines or both. The chief stamped motifs of the Savannah period are shown in figures 17 and 18. The common motif of the Irene period was the filfot cross.

A. R. Kelly (1938) devotes considerable space to the discussion of stamped pottery in the southeast. On the basis of work at the Swift Creek site near Macon he has defined a fairly widespread type which he calls *Swift Creek Complicated Stamped*. This appears to be a rather early type which is already well developed but continues through three evolutionary stages: early, middle, and late, at the Swift Creek site. Although there is a very general similarity between *Swift Creek Complicated Stamped* and

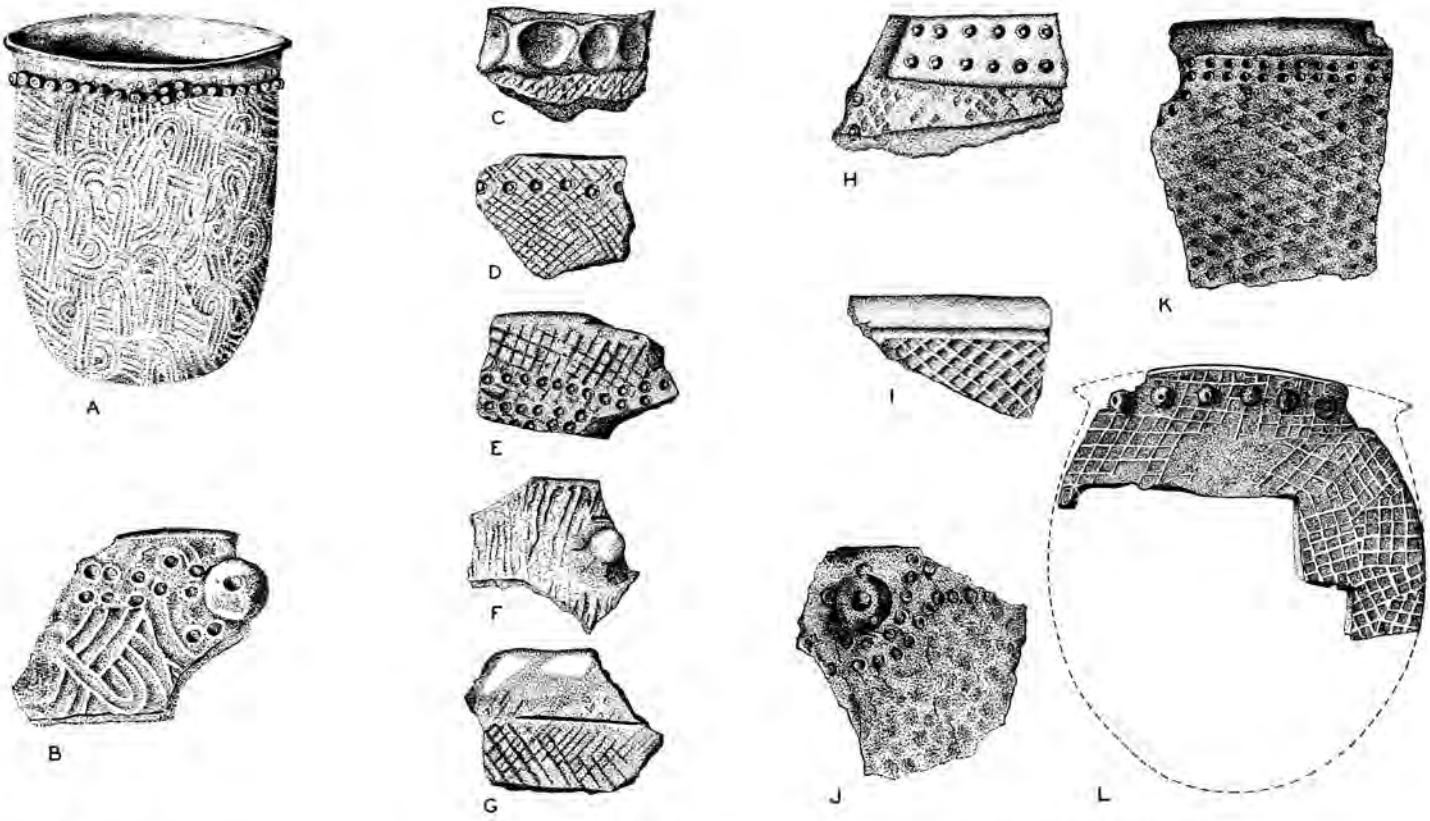


FIGURE 16.—POTSHERDS ILLUSTRATING TRANSITIONAL FORMS OF RIM DECORATION

Savannah Complicated Stamped, the differences are so many that these two types are to be considered as only distantly related. Also *Savannah Complicated Stamped* is much later than even late Swift Creek. *Deptford Complicated Stamped*, a much earlier type in Chatham County, closely resembles *Swift Creek Complicated Stamped*, however.

It is significant that the exclusively curvilinear motifs of *Savannah Complicated Stamped* occur at the rather late "Lamar-like" sites of central and north Georgia, but are comparatively rare at "Lamar-like" or Irene period sites on the coast. Also the various cross motifs of *Savannah Complicated Stamped* occur at Etowah and at sites in north Georgia which might also be considered "Lamar-like," but do not occur at that level on the coast. We cannot assign a coastal origin to these widespread motifs, but the fact that they appear to have persisted longer in the interior may eventually have some significance.

Pottery decorated by a check carved paddle is very frequent on the coast and appears to have survived until historic times in the extreme southeastern part. At Fort King George this motif occurs on "Lamar-like" pottery in association with Spanish pottery. At Irene this design was abandoned by the beginning of the Irene period as defined.

The use of the cord wrapped paddle was frequent during the Savannah period and earlier. Because of the abundance of pottery of this sort in the Carolinas and Virginia it seems safe to regard this decoration as having come from that area.

Paddle stamping does not occur on the very early St. Simons pottery, but all succeeding pottery complexes possess it.

Incised Pottery

In his report, Kelly (1938, p. 47) remarks, "A noteworthy feature of the Lamar pottery complex is the sudden appearance of a strong minority representation of a very striking incised ware." A comparable situation occurred at Irene with the appearance of the type here called *Irene Incised*. The preceding Savannah period contained no incised pottery, and indeed it was extremely rare in the earlier periods after the St. Simons development. *Irene Incised* shows superficial differences from *Lamar Bold Incised*. The lines are not usually as boldly executed or as well balanced at Irene; shoulders are not as angular; and hybrid vessels, i.e., those decorated by both stamping and incising, are rare.

Other Decoration

Brushing and roughening were used infrequently during the Irene period and at least the latter decoration was comparable to the historic central Georgia type *Walnut Roughened* (Southeastern Archaeological Conference, 1940). Brushing or combing is common on the interiors of vessels at some sites of the Savannah period, but not at Irene. It also appears on both interiors and exteriors in the still earlier Wilmington period.

A decoration which occurred only during the Savannah period consisted of closely spaced, parallel, vertical tooling marks on the shoulders and rims of bowls.

Aside from the decoration by the use of riveted nodes and incidental applique rim features discussed below, a common decoration occurring on *Irene Plain* pottery consisted of spaced ovoid pellets or lugs in the rim or shoulder area of bowls only.

Rim Specialization during the Savannah and Irene Ceramic Periods

In his report, Kelly (1938, p. 11) described the rim specialization of *Lamar Complicated Stamped* pottery in central Georgia and suggested that this was the end product of a folded rim evolution which was also exhibited at the fairly early "Swift Creek-like" sites. It is quite likely that Kelly is correct, but there appears to be little evidence in this section either to prove or to disprove his suggestion. The folded rim is almost completely absent from *Deptford Complicated Stamped,* which comes from a level in Chatham County probably corresponding to that of Swift Creek elsewhere.

The use of the folded rim and the development of rim specialization in Chatham County began toward the close of the Savannah period and continued through the Irene. The Irene site was occupied during the transition between the Savannah and Irene periods and a fair sample of pottery showing the beginnings of rim specialization was obtained.

Although rim specialization is most characteristic of Irene pottery, it did exhibit a considerable development during late Savannah times, and consequently it may be considered as a complex of features somewhat apart from the other ceramic attributes of the Irene complex. Thus it may have been adopted from central Georgia in advance of the rest of the "Lamar-like" complex, or it may have been superimposed on central Georgia and Irene from elsewhere.

The folded rim itself is frequently larger and less modified when it appears in the late Savannah complex (figure 16, H K) than when it appears in the Irene (figure 20, extreme upper left). In fact, the unmodified folded rim is absent from the Irene complex at Irene and direct modifications are themselves comparatively rare. However, modifications of the folded rim occur at most of the other "Lamar-like" sites on the coast. What we are considering as modifications of the folded rim are the punctated, luted, or pinched rim strips which are folded, "fake-folded," or appliquè. Of these, the appliqué punctated rim strip is the only one which is at all common at the Irene site.

The most frequent features of rim specialization at Irene consist of single borders of hollow reed punctation and/or borders of spaced "rosettes." The latter actually are nothing more than irregular pellets of clay which have been impressed with a hollow reed.

Fairly common at Irene but seemingly rare elsewhere are large, round, reed impressed nodes. They were modeled separately and usually were stemmed, which permitted them to be well retained within the wall of the vessel. They were often employed in connection with hollow reed punctation and were usually spaced (figure 16 B, J), but occasionally set fairly close (figure 16 A, L). It appears that this feature was most frequent during the transition between the Savannah and Irene periods, but was discarded sometime after the Irene period was under way.

Rim specialization occurred more frequently on *Savannah Check Stamped* than on *Savannah Fine Cordmarked* pottery and did not occur at all on *Savannah Burnished Plain* or *Savannah Complicated Stamped*. We suspect on the basis of stratigraphic evidence that *Savannah Complicated Stamped* was abandoned before rim specialization was adopted; perhaps this was also true of *Savannah Burnished Plain*.

Rim specialization is also exhibited by *Irene Filfot Stamped* and *Irene Plain*. In these types it usually appears on the deep cylindrical vessels but rarely on hemispherical bowls. Therefore rim specialization is rare on the *Irene Incised* type which is chiefly composed of hemispherical bowls.

Form

In spite of the contemporaneity among the separate types of each pottery complex, there was a considerable standardization of the forms assumed by the vessels within each type. Furthermore it is possible to regard particular types as lineally related in form although they belong to separate complexes. Thus *Irene Filfot Stamped* has forms which are chiefly modifications of the forms of *Savannah Complicated Stamped, Savannah Check Stamped,* and

Savannah Fine Cordmarked. *Irene Incised* and *Irene Plain* are remarkably similar in form to *Savannah Burnished Plain*. If the reader will compare the vessel forms of the Savannah and Irene complexes as shown in the illustrations, he will note that in the pottery of the Irene period, some of the earlier Savannah forms had been omitted, others modified, and some remained unchanged.

It is interesting to note, however, that during the transitional period at least one pottery form was comparatively common which was not typical of either the preceding Savannah period or of the later Irene. This was the nearly straight-sided cylindrical vessel with a sharply everted rim (figure 16 A).

Geographical Range of Types and Complexes

The geographical range of the various pottery types and complexes is not known with any degree of certainty. There have been no consistent attempts to ascertain distributional data. The information available is the result of random visits to sites, communications from other investigators, and recognition of type similarities from descriptions and reproductions in published reports.

Relatively few of the major ceramic features described have an even partially delimited distribution. Available data are of such a general nature that all observations are subject to considerable qualification. Aside from the fact that no recent distributional studies have been made, pottery complexes are so varied in their local manifestations that identifications are often made with difficulty.

In the course of the various Southeastern Archaeological Conferences a large number of localized pottery types have been presented, and attempts at correlation of identity and chronological position have been made. The results are tentative, but from the Georgia coast the general picture seems to be somewhat as follows.

Nearly all the main decoration styles and ceramic features which are widespread in the interior also appear on the coast. The major differences are: (1) the coast exhibits very little of the shell tempered pottery which in the interior is regarded as an intrusion from the Mississippi valley, but (2) the coast does contain notable amounts of cordmarked and check stamped pottery, which are much less frequent in interior Georgia.

It appears that the Savannah complex is essentially a development of the immediate area. The total of the complex, consisting of four types, has not been reported from interior Georgia. While in northern and central Georgia are found types of complicated stamped decoration which resemble *Savannah Complicated Stamped*, the rest of the complex appears to be lacking, or representative sherds occur only as minority groups. *Savannah Fine Cordmarked* is probably derived from *Wilmington Heavy Cordmarked*, which appears to center in the Carolinas. *Savannah Check Stamped* probably developed from *Deptford Bold Check Stamped* which is most frequent in the Savannah area, and *Savannah Burnished Plain* has been reported only from the coast.

On the other hand, the affiliations of the Irene ceramic complex are probably to be sought elsewhere. Although it is possible to show a development from certain features of the Savannah complex (i.e., rim specialization), the attributes of the Irene complex are so widespread in Georgia that it would be difficult to think of it as a purely local development.

Kelly has already pointed out the wide distribution of pottery similar to at least two types of the Irene complex. He calls sites which exhibit this pottery "Lamar-like," since it resembles his *Lamar Complicated Stamped* and *Lamar Bold Incised*. Kelly (1938) enumerates as "Lamar-like" the following sites in Georgia: Irene; Lamar, near Macon; Neisler, on the Flint River near Reynolds; Shinholser on the Oconee River, near Milledgeville; Nacoochee and Etowah, in north Georgia; Stalling's Island (later levels), on the Savannah River near Augusta; and Bull Creek, near Columbus.

The following sites excavated by C. B. Moore on the Georgia (1897) and Carolina (1898a) coasts should be included in the same group: the north end of Creighton Island, the Walker Mound, the south end of St. Catherines Island, Contentment, and Little Island. Comparable pottery occurs at other coastal sites: Maxwellton and Barnett on Colonel's Island, the Budreau site on Whitemarsh Island, Bull Island, and Potato Island. The two last named sites are in South Carolina.

The distribution of the several early pottery types which are represented chiefly at other sites in Chatham County is as follows: *Period 1*. Fiber tempered pottery with a distinctive incised and punctated decoration (Stalling's Island) borders the Atlantic coast and extends up the Savannah River but is fairly rare in most parts of northern and central Georgia. *Period 2*. Simple stamped pottery is most abundant in north central Georgia, various complicated stamped types seem to center in central Georgia, and check stamped and linear check stamped pottery are most frequent on the coast. *Period 3*. Cordmarked pottery is most abundant on the coast, probably centering northward in the Carolinas. Shell tempered pottery appears in northern and central Georgia, probably intrusive from the Mississippi valley.

Savannah Fine Cordmarked

Paste:

Construction: Segmental method by fillets.

Tempering: Invariably grit and gravel. *Hardness:* 2.5 to 3.5. *Color:* The surfaces vary from light buff through dark gray tones. The exterior coloring is often a lighter shade than that of the interior. The paste is dark gray through red buff. Occasionally the exterior surface color meets the interior surface color at a line about halfway through the paste. Sometimes the paste color and the exterior and interior colors are the same.

Surface Finish:

The exterior surface is invariably decorated. The interior is usually burnished.

Decoration:

Technique: The pottery was stamped with a flat, cord wrapped paddle. The paddle was also used to bevel the edge of the rim. The rounded side of the paddle was nearly always applied in finishing the bottom, giving the appearance of a wicker impression. *Design:* The impressions of twisted cord are closely spaced and characteristically fine and clear. Cross stamping is the rule. *Distribution:* The decoration covers the entire exterior of the vessel

Form:

Rim: Straight to flaring. *Lip:* Planed or rounded. *Body:* At Irene the typical shape is a globular vessel with flaring rim, short throat, well-defined shoulder, and rounded base. At several other sites the characteristic vessel form is a conoidal jar. Intergradations of the two typical forms occur. *Base:* Round or conoidal. *Thickness:* 8 to 9 mm., measured just below rim. *Appendages:* None.

Savannah Check Stamped

Paste:

Construction: Segmental method by fillets. *Tempering:* Invariably grit and gravel. *Hardness:* 2.5 to 3.0. *Color:* The surfaces vary from light buff through red, light brown, and dark gray tones. The paste is buff through dark gray, sometimes contrasting and sometimes similar to the color of the surfaces.

Surface Finish:

The exterior surface is invariably decorated. The interior surface finish shows considerable variation ranging from careless smoothing to burnishing. Careful smoothing and burnishing were usual at Irene.

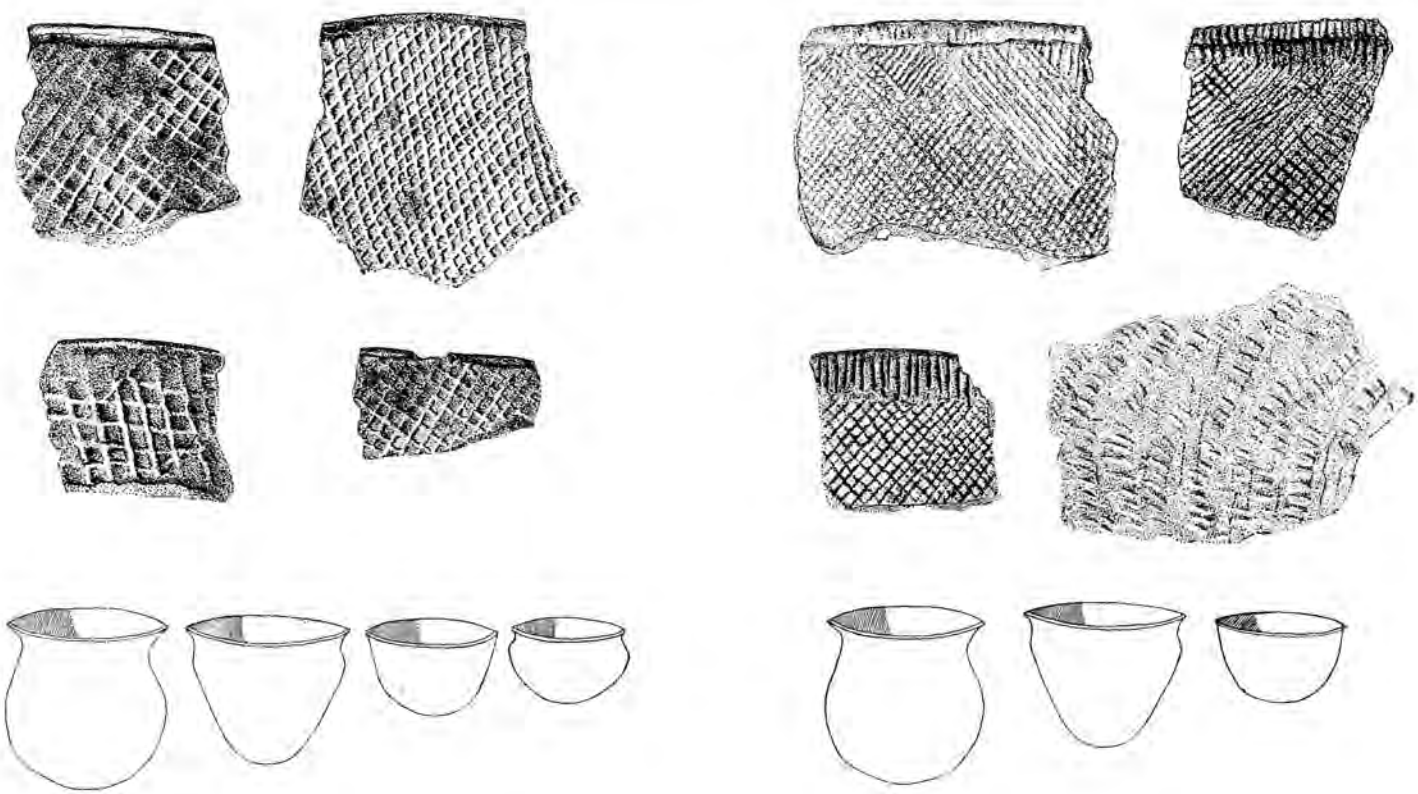
Decoration:

Technique: Stamped with a flat, carved paddle. *Design:* The design consists of a grill of raised lines which intersect to form squares or diamonds. The distance between the intersection of the lines varies from 3 mm. to 6 mm. The raised lines of the grill are uniform in width over a single vessel. The execution is generally good but sometimes rather faint. Examples of overstamping occur but are rare and usually limited to bottom shreds. *Distribution:* The decoration covers the entire exterior of the vessel.

Form:

Rim: Straight to flaring. *Lip:* Planed or rounded. *Body:* At Irene the typical shape is globular with

FIGURE 17.—SAVANNAH CHECK STAMPED—SAVANNAH FINE CORDMARKED



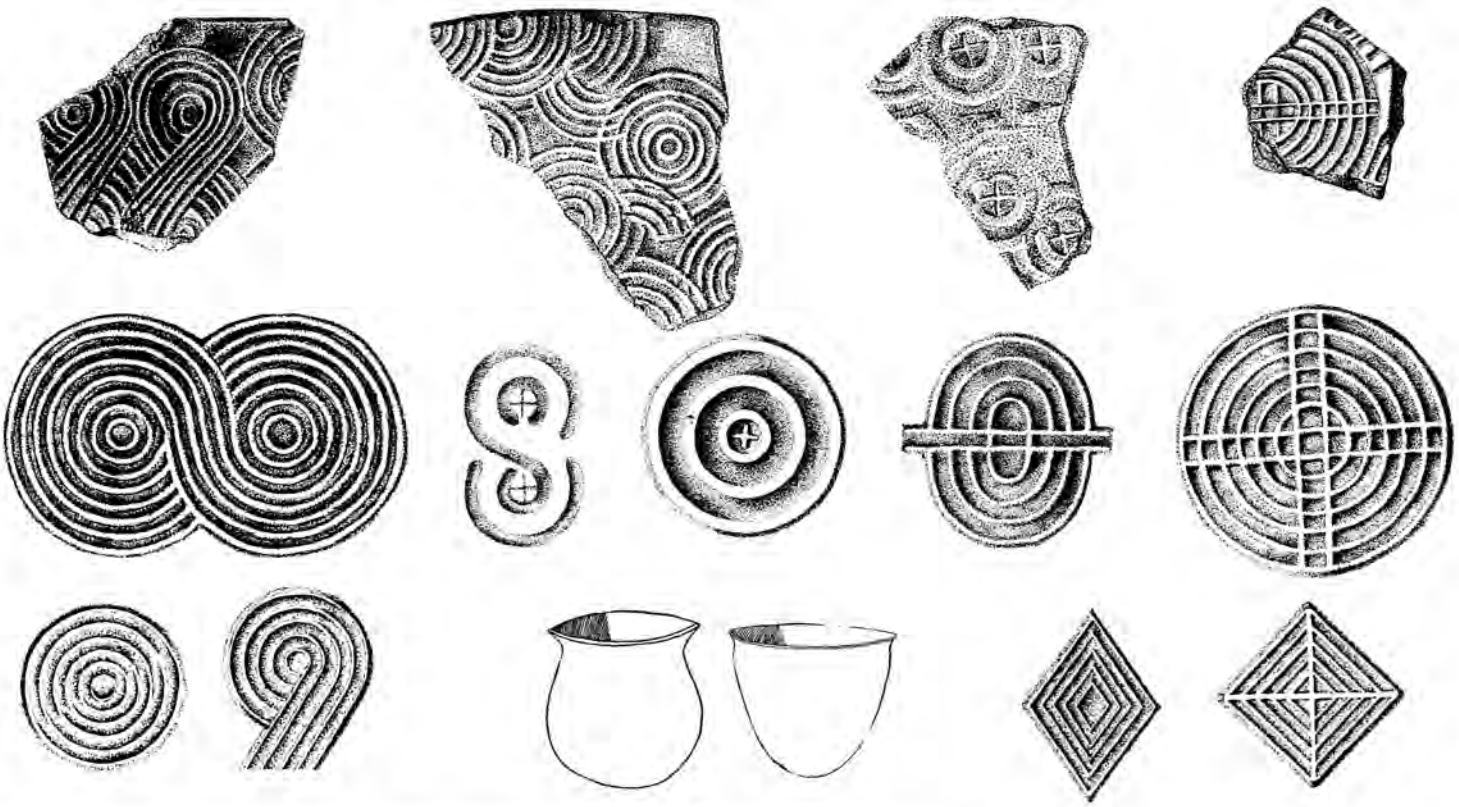


FIGURE 18.—SAVANNAH COMPLICATED STAMPED

flaring rim, short throat, well-defined shoulder, and rounded base. At several other sites the characteristic vessel forms include a conoidal jar and a hemispherical bowl. *Base:* Round. *Thickness:* 5 to 7 mm. measured just below rim. *Appendages:* None.

Savannah Complicated Stamped

Paste:

Construction: Segmental fillet building, definitely revealing annular procedure. *Tempering:* Invariably grit and gravel. *Hardness:* 2.0 to 3.0. *Color:* The surfaces vary from light buff through red, light brown, and dark gray tones. The paste is buff through dark gray, sometimes darker and sometimes similar to the color of the surfaces.

Surface Finish:

The exterior surface is invariably decorated. The interior surface finish shows considerable variation ranging from careless smoothing to polishing. Careful smoothing and polishing were usual at Irene.

Decoration:

Technique: Stamped with a flat, carved paddle. *Design:* A considerable variety of motifs are used in the decoration of this type. These consist of the "figure eight," concentric circles, a single terminal element of the "figure eight," concentric circles with a cross in the innermost circles, and the "figure eight" with a cross in the center of each terminal circle. Another characteristic group of motifs includes concentric circles or concentric diamonds with transverse lines in parallel arrangement or forming a cross. There are numerous variations of the design motifs. The individual lines of the stamps are massive, bold, square-cut, or fine and delicate. The execution of the stamping process is careful, and although the stamping is usually clear, a considerable amount of overstamping has been noted. *Distribution:* The decoration covers the entire exterior of the vessel.

Form:

Rim: Flaring rims are the rule at Irene. *Lip:* Squared or rounded. *Body:* The typical vessel shape is globular with flaring rim, short throat, and well-defined shoulder. *Base:* Round. *Thickness:* 5 to 11 mm. measured just below rim. *Appendages:* None.

Savannah Burnished Plain

Paste:

Construction: Segmental fillet building, especially the circuit variant, is plainly demonstrated; also some base coiling. *Tempering:* Sand and grit in small quantities. *Hardness:* 2.0 to 3.0. *Color:* Chiefly dark gray at Irene but elsewhere other

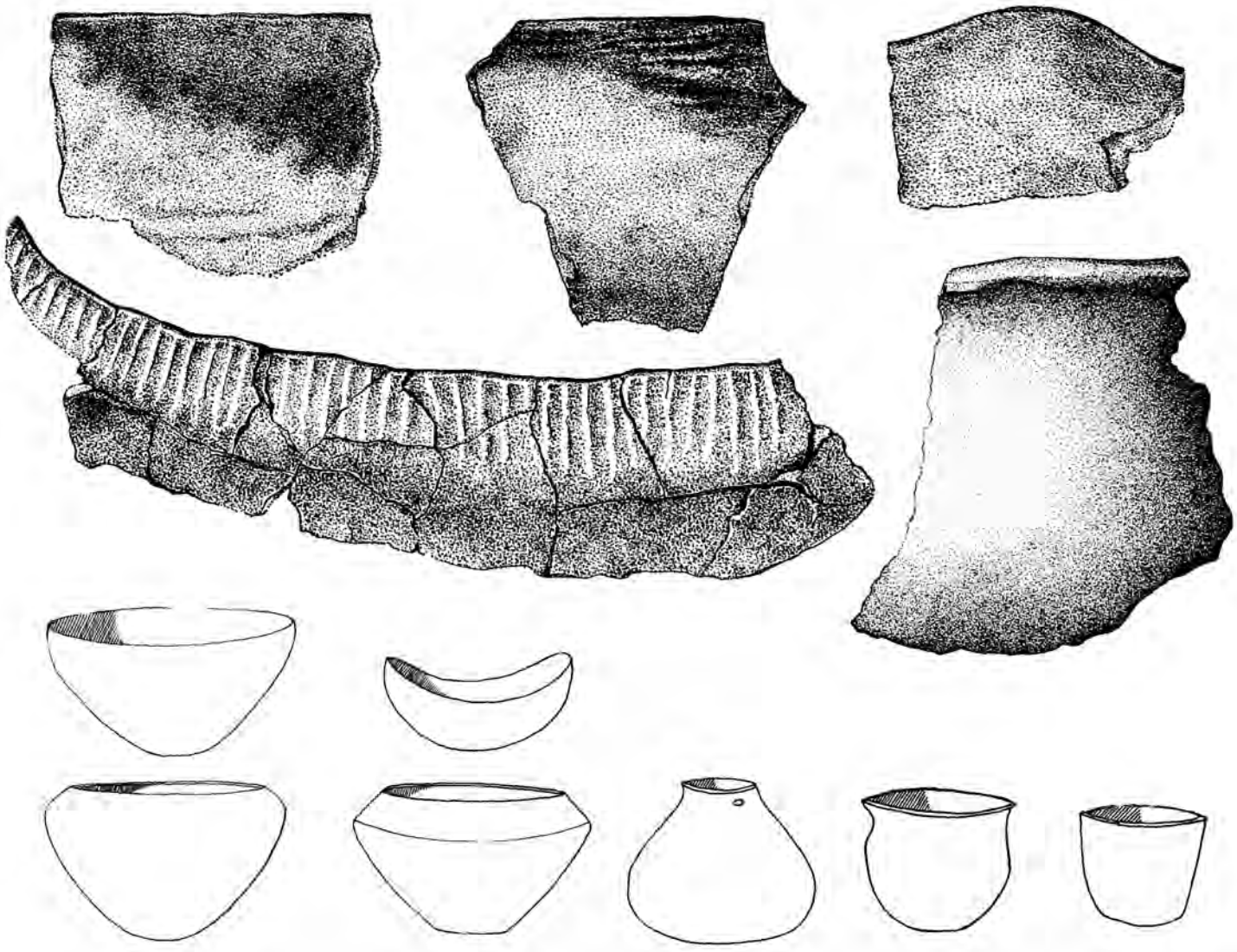


FIGURE 19.—SAVANNAH BURNISHED PLAIN

colors occur ranging from bright yellow through red tones. The color often changes on the surface of a single sherd. The paste is almost uniformly light gray at Irene.

Surface Finish:

The interiors and exteriors may be smoothed or burnished. Horizontal compacting facets are sometimes visible. Burnishing usually occurs on the exterior of vessels and smoothing on the interior.

Decoration:

Generally none. Carefully made vertical tooling marks are sometimes placed in the rim area of carinated bowls, obtaining a definitely decorative effect. Several examples of a notched rim were noted at Irene.

Form:

A considerable variation in form is assumed by vessels of this type. The most common forms are carinated, shallow, and hemispherical bowls. An inverted conical vessel with a large bottom and constricted mouth occurred, as well as several examples of hemispherical bowls with flaring rims, cup-shaped, and boat-shaped vessels. Occasionally sections of the rims of vessels are pressed inward to give a decorative effect. *Rim:* Incurving, straight, or flaring. *Lip:* Planed or rounded, occasionally slightly concave. *Thickness:* 5 to 7 mm. measured just below rim. *Appendages:* None.

Irene Filfot Stamped

Paste:

Construction: Segmental fillet building, definitely

revealing annular procedure. *Tempering:* Invariably grit and gravel. Rather large particles of quartz are almost a distinctive feature of this type. *Hardness:* 2.0 to 3.0. *Color:* The color of both surfaces ranges from light buff through red to dark gray tones. The color of the interior is chiefly dark gray but sometimes merely a darker shade of the exterior surface color. The core ranges from buff through dark gray, sometimes distinct and sometimes shading into the colors of the surfaces.

Surface Finish:

The exterior surface is invariably decorated. The interior surface finish shows considerable variation ranging from careless smoothing to burnishing. Careful smoothing and burnishing was usual at Irene.

Decoration:

Technique: Stamped with a flat carved paddle. *Design:* The filfot cross is the only design element occurring on this type in Chatham County. The center of the cross is formed either by the intersection of the four arms or by the projection of these from the sides of a square central element. The arms themselves consist of four to nine parallel lands. The primary land of each arm turns or angles back on itself to form a square or circular terminal element and the other lands follow the first. The central and terminal elements of the design may themselves contain either a raised square or a circle.

The execution of the stamping is rather variable. While the grooves are usually shallow, the unit design may be either clearly depicted or obliterated by overstamping.

Incidental decorative features are usual and are always confined to the area above the shoulder and immediately below the lip. These may consist of one or two horizontal lines of hollow reed punctation, appliqué collars, nodes, or rosettes (*vide supra,* p. 42). *Distribution:* The stamped decoration covers the entire exterior of the vessel; incidental decorative features are confined to the rim area.

Form:

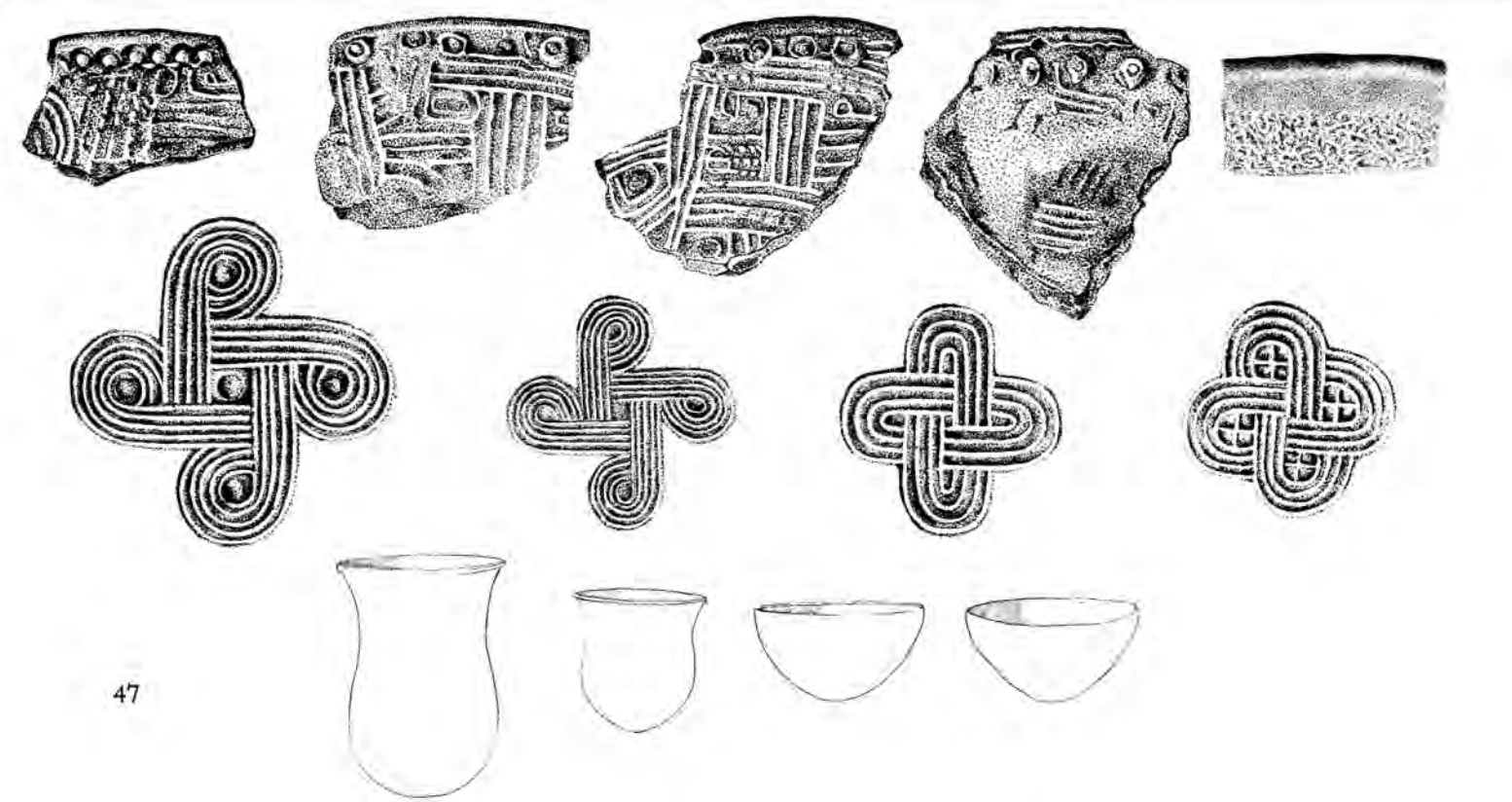
Rim: Generally flaring on cylindrical and globular vessels, straight or curving on hemispherical bowls. *Lip:* Rounded or planed. *Body:* There are two common forms: elongated, cylindrical vessels with a slight shoulder and flaring rim, and wide-mouthed hemispherical bowls with a straight or incurving rim. *Base:* Round or cylindrical vessels, round or flat on hemispherical bowls. *Thickness:* 6 to 8 mm., measured just below rim. *Appendages:* Occasionally, decorative nodes appear in the rim area.

Irene Incised

Paste:

Construction: Segmental method by fillets. *Tempering:* Invariably grit or gravel. *Hardness:* 2.0 to 3.0. *Color:* The color of both surfaces ranges from light buff through red to dark gray tones. The color of the interior is chiefly dark gray but

FIGURE 20.—IRENE FILFOT STAMPED



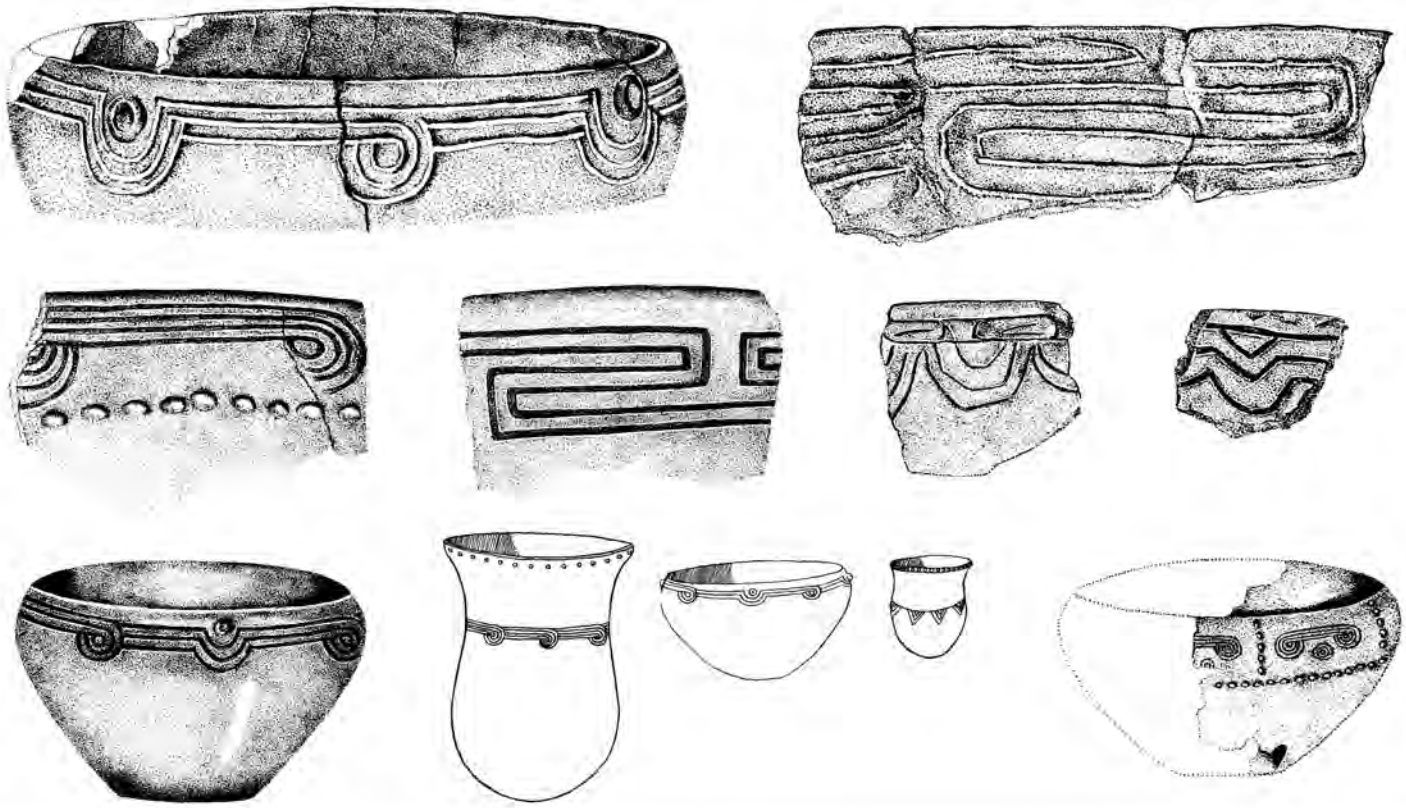


FIGURE 21.—IRENE INCISED

sometimes merely a darker shade of the exterior surface color. The core ranges from buff through dark gray, occasionally distinct but usually shading into the colors of the surfaces.

Surface Finish:

The exterior surface is invariably decorated. The interior surface finish shows considerable variation ranging from careless smoothing to polishing. Careful smoothing and polishing are usual at Irene. The undecorated portions of the exterior surface are usually more carefully finished than the interior surfaces.

Decoration:

Technique: The variants comprise incising, punctation, and the placing of appliqué pellets or nodes. *Design:* The design consists of a horizontal band of repeated or alternating motifs. There is little embellishment of the motifs and apparently no attempt toward solid areas of incised decoration such as occur on *Lamar Bold Incised* and *Parachuckle Incised*. The design elements which have so far been determined at Irene are shown in the accompanying figure. There is considerable variety in the execution of the incising. The lines are often narrow and shallow and appear carelessly drawn. The width of the incising varies from less than 1 mm. to 3.5 mm., with an average of about 1.5 mm. Incidental punctate decoration is rare at Irene, but appears to be common at other sites. Incidental decorative nodes or flanges are infrequent at Irene. Sherds showing both incising and paddle stamping are fairly rare at Irene, although this form of decoration is common on *Lamar Bold Incised* and seems to have a considerable occurrence at other sites. *Distribution:* The incised decoration is invariably confined to the rim and shoulder area.

Form:

Rim: Incurving, rarely flaring. *Lip:* Rounded or planed. *Body:* The hemispherical bowl is the most common form. On bowls with incurving rims the shoulder is rounded, lacking the angularity of the *Lamar Bold Incised* type. Elongated globular vessels are rare at Irene. Several examples of miniature globular vessels with flaring rims occurred, however. An oblate spherical vessel and a small rectangular vessel were found. *Base:* Rounded or flat. *Thickness:* 6 to 8 mm., measured just below rim. *Appendages:* Occasional decorative nodes.

Irene Plain

Paste:

Construction: Segmental method by fillets. *Tempering:* Invariably grit or gravel. *Hardness:* 2.0 to 3.0. *Color:* The color of both surfaces ranges from light buff through red to dark gray tones.

The color of the interior is chiefly dark gray but sometimes merely a darker shade of the exterior surface color. The core ranges from buff through dark gray; occasionally it is distinct, but usually it shades into the colors of the surfaces.

Surface Finish:

The interior and exterior surface finishes show considerable variation ranging from an infrequent careless smoothing to burnishing.

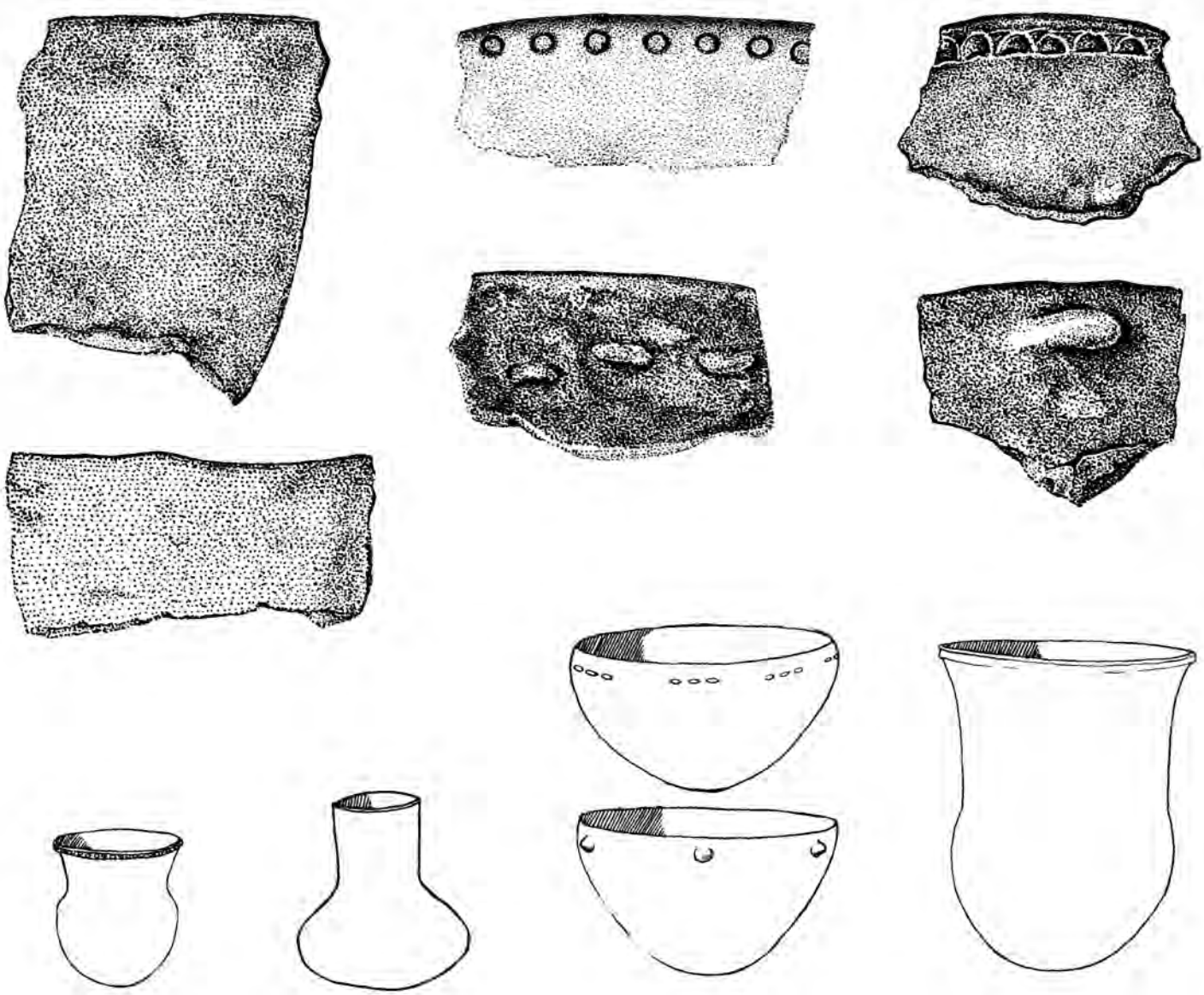
Decoration:

Incidental decoration of the rim and/or shoulder occurs. *Technique:* The placing of appliqué pellets or nodes as well as hollow reed punctation and the other incidental decorative features which occur on *Irene Filfot Stamped*. *Design:* The occurrence of regularly spaced ovoid pellets is a very common and distinctive feature of this type. These vary in length from 1 to 4 cm. and in height from .8 to 2 cm. Appliqué reed punctated bands occur in the rim area on elongated globular vessels. Hollow reed punctations also occur without the appliqué band, and probably the other incidental rim designs of *Irene Filfot Stamped* will be found to occur as well. *Distribution:* On hemispherical bowls with incurving rims the ovoid pellets are in the shoulder region. On bowls lacking a shoulder they are in the comparable area. The other incidental decorative features are confined to the rim.

Form:

Rim: Incurving or straight, rarely flaring. *Lip:* Rounded or planed. *Body:* The hemispherical bowl is the most common form. On bowls with incurving rims the shoulder is rounded. Elongated globular vessels are much less frequent than hemispherical bowls and "water bottles" are rare. *Base:* Rounded or flat. *Thickness:* 6 to 8 mm., measured just below rim. *Appendages:* Decorative nodes.

FIGURE 22.—IRENE PLAIN



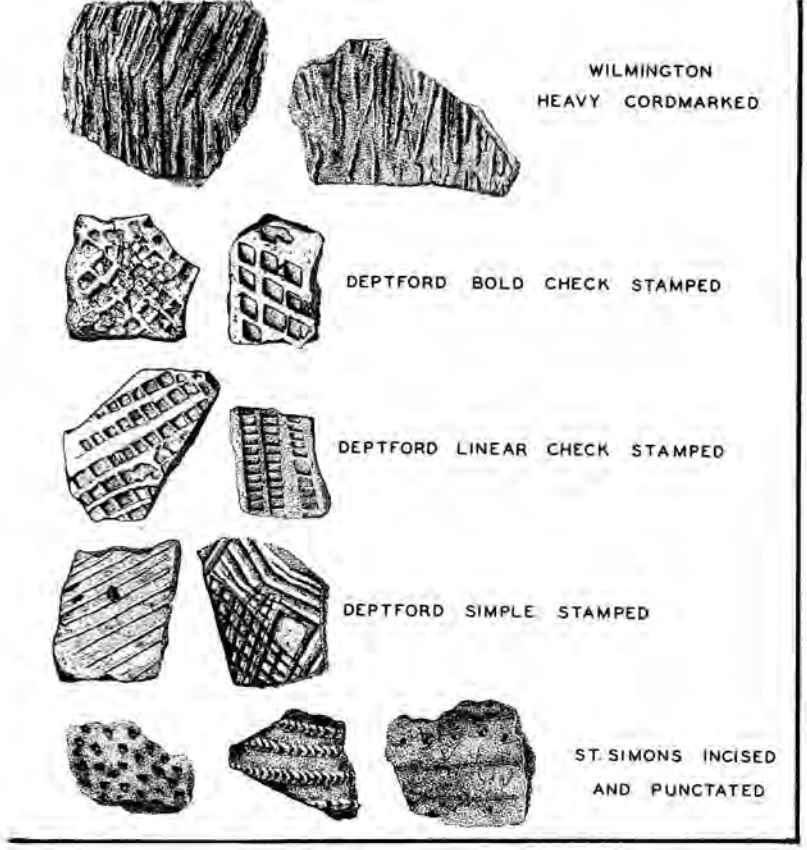


FIGURE 23.—MINORITY POTTERY TYPES

Minority Pottery Types

A number of pottery types which did not belong to either the Irene or the Savannah complex occurred in small proportions throughout all the mound fills and were scattered over the site. It has been shown in the discussion of ceramic chronology that these types probably belonged to several early complexes which were on the site before the main building periods began. The types have already been described in the *News Letters* of the Southeastern Archaeo- pear in a future report on several sites in Chatham logical Conference, and revised descriptions will ap- County where these types predominate.

1. *Wilmington Heavy Cordmarked*
2. *Deptford Linear Check Stamped*
3. *Deptford Bold Check Stamped*
4. *Deptford Simple Stamped*
5. *St. Simons Incised and Punctated*
6. *St. Simons Plain*

Wilmington Heavy Cordmarked. At Irene this type is distinguished by the presence of both grit and sherd temper, an almost uniformly reddish buff paste and surface color, careless finishing of the interior surface, characteristically heavy impressions of twist- ed cord not usually cross stamped as in *Savannah Fine Cordmarked,* and a straight rim.

Wilmington Heavy Cordmarked appears to be the predominant one of several types which together comprise the Wilmington ceramic complex. These consist of a plain, a check stamped, a simple stamped, a brushed, and a complicated stamped type. The complex has not yet been satisfactorily defined, but it is known that the entire group of types does not always appear at each site. Only *Wilmington Heavy Cordmarked* has been noted at Irene, but it is pos- sible that associated types were overlooked because of their resemblance to other types found at Irene. *Wilmington Heavy Cordmarked* has not been re- ported from interior Georgia, and probably is most frequent in the coastal portion of the Carolinas. It extends down the coast at least as far south as the Altamaha River.

Deptford Linear Check Stamped. This type is grit tempered and distinguished by a very sandy paste, a generally buff paste and surface color, decoration by possibly a roulette or rocker stamp technique result- ing in parallel arrangements of two longitudinal lands containing a series of finer transverse lands, and a cylindrical or conoidal shape with a slightly flaring or straight rim.

This type belongs to the Deptford complex and is associated with *Deptford Bold Check Stamped, Deptford Simple Stamped,* and *Deptford Complicat- ed Stamped.* Its chronological position is believed to be approximately equal to that of *Swift Creek Com- plicated Stamped.* It is perhaps most frequent in the Savannah area but occurs on the south Atlantic coast from Florida to an undetermined distance into the Carolinas. Sherds bearing a similar decoration have been reported from the Gulf Coast of Louisiana and occur in relatively small proportions in north central Georgia.

Deptford Bold Check Stamped. This type appears to be similar to *Deptford Linear Check Stamped* except in the manner of decoration. The decoration appears to have been performed with a flat, carved paddle and consists of a grill of raised lands which intersect to form squares or diamonds. There is a characteristic variability in the sizes of the individual checks which range from less than .4 cm. on a side to over 1 cm. In many cases the lands are wide, producing a coarse, massive effect.

The *Deptford Bold Check Stamped* type belongs to the Deptford complex in Chatham County and is probably most frequent in the immediate area. Its geographic range may be similar to *Deptford Linear Check Stamped.*

Deptford Simple Stamped. This type is similar to *Deptford Linear Check Stamped* and *Deptford Bold Check Stamped* in nearly all features except deco- ration. The decoration could have been made with a baton or dowel, a thong wrapped paddle, a carved flat paddle, a cylinder, or a rocker stamp. The de- sign consists of an arrangement of shallow longi- tudinal grooves, either parallel or arranged in a cross stamped pattern. Tetrapodal supports frequently occur on this type.

Deptford Simple Stamped is part of the Deptford complex in Chatham County. Pottery with a similar decoration extends on the coast at least as far south as St. Simons Island and also north into South Carolina. Perhaps the center of its distribution is in northern and central Georgia, where it occurs abundantly at a large number of sites. The pottery from central Georgia is named *Mossy Oak Simple Stamped* in the *News Letter* of the Southeastern Archaeological Conference (Southeastern Archaeological Conference, 1939b).

Deptford Complicated Stamped (formerly *Brewton Hill Complicated Stamped*). This type was not noted at Irene but it occurs at several other sites in Chatham County and is part of the Deptford complex. The decoration technique was probably that of stamping with a large, flat, elaborately carved paddle. Among the most frequent design elements are interlocking scrolls, "figure eights," and concentric circles. A noteworthy decorative feature consists of plain areas set off from the decorated by ornamented borders which were carved on the paddle. It also shares some design elements with the later type *Savannah Complicated Stamped*, but each type has a number of exclusive motifs. The most common vessel form is probably cylindrical or conoidal and the flaring rim usual in *Savannah Complicated Stamped* is lacking. Notched rims and tetrapodal supports have been noted in several instances, but not the folded rim of *Swift Creek Complicated Stamped*.

As in the case of *Savannah Complicated Stamped*, little can be said concerning the range of this type until a closer comparison can be made between *Deptford Complicated Stamped* and the whole series of complicated stamped types. There are apparently close affiliations between the latter and *Swift Creek Complicated Stamped* of central Georgia.

St. Simons Incised and Punctated. This type, as well as *St. Simons Plain*, has many distinctive features which contrast with all the other types in the area. The St. Simons pottery was probably modeled, although some annular construction by fillets has been noted. The tempering consisted of Spanish moss, firing of which resulted in a vermiculated pattern and left numerous spodograms and lacunae in the interior of the paste. There is considerable variation in the thickness of sherds, and an average of over 2 cm. is not uncommon at some sites. The techniques of decoration comprised numerous variations of incising, trailing, and punctation. Decoration was not confined to a single portion of the vessel. One of the most characteristic decoration elements is a grooved or incised line containing closely set punctations. In many cases a single vessel exhibits several modes of decoration. Paddle stamping does not occur.

The type is associated with *St. Simons Plain* in the St. Simons complex. This is apparently the earliest complex found on the Georgia coast. It occurs along the South Atlantic coast from Charleston, South Carolina, at least as far south as the St. Johns River in Florida. It is reported from the Stalling's Island site (Claflin, 1931, Plates 12-20, Stallings Island Culture) in the vicinity of Augusta, and is found as a minority group at a number of sites in central Georgia. In Tennessee, the types called *Wheeler Plain, Bluff Creek Punctated, Alexander Dentate Stamped,* and *Pickwick Simple Stamped* bear significant resemblances to the St. Simons complex (Southeastern Archaeological Conference, 1939a).

St. Simons Plain. This type appears to be similar to *St. Simons Incised and Punctated*, but is undecorated. There are indications that it occurs alone at some sites, and it may have preceded the decorated type.

Unclassified Groups

A large group of undecorated sherds which were found in the fill of the last of the superimposed mounds at Irene (Mound 8) lacked the distinctive features of either of the major undecorated groups *(Savannah Burnished Plain, Irene Plain)* although it seemed certain that they belonged to one or the other. Inasmuch as they could not be classified, they were designated "residual plain," and counted separately. With respect to the fills of the lower mounds, where there was no chance of confusing them with sherds of the Irene complex, it was assumed that nearly all of the undecorated sherds belonged to the type *Savannah Burnished Plain*, and they were counted as such.

Still another undecorated type was found in all levels of the mound and scattered over the site. This was rather distinctive in paste and color and was not recognizable as either *Irene Plain* or *Savannah Burnished Plain*. The paste bore a somewhat close resemblance to that of the various types of the Deptford complex, and it is possible that this was an associated plain type. Similar undecorated sherds have been found at sites in which the Deptford complex is predominant.

Special and Unique Potsherds

Figure 24 shows examples of potsherds which were rare or unique at Irene. Figures 24 A, 24 B, and 24 C show a brushed decoration. The incidental rim decoration seen in figure 24 B is a diagnostic feature of the Irene complex at Irene, and it is probable that these sherds are a minor type within that group and distantly related to the historic central Georgia type, *Walnut Roughened*. The brushing

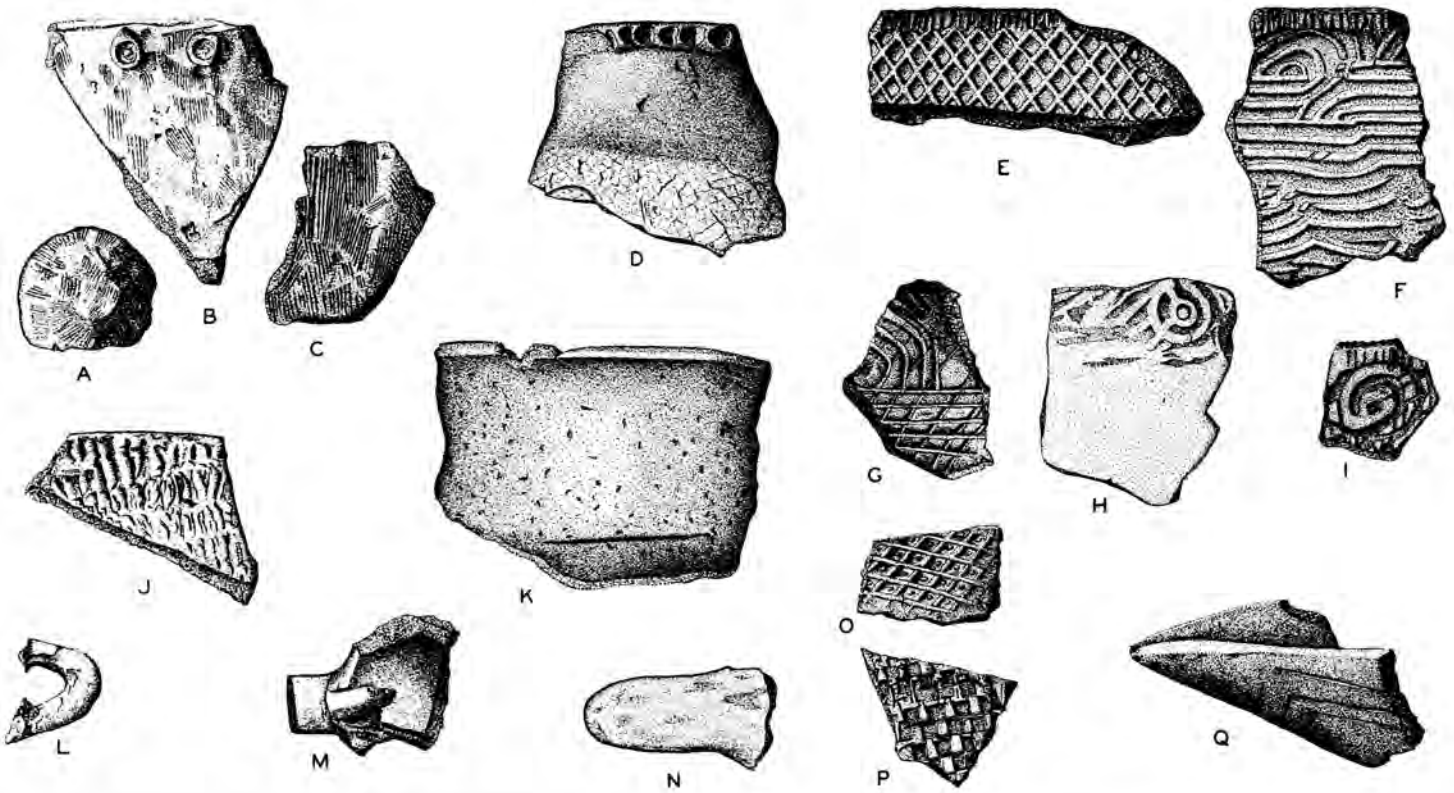


FIGURE 24.—SPECIAL AND UNIQUE POTSHERDS

is faint.

Figure 24 D illustrates a unique specimen which closely resembles the *Walnut Roughened* type. The roughening is confined to the area below the shoulder, the throat is polished, and the rim decoration is "Lamar-like" rather than like Irene. The roughened decoration contrasts with the brushed type inasmuch as it consists of confused curved and overlapped impressions instead of impressions in parallel arrangement.

Figure 24 E, F, G, H, and I illustrate sherds of the Savannah complex which exhibit two kinds of decoration and thus offer additional evidence that these decoration types are combined in a single complex. Figure 24 E shows a *Savannah Check Stamped* sherd with a *Savannah Fine Cordmarked* rim decoration. Figure 24 F reveals a *Savannah Complicated Stamped* sherd which has also a *Savannah Fine Cordmarked* rim decoration. Figure 24 I depicts a *Savannah Complicated Stamped* sherd with *Savannah Fine Cordmarked* overstamping. The design seen in figure 24 G contains elements of both *Savannah Complicated Stamped* and *Savannah Check Stamped*. Figure 24 H illustrates partly *Savannah Complicated Stamped* and partly *Savannah Burnished Plain*.

Figure 24 J portrays a grit tempered fabric-marked (net) sherd which probably belongs to one of the early complexes.

Figure 24 K shows one of the three shell tempered sherds founds at the site. They are thin and well made, with a laminated, porous paste.

Figures 24 L and 24 M reveal respectively a grit tempered rod handle and a portion of a strap handle and its attachment to the vessel. Figure 24 N shows possibly a flange or lug.

Figure 24 O and 24 P present representatives of one of the earlier complexes, probably the Deptford. Both are paddle stamped and figure 24 P is decorated with alternate, rectangular, raised and depressed areas, possibly basket marked. Figure 24 Q indicates part of a boat-shaped *Irene Incised* vessel.

Artifacts

Compared with the abundance of potsherds at the site, artifacts of other types were few. The majority could be included in a few large classes such as pottery discs and hones, stone hones and "net sinkers," and bone splinter awls. Definitive classifications and clear statements of the chronological positions of the remaining artifacts were prohibited by the small size of the remainder of the sample. As far as could be determined, however, there was no great dissimilarity between the artifacts of the Savannah and Irene ceramic periods. The few differences in typology will be pointed out below. On the other hand, work at other sites indicates that the Savannah and Irene periods together have a progressively greater number of differences with the Wilmington and St. Simons periods. The artifact complex of the Deptford period is not yet known.

The scanty copper artifacts have been omitted from this section, but are described on page 16.

Artifacts of Pottery and Sherd

Pottery Pipes. (Plate XVIII A-I) Thirty-seven pipes or fragments were found at the site. There was considerable freedom in the modeling and some examples were decorated with incised lines. All pipes were variations of the elbow type, but no effigy pipes were found. Pottery pipes were used during both the Savannah and Irene periods.

Sherd Discs. (Plate XVIII L, M) Sherd discs were fairly constant in diameter, ranging from two to four centimeters. They were usually rather roughly finished. While perforated sherd discs were rare, it may be significant that similar discs were sometimes made of ground stone. Nothing is known concerning the use of sherd discs, although they are generally thought to have been counters.

Sherd Hones. (Plate XVIII N) Sherd hones were distinguished by U- or V-shaped grooves indicating their use as abrading platforms for sharpening pointed instruments. The sherd was not shaped, the groove being the only alteration.

Sherd discs and hones comprised by far the largest proportion of all artifacts at Irene. They were numerous during both the Irene and Savannah ceramic periods. Work at other sites indicated that they were rare in the Wilmington period and probably absent from the Deptford and St. Simons periods. They have a considerable distribution on the Georgia coast.

Problematical Cylindrical Objects. (Plate XVIII O) The function of the large cylindrical pottery objects similar to that shown in the plate is not known. All exampes were bored longitudinally and fired to a brick red. Thirty-three of these were found at Irene; in one instance twenty-four came from a single pit. All have come from levels of the Irene ceramic period.

Other Artifacts. (Plate XVIII J, K) A fragmentary disc made directly from clay was the only example of this type found. Its purpose may have been similar to that of the more common large stone discs or chunkey stones. The incised bead (J) is one of the two examples found. Plate XVIII K shows an incised object of pottery. Its use is not known. A pottery effigy, possibly designed to represent a raccoon or opposum, was very crudely modeled and was not part of a pottery vessel.

Artifacts of Shell

The Irene site yielded an exceptionally large number of shell artifacts, probably because they were favorite articles of grave furniture during the Savannah and Irene periods.

With the exception of marginella and oliva beads, all shell artifacts were made of marine conch.

Shell Gorgets. (Plate XIX A-G) Twelve shell gorgets were found, five of them with burials. All were approximately circular with two or four close-set perforations at the rim. They were made of the outer wall of the conch shell and diameters ranged from 2.7 cm. to 8.5 cm. Decoration was always on the inner, concave side, and was usually by stippling, round or oblong perforations, and incising. Motifs included four- and six-pointed stars, triangles, circles, and squares. One example (D) was decorated with four long, curved slots along the border, three circular perforations, and a rather elaborate incised design which was probably a conventionalized representation of a rattlesnake.

It is possible that gorgets should be divided into two types: large (A-E) and small (F, G). The four which can definitely be ascribed to the Irene ceramic period are larger than 4.5 cm. in diameter, and the four which belong to the Savannah ceramic period are smaller. All the large gorgets, including those of which the chronological position is not known, are decorated. Two of the four Savannah period gorgets are undecorated.

Two cut discs may have represented a preliminary stage in the manufacture of gorgets.

Shell Pendant. A short section of conch columella was bored laterally at one end.

Shell Pins. (Plate XIX H, I) Shell pins made of conch columellae were divisible into two types. The first comprised a group of straight pins, well finished but without other modifications (I). The other type (H) consisted of knob-headed pins. The latter were usually found at the mastoid processes of female skeletons and were probably ear ornaments. Eight of the eleven pins of this type belonged to the Irene ceramic period. Two others were almost certainly of the Savannah.

Cut Section of Columella. (Plate XIX J) A single example of a cut section of conch columella was ground to a smooth surface. It may have represented a preliminary stage in the manufacture of a massive bead or pendant.

Augers. (Plate XIX L, M) Two shell implements, presumably awls or augers, were found. They were made of conch columellae.

Perforated Conch Shells. Thirteen large conch shells bore artificial perforations in the upper part of the wall. In some instances evidence of wear was found on the lip of the shell. Although their use is not certain, artifacts of this type are commonly called "hoes."

Conch Bowls. (Plate XIX K) Two conch shell bowls or cups were found, both in association with burials. The one shown is very carefully finished and is perforated at the tip. It was with a cremated burial of the Savannah period.

Disc Beads. (Plate XIX P) Thirty sets of beads, ranging from single specimens to nearly complete sets were found, usually in association with burials. Beads of this type were made from thin cross sections of conch columella and were usually rather small, seldom exceeding one centimeter in diameter. Some were carefully finished, but unfinished beads were more frequent.

Tubular Beads. (Plate XIX O) Four sets of tubular beads were found, all of them with burials. They were made of conch columella. Their length was usually greater than one centimeter and the diameter much less. All examples appeared to have been carefully finished.

Massive Beads. (Plate XIX N) This group comprised massive sections of conch columella which were either ground smooth or left unfinished. The finished beads were not usually less than one centimeter in diameter and were often more than two centimeters. The unfinished beads had approximately the same range of diameters and were often nearly four centimeters long. Three sets of this type were found, all with burials.

Marginella Beads. (Plate XIX Q) One set of marginella beads was found with a burial. The beads were in the pelvic region and possibly served as a pubic apron. They were perforated by grinding the wall of the larger end.

Oliva Bead. (Plate XIX R) One example of a large oliva shell which appeared to have been intentionally perforated was found. It was not associated with a burial.

Artifacts of Bone

A total of one hundred and thirty-seven bone artifacts was found at the site. Several of these, chiefly awls, were found in association with burials. Most of them, however, had probably been discarded or lost, and were found unassociated on the site and in the successive fills of the large mound. The shell layers of the large mound yielded a high proportion of the bone artifacts.

Awls. Eighteen ulna awls were found (Plate XX A). All were made from the proximal end of the ulna of the deer. The shape of this portion of the deer ulna makes it an excellent natural grasping surface.

Seventy-eight splinter awls comprised the largest group of bone artifacts (Plate XX C). They were ordinarily made from the smaller long bones of the deer, such as the cannon bone, or from fragments of the larger long bones, such as the femur.

Seven awls consisted of long bones or cannon bones which were modified at one end only (Plate XX B). They were sometimes made from the leg bones of large birds, particularly the turkey, sometimes from the cannon bone of the deer.

Fossil Shark Teeth. Two fossil shark teeth were found (Plate XX D). While no definite marks of aboriginal use were noted, it is possible that they were used as awls or scrapers.

Pins. Sixteen bone pins, long and thin and with round or oval cross sections, were found (Plate XX I). They were made from thin splinters of long bones, usually of mammals. They were well formed, usually having a high polish. There was one example of an incised bone pin. It was well polished and made from a flat splinter of mammalian long bone (Plate XX J).

The needle shown (Plate XX H) was the only representative of this type. It was made from a splinter of unidentified mammalian long bone. Three unbarbed fish hooks, including those shown (Plate XX F) were found. Two of them were made from unidentified mammalian long bones and one from a bone of a large bird.

The bone tube shown (Plate XX G) was one of two specimens. Both were made from turkey ulnae. Their use is unknown; perhaps they served as pipe stems.

Of the two examples of bone beads found at the site, one was hemispherical and the other disc-shaped. The latter was tentatively identified as deer

bone.

Although fragments of antler were occasionally found none of them showed exidence of intentional modification. Plate XX E, shows a cut section of bone. It is doubtful if it had any particular use and it may have been a by-product of artifact manufacture. One socketed section of bone was found but its use was not determined. It was not pointed.

Artifacts of Ground Stone

Celts. (Plate XXI A) Sixteen celts were found at the site, five of them associated with a single burial. They were remarkably uniform in shape: elliptical in cross section and wider at the bit than at the butt, the maximum width usually being about one-fourth the distance from the bit. The butt was usually tapering and rounded. The materials used included diorite, diabase, gabbro, and basalt porphyry. Celts were used at Irene during both the Savannah and Irene periods and their occurrence at earlier sites in the county indicates that they were also used for a considerable time before. No examples of the grooved ax were found.

Stone Discs, (Plate XXI K, L) Three types of ground stone discs were found at the site: large (about six centimeters in diameter), small (about three centimeters in diameter), and small with a central perforation. They were skillfully made with the thickness about one-fourth the diameter. The sides were flat, plano-convex, or double-convex. They were made of silt-stone, shale, and probably other materials. The use of the various types of stone discs is not known. The large disc is usually believed to have been used in a game called chunkey. The two types of smaller discs have counterparts made of sherds. In all, five ground stone discs were found. Two were large, two were small, and another small disc was perforated.

Stone Pipe. (Plate XXI D) The stone pipe shown was the only example found. It was made of fine-grained soapstone, polished, and decorated with low nodes set off by incised circles.

Problematical Objects. The pierced steatite object shown in Plate XXI J was the only example found at Irene. Comparable specimens were common at the Stalling's Island site (Claflin, 1931, plate 52). The example found at Irene was associated with a burial in the rotunda. The burial probably belonged to the Irene ceramic period, but it appears generally true that these objects were usually associated with the very early St. Simons manifestation.

In Plate XXI, the objects lettered G, H, and I were probably all examples of the same type of artifact. That lettered G was nearly intact; the others were fragments. The intact artifact was ground and polished, flat on one side and convex on the other. It tapered to a rounded point at each end and contained two perforations which extended completely through. It was made of diorite or gabbro. The objects designated H and I were respectively sandstone and felsite porphyry.

The object lettered C was a small rectangular tablet of shale. There was a shallow depression on the side shown and two irregular depressions on the reverse.

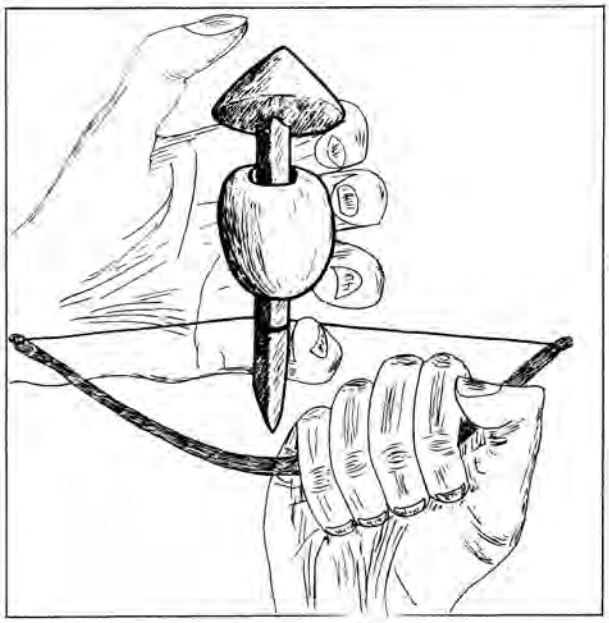


FIGURE 25.—POSSIBLE METHOD OF USE OF THE "FIRE-DRILL" OUTFIT

The objects lettered B and E were found in association with a burial in the rotunda. It is thought that they were part of a bow-drill outfit, tests having shown that they could have been used as such. The cone-shaped object is held between the thumb and forefinger and the other fingers clasp the barrel-shaped object against the palm. The drill goes through the latter and the end rests in the depression in the base of the cone. A considerable amount of pressure may comfortably be applied to the top of the cone (see figure 25). The cone is composed of hematite and the barrel-shaped object of mica schist.

The incised object designated F was made of talcose schist. It may have been a sherd of a stone vessel, secondarily cut to its present outline.

Artifacts of Chipped Stone

Artifacts of this class were very scanty in proportion to the amount of other cultural material. This scarcity was also apparent at a number of other sites examined in Chatham County, and contrasts with the abundance of chipped stone artifacts at

many sites in northern and central Georgia. The accompanying plate (XXII) shows groups of chipped stone artifacts which have been arranged chiefly according to shape.

Projectile points of group A were distinguished by their isosceles-triangular shape and their small size, ranging from two to four centimeters long and from one to two centimeters wide across the base. In most instances they were made from thin flakes and the chipping was necessarily fine. All examples were of flint, chert, jasper, or chalcedony. It is certain that this type of projectile point was used during the Irene ceramic period and probably for some time before.

Projectile points of group B were characterized by hollow bases, small to medium size (three to five centimeters in length) and fairly fine chipping. This type was at least as early as the Savannah ceramic period, and its use may have continued into the Irene period. The two examples found were respectively agate and iron-stained chert.

Example C was side notched with a flat base. The notches were long in proportion to their depth, resulting in a long and broad stem. The size was medium and the material was chert. The chronological position is not known.

Projectile points of the type shown in group D were basal notched, stemmed, and winged. They were of medium size and the material of both specimens found at Irene was chert.

Group E portrays several corner notched points with contracting stems. They were medium to small, and the materials were flint and chert.

Example F may have been a modification of the type illustrated by group E. It was a medium-sized point of chert.

Group G illustrates the well-known "spinner type," in which the sides of the blade were oppositely beveled. It was made of chert and was of medium size.

The type shown in group H was distinguished by irregular shapes and crude chipping as a result of the use of poor stone materials. In some cases shoulders were poorly defined and the specimens were almost ovate. The material was usually vein quartz.

Example I was fragmentary and consisted of part of the blade of a large, broad point. A complete large point is shown in J. Both specimens were of chert.

A group of projectile points which appear to have been associated with the very early St. Simons ceramic period is represented by example K. The type was side notched and in Chatham County was made from the cores or large flakes of a distinctive saffron-colored chert. The color, the shape, and the uniformly large size of the flaking scars gave this type a remarkably homogeneous appearance.

Group L consists of "end" or "thumb" scrapers. They were of medium size and were made of chert.

Artifacts of Rough Stone

Stone Discs. Two types of rough stone discs were found: large (about six centimeters in diameter) and small (about three centimeters in diameter). They have the same general proportions as the ground stone discs already described and perhaps had the same use. The larger discs were made variously of limestone, calcareous sandstone, ferruginous sandstone, chlorite schist, and pyroxine. One example was made of tuff (volcanic ash). The smaller discs were made of limestone, calcareous sandstone, mica schist or micaceous sandstone, sericite schist, and peridotite.

Net Sinkers. A large number of artifacts loosely termed "net sinkers" were found. These were fragments of vein quartz with roughly rounded sides and with a roughly pecked groove encircling the middle. Many of them are considerably battered on one end and may actually have served as pebble hammers (see Claflin, 1931, plate 51).

Hammer Stones. This term is applied to a class of rough pebbles which appear to have been used as hammers, although they do not appear to have been intentionally shaped.

Hones. Stone hones were rather numerous. They were usually made of sandstone and are distinguished by having parallel, rounded grooves.

Pitted Stone. One example of an oblate pebble with a small pecked depression in the center of each of the flattened sides was found.

Biconcave Mortar. This was a fairly large slab of sandstone with a rounded depression worn into each side.

The People Who Lived at Irene by F. S. Hulse

Physical Anthropology

Methodology

In any study of the people who lived (or, at any rate, were buried) at Irene, it would be unwise to think in terms of vast racial movements or the migration of tribes. This site, as we know from all of the archaeological evidence, is one of relatively late date in the prehistory of the southeast, and we have no evidence that at any time it had a very large resident population, (see p. 69). The problems which confront us are really on a much smaller scale: we are dealing with families rather than races, and we do not even know that these families provide a fair sample of the population of the Savannah River basin.

Fortunately, it was possible, during the course of excavations, to recover a considerable number of skeletons. Many of these are, of course, very fragmentary, partially decomposed by age, water, fire, or in other ways, but quite a few were brought into the laboratory still complete enough for a good number of measurements.

Two hundred and sixty-five burials were located. From these we have obtained the skeletons of seventy-four adult males, seventy-five adult females, sixteen adolescents, thirty-eight children and infants, as well as sixty-two skeletons which were too fragmentary for determination of either age or sex. In this last group are included those which had been cremated, and those which were completely broken up.

The age of each skeleton was determined by an examination of the degree of suture closure, the degree of tooth eruption, the degree of tooth wear, and in some instances, the state of ossification of the epiphyses of the long bones. Since there may well be minor differences between the growth rate of Irene Indians and modern whites, no attempt has been made to state the actual age in years.

Even among those listed as adult male and adult female there are some cases where measurements were impossible or very few. Skulls which had lasted in the ground for several centuries were occasionally badly broken up in the process of discovery or of disinterment. Reconstruction work, which took place in the laboratory, salvaged a large number but not all.

It has been decided to separate the skeletal material into three separate series on the basis of the location where it was found: one includes the skeletons found in and about the mortuary structure; another consists of the skeletons found in the burial mound, while the third and last contains all the other skeletons found at the site. This last group is quite amorphous, both geographically and stratigraphically. It is probable that it contains the skeletons of some individuals who died long before any of the structures at the mound site were built, and that it also contains some who lived at least as late as those buried about the mortuary structure or in the burial mound. The contrast between the skeletons of the mortuary structure and the burial mound, however, is much more clear cut. We have every reason to suppose that the construction of the burial mound was begun during the earlier, or Savannah ceramic period, although we cannot tell how long it remained in use thereafter. The mortuary structure certainly seems to have been erected at a later date, and there is no question but that it was destroyed, to be used thereafter as a graveyard, rather late in the Irene period. As a result of this we should be able, by a comparison of the skeletons from the burial mound with those from the mortuary structure, to find out whether there was any change during the period of occupancy, in the physique or proportions or appearance of the Indians who lived at Irene. Tables which accompany this section present statistically the findings of the study in physical anthropology of the three sub-series: from the mortuary structure, the burial mound, and from elsewhere on the site, and for the combined series of all Irene skeletal material, both for adult males and for adult females. Furthermore, an analysis of the skulls on the basis of certain observed characteristics has been undertaken to find out whether any of the observed characteristics are correlated with any measurements or indices.

It is well known that during late prehistoric and historic times, the practice of artificial skull deformation was very prevalent among the Indians of the southeastern part of the United States. Therefore, it was necessary to examine the skulls rather closely to find out what traces there might be of artificial deformation, and whether such deformation, if it existed, extended back through the entire time span of the occupancy of the Irene site.

The total number of measured adult male and female skeletons from each of the three locations is presented in Table 1.

TABLE 1

	Mortuary	*Burial Mound*	*Elsewhere*	*Total*
Male	23	22	27	72
Female	24	19	28	71

The measurements taken, and the indices calculated, for the purpose of this study, are shown in Table 2.

TABLE 2

Measurements	*Indices*
Cranial Length	Cranial
Cranial Breadth	Length-Height, Basio-Bregmatic
Cranial Height, Auriculo-Bregmatic	Length-Height, Auriculo-Bregmatic
Cranial Height, Basio-Bregmatic	Breadth-Height, Basio-Bregmatic
Minimum Frontal Diameter	Breadth-Height, Auriculo-Bregmatic
Bizygomatic Diameter	Cranio-Facial
Bicondylar Breadth	Fronto-Parietal
Bigonial Breadth	Zygo-Frontal
Total Face Height	Zygo-Gonial
Upper Face Height	Total Facial
Nose Height	Upper Facial
Nose Breadth	Nasal
Orbital Breadth, left	Maxillo-Alveolar
Orbital Breadth, right	Orbital, left
Orbital Height, left	Orbital, right
Orbital Height, right	
Maxillo-Alveolar Length	
Maxillo-Alveolar Breadth	

Since in no case do we have a skeleton upon which it was possible to obtain all eighteen measurements and fifteen indices, none of the individual series or sub-series, is, in actual fact, as large as the total number of skeletons measured. In a few cases, only one or two measurements could be made, but the average was more than a dozen.

Stature

The mean stature, both for male and females, has been estimated from the long bones, according to the formulae of Manouvrier (1893). Not only were the femora used, but also the tibiae, humeri, radii and ulnae, since in many cases one or more of the long bones lacked complete epiphyses, and since it was felt that the use of a number of checks ought to increase the accuracy of the estimate. This estimated stature, as presented in Table 3, indicates that the inhabitants of the Irene Mound site were of medium or slightly sub-medium stature, more or less similar to that of the Koger Island and Shell Mounds series of Newman and Snow (1941) and the Chiggerville series of Skarland (Webb, 1939, p. 46). Since the range of variation is considerable and the series is small, too much dependence should not be placed upon the accuracy of the estimate. Nor can any variation in stature, as between the three sub-series, be called in any way significant. It is, however, safe to say that the inhabitants of this site did not belong to any group of tall Indians.

TABLE 3

	Mortuary	*Burial Mound*	*Elsewhere*	*Total*
Males, Number	11	8	13	32
Males, Range	156-176	153-177	153-173	151-177
Males, Mean	165.18	167.12	164.85	165.41
Females, Number	8	10	4	22
Females, Range	151-161	147-166	153-160	147-166
Females, Mean	154.12	154.40	156.75	155.50

There is, furthermore, no correlation between head shape and stature. The cranial index of the males with an estimated stature of 165 cms. and over, or the females with an estimated stature of 155 cms. and over, does not differ from that of the shorter individuals; and the more brachycranial are neither taller nor shorter than those who are less brachycranial.

Observations

Among the characteristics observed in the Irene series, one of the most common is a pentagonal outline of the skull as seen from the rear. This characteristic occurs in 88% of the female skulls and in 97% of the male skulls. In a number of cases, in fact, this pentagonal outline is enhanced by actual scaphocephaly, a distinct ridge appearing along the saggital suture. This characteristic is illustrated in Plate XXIII, front and rear, and in Plate XXIV, number 44. As might be expected, there are more males than females having scaphoid skulls, eleven of the males showing this trait whereas only five females do so. A female skull showing a very flat top, in contrast to the scaphoid shape, is illustrated in Plate XXIV, number 199. However, no correlation could be found between either pentagonal or scaphoid skulls on the one hand with the location from which the skull was taken or with any measurements or indices thereon on the other hand. It seems to have been a characteristic which was common to the inhabitants of the Irene site at all periods.

Another trait which was noted among the skulls found at Irene was the possession of a rather bun-shaped occiput, that is, an occiput which protrudes downward and backward to an unusual degree. This feature has often been thought of as being a rather primitive one, and is, in fact, noted particularly among skulls of the Neanderthaloid and similar types (Keith, no date, p. 335). To be sure, as found on the skulls from Irene, it does not go to any such extreme as in the fossilized remains of European cave dwellers. It is, nevertheless, rather noticeable, as is illustrated by Plate XXIV, number 168, which also shows the Inca bone. The bun-shaped occiput seems, at Irene, to be an early trait, being associated to a much greater degree with the skeletons from the burial mound than with those from the mortuary

structure. In fact, seven male skulls, or 31%, of all measured male skulls from the burial mound have bun-shaped occiputs in contrast to only two, or 8%, from the mortuary structure. Confusingly enough, this characteristic occurs most commonly of all among those skulls found elsewhere on the site, thirteen of these, or 48%, possessing the trait. It should be noted that all but one of the skulls showing a bun-shaped occiput also show some degree of lambdoid flattening and a few show other forms of flattening, probably artificial, as well.

Among male skeletons with a bun-shaped occiput the cranial length is significantly greater than among the males without it. Furthermore, the males with bun-shaped occiputs show a lesser head breadth than those without this characteristic, but the difference here is less and may not be a significant one. As a result, the mean cranial index for males with the bun-shaped occiput is lower than that for males without a bun-shaped occiput to a fully significant extent. Only 38% of the males with the bun-shaped occiput are brachycranial while 79% of the males lacking this characteristic are brachycranial. In the corresponding female series the differences are similar, but to a lesser degree. These differences are shown in detail in Table 4.

TABLE 4

	Males		*Females*	
	Bun-shaped	*Other*	*Bun-shaped*	*Other*
Head Length				
Number	19	40	20	29
Range	163-189	154-192	157-186	151-174
Mean	177.58±1.08	171.42±.75	167.90±1.06	165.45±.59
Standard Deviation	6.98	7.02	7.04	4.54
Head Breadth				
Number	17	34	18	28
Range	128-163	122-160	125-151	131-154
Mean	141.18±1.37	145.32±.83	140.50±1.02	140.46±.63
Standard Deviation	8.37	7.17	6.47	4.97
Cranial Index				
Number	14	33	16	23
Range	72-89	72-95	72-92	75-98
Mean	78.36±.88	84.82±.59	82.31±1.06	85.04±.67
Standard Deviation	4.89	5.04	6.29	4.77

It would seem that we might be dealing in this case with two separate genetic stocks, both living at the same place, but one, that with the longer head, appearing earlier on the scene, or at least being buried at an earlier date, than the other. However, it has been impossible to find any other metric or indicial differences between these two groups. The facial measurements and indices are almost identical. Probably we are dealing with separate family lines rather than two racial types.

The Inca bone, which is much more common among the American Indians than among other racial groups, appears in eight skulls, two of them male and six of them female. Whether this variation between the sexes is due to chance or to some inherited factor it is impossible to say. Since, however, it is so infrequent a characteristic, the laws of chance alone suffice to explain the sex difference. There seems to be no correlation between the possession of an Inca bone and any other observed or measured characteristic, except, possibly the bun-shaped occiput, and this possible correlation might well be due to chance. Skulls showing the Inca bone are illustrated on Plate XXIV, number 168, and Plate XXV, number 56.

Artificial skull deformation was practiced at Irene, as it was elsewhere among Indians in the southeastern part of the United States, but, apparently, not to any great extent or extreme degree. More than 90%, both of the males and of the females, show lambdoid flattening, but since actual measurement shows no difference whatever between the head length of those with and those without lambdoid flattening we cannot assume that this is artificial, although it might be. As Hooton suggests, lambdoid flattening may frequently be the result simply of a mixture between groups of individuals of contrasting head shapes (Hooton, 1930, p. 38). Furthermore, lambdoid flattening seems to be just as common in the burial mound as in the mortuary structure and most common of all on those skulls found elsewhere at the site. Thus we cannot imagine that it is in any way a late characteristic.

On the other hand, twenty-five skulls, approximately a third of the total, show some degree of frontal, parietal, or occipital flattening. In some cases this deformation would appear to be postmortem warping. Nevertheless, an examination of the skulls shows a number, such as those illustrated in Plate XXV, numbers, 10 and 158, where the deformation appears to be intentional. In order to find out whether this sort of deformation has led to any change in the head shape, the deformed and the undeformed skulls were tentatively segregated from one another. The undeformed skulls are longer, but not significantly, than the deformed skulls, the cranial breadth is less to a similar degree, and the cranial index is higher to a barely significant extent. 86% of deformed skulls are brachycranial whereas only 58% of undeformed skulls are brachycranial. There do not appear, however, to be any really extreme cases of artificial deformation, for the highest cranial index obtained on any male skull is 95 and on any female skull is 96, and among those which are deformed we have one with a cranial index as low as 72. If this particular skull was intentionally deformed during the youth of the individual a most unsuccessful job was done. Furthermore, there seems to be very little, if any, difference in the cranial index of the deformed and the undeformed female skulls, and the mean length of the deformed female skulls is actually greater than that of the undeformed female skulls. In the third place, the number of deformed skulls, both male and female, is as great in the earlier burial mound as in the later mortuary structure. For these reasons, and because of the in-

adequate size of the series, the deformed and undeformed crania are presented together in the tables, with the caution that the true, inherited, mean cranial index is doubtless really one or more points lower than that presented.

Although facial prognathism is quite rare among the Irene Indians, even to a slight degree, a majority, both of males and females, show a slight amount, and some a greater amount, of alveolar prognathism. Prognathism of both sorts is slightly more common among males than among females. Typical cases are illustrated in Plate XXIV, number 168 and Plate XXV, number 158. The palate tends to be medium in height but in some cases is really quite high, and only where many or most of the upper teeth have been lost before death do we see a really shallow palate. In such a case it is obviously an acquired rather than an inherited characteristic.

The teeth of the adult inhabitants of the Irene site are badly worn down. In fact, it is not at all unusual to see even adolescent skulls, with the wisdom teeth only just erupting or unerupted, which have excessive tooth wear on the incisors. There is no case of a really mature skeleton which does not show tooth wear ranging from excessive to extreme, at least for the incisors and canines and usually for all the molars as well. The really elderly individuals invariably had their incisors worn down to the gum line so that the pulp cavity was completely exposed, except for a frequent secondary deposit of dentine. In contrast to this enormous amount of tooth wear, caries is rather unusual, and when it occurs seems usually to be mild rather than extreme. The number of abcesses, particularly apical abcesses which may have resulted from exposure of the pulp cavities, is considerable, and among the older inhabitants a number of the teeth had usually been lost during life. Although wear is noticeable at an earlier age on the incisors and the canines, and is heavier on these teeth, the premolars and first molars are the teeth which were most frequently lost. A very few individuals had lost all of the teeth on either the upper or the lower jaw, but none were discovered which had become completely edentate.

The cause of this lack of dental decay, accompanied by extreme wear of the teeth, is of course hypothetical, but it provides a very interesting topic for speculation. It is very likely, in view of the enormous number of oyster shells found on the site, that these people lived on a diet composed largely of shell fish such as oysters and other sea food. A good number of animal bones were also found, but no corn cobs and in all probability no agricultural implements (in spite of the fact that some worked conch shells such as are commonly called hoes were found). In other words, it seems likely that these individuals subsisted more largely upon such a diet as is to be obtained from hunting, fishing and gathering, than upon an agricultural diet. Undoubtedly the oysters which they ate were very gritty and it is not unlikely that the major portion of their diet contained considerable grit. Such a diet could explain the abraded teeth found in the Irene skulls, but we cannot assume that it is the only possible explanation.

Another evidence demonstrating the probably tough and gritty character of the diet of these people is the strong musculature of the mandible. This is evidenced by the frequent eversion of the gonia which occasionally appear to flare outward, and which show many small ridges for the attachment of the jaw muscles. Plate XXIII, upper left, shows this roughening for muscular attachment on the inside of the gonial angle while Plate XXIV, numbers 44 and 199, show eversion rather plainly. This eversion is of course more common among males than among females and is carried to a greater extreme in some cases, resulting in a bigonial diameter of as much as 117 millimeters.

The nasal sill is very frequently rounded and sometimes almost completely absent, although occasionally it is sharply defined. Ordinarily the nasal spine was broken either in the ground or during the process of removal of the skull so that it is impossible to be sure in any statements concerning it. Nevertheless, it would appear that the nasal spine was ordinarily of a reasonable degree of prominence. The bridge of the nose in those few cases where it has not been broken would seem to be rather high, although, of course, not as high as among adult male Europeans. This condition is illustrated in Plates XXIII, upper left, XXIV, number 148, and XXIV, number 168. The nasal root is usually broad and medium in height. There are no cases in which it is really depressed and no cases in which it is really high. Brow ridges tend to be median, concentrated above the glabella region, and, among males, are often very noticeable. Plates XXIII, upper left and lower right, show the typical male brow bridge. The female skulls, however, show almost no brow ridges except upon the very closest examination. The forehead is not high, but is not retreating, except where it has been artificially deformed by frontal flattening. Plates XXIII, upper left, and XXIV, number 148, show the typical condition. The sutures tend to be reasonably complex with Wormian bones quite often present, particularly in the lambdoid suture. The inclination of the orbit is usually medium. The size and shape of the orbit are shown in the tables of measurements and indices presented below. Plates XXIII, lower left, XXIV, numbers 44 and 199, and XXV, number 207, illustrate the orbits. As might be expected, the malars usually were broken, if not before discovery, then directly afterwards, but the measurements taken on the few remaining demonstrate how widely they spread. In the various subgroups found at Irene there seems to be no difference

in the amount of flare of the malars.

The shape of the skull as seen from above naturally varies to quite a large degree, reflecting the considerable variation in the cranial index. However, it tends to be more or less egg-shaped with the greatest breadth quite far back. A rather typical skull is illustrated in Plate XXIII, upper right.

Variability

In order to test the homogeneity of the Irene population, a comparison is presented, in Table 5, of the standard deviations on a number of measurements and indices with those for fourteen groups of American Indians published by Von Bonin and Morant (1938, pp. 123-124). Our group is so small that there must arise some question over the accuracy of the standard deviations calculated and this caution applies to an even greater extent to the sub-groups from the mortuary structure and the burial mound.

TABLE 5

	Von Bonin and Morant	*Irene*		*Mortuary*		*Burial Mound*	
		Male	*Female*	*Male*	*Female*	*Male*	*Female*
Head Length	5.42	7.52	5.80	5.07	4.95	8.88	3.98
Head Breadth	4.80	6.24	5.99	7.17	5.44	6.75	5.47
Bas-Breg Height	4.68	5.28	6.00	4.74	5.82	5.38	---
Bizygomatic	5.41	6.63	3.52	6.94	3.24	7.55	---
Upper Face Height	3.94	4.68	3.34	5.09	3.00	3.29	3.73
Nasal Height	2.83	2.77	1.87	2.47	1.76	1.98	2.00
Nasal Breadth	1.79	1.90	1.82	2.32	1.23	1.91	1.70
Cranial Index	3.12	6.24	5.70	4.85	4.83	6.84	4.74
Nasal Index	4.15	3.99	3.51	2.81	2.32	4.29	3.00

Nevertheless, a rough idea of the extent of variability may be obtained by an examination of this table, and it will be noted immediately that the male series from the site is extremely variable in head length, head breadth, and cranial index, but is, on the contrary, quite homogeneous with regard to nasal height and nasal index, as contrasted to the fourteen groups of American Indians. It is also noticeable that the sub-series from the mortuary structure seems to be much less variable in head length and somewhat less variable in cranial and nasal indices than that from the burial mound. This is in spite of the fact that the two sub-series are of almost equal size, and indicates more homogeneity in the group buried about the mortuary structure than in the earlier group which was interred in the burial mound. Furthermore, the head length and cranial index of the burial mound sub-series are both definitely bimodal, which is another indication of heterogeneity.

In sharp contrast to this, we find, with respect to head length, that the females from the burial mound are less variable, and therefore more homogeneous, than the females from the mortuary structure. The females from the burial mound are also less variable in head length and cranial index than the males from the burial mound. In other words, although there seem to be two types of male skulls represented in the burial mound series, there is only one type of female skull. On the whole, the females at Irene appear to be less variable than the males.

Metric Data

The measurements on the male skulls, segregated by location into the three sub-series previously mentioned, are presented in Table 6, which gives the number of skulls upon which measurements were obtained, the total range, the mean, and, in cases where their calculation has seemed useful, the standard

TABLE 6

Male Measurements, by Location

	Mortuary Structure	*Burial Mound*	*Elsewhere on Site*	*Total*
Head Length				
Number	18	20	20	58
Range	163-183	154-192	157-189	154-192
Mean	174.00	174.05	172.70	173.57±.67
Standard Deviation	5.07	8.88		7.52±.47
Head Breadth				
Number	17	17	16	50
Range	134-163	128-154	122-151	122-163
Mean	147.88±1.17	141.35±1.10	142.50	143.82±.58
Standard Deviation	7.17	6.75		6.24
Basio-Bregmatic Head Height				
Number	8	9	10	27
Range	132-149	132-155	132-152	132-155
Mean	140.50	143.00	139.30	140.89±.69
Standard Deviation	4.74	5.38		5.28
Auriculo-Bregmatic Head Height				
Number	11	9	8	28
Range	110-127	101-130	110-133	101-133
Mean	119.45	116.00	118.12	117.96±.88
Standard Deviation				6.87
Minimum Frontal				
Number	12	16	16	44
Range	85-102	88-102	82-99	82-102
Mean	93.50	95.00	91.62	93.43±.47
Standard Deviation				4.55
Bizygomatic Breadth				
Number	6	9	7	22
Range	127-147	124-153	133-147	124-153
Mean	141.00	139.67	140.43	139.73±.96
Standard Deviation	6.94	7.55		6.63
Total Face Height				
Number	10	6	13	29
Range	100-129	109-129	106-132	100-132
Mean	119.00	118.00	117.15	118.18±.89
Standard Deviation				7.08
Upper Face Height				
Number	7	10	14	31
Range	62-79	65-76	62-82	62-82
Mean	72.00	69.60	71.79	71.13±.58
Standard Deviation	5.09	3.29		4.68
Nasal Length				
Number	10	11	14	35
Range	48-56	49-55	47-57	47-57
Mean	52.30	51.09	52.57	51.91±.33
Standard Deviation	2.47	1.98		2.77
Nasal Breadth				
Number	10	11	17	38
Range	22-29	22-29	22-28	22-29
Mean	25.40	25.36	24.47	24.97±.21
Standard Deviation	2.32	1.91		1.90

TABLE 6 (Cont'd.)

	Mortuary Structure	Burial Mound	Elsewhere on Site	Total
Orbital Breadth, right				
Number	8	7	8	23
Range	37-43	37-42	36-42	36-43
Mean	39.12	39.29	39.25	39.22±.27
Standard Deviation				1.89
Orbital Breadth, left				
Number	9	6	8	23
Range	38-42	36-41	36-42	36-42
Mean	40.00	38.33	39.50	39.30±.27
Standard Deviation				1.90
Orbital Height, right				
Number	9	6	8	23
Range	31-37	32-35	30-39	30-39
Mean	34.89	33.33	34.75	34.43±.29
Standard Deviation				2.04
Orbital Height, left				
Number	9	6	9	24
Range	31-38	32-37	30-39	30.39
Mean	35.33	34.33	35.56	35.12±.31
Standard Deviation				2.23
Maxillo-Alveolar breadth				
Number	11	12	19	42
Range	61-75	55-72	55-75	55-75
Mean	66.89	63.75	65.21	64.93±.47
Standard Deviation				4.46
Maxillo-Alveolar length				
Number	7	7	12	26
Range	53-61	47-58	47-61	47-61
Mean	56.57	53.14	53.75	54.35±.44
Standard Deviation				3.30
Bicondylar Breadth				
Number	10	10	16	36
Range	116-139	113-139	113-136	113-139
Mean	126.60	129.00	124.69	126.58±.72
Standard Deviation				6.37
Bigonial Breadth				
Number	13	15	17	45
Range	88-111	82-117	88-114	82-117
Mean	102.15	102.40	99.59	101.27±.79
Standard Deviation				7.77

deviation and the probable error. Since the sub-series are very small and since, in most cases, the mean measurements do not vary, except by small amounts, from one location to another, the probable error in most cases has not been calculated. The standard deviation has been calculated in a slightly greater number of cases. For the series as a whole, however, the standard deviation and the probable error have been calculated for each measurement and index since here we begin to deal with figures which are large enough, in many instances, to give some semblance of validity to such statistical constants. Following Table 6, which gives the male measurements, is Table 7, giving the male indices, Table 8, giving the female measurements and Table 9 giving the female indices. These are presented in identical manner.

The mean maximum cranial length, from glabella to opisthocranion, is almost the same for all three male sub-series, but, as has already been pointed out, it is more variable among the skulls recovered from the burial mound than among those found in the mortuary structure. Among the females the mean maximum cranial length of the burial mound sub-series is greater than that of the mortuary structure sub-series to a probably significant extent. The mean maximum cranial breadth, among males, differs significantly between these two locations. Among females the differences is less, and probably not significant. The skulls of both sexes found elsewhere on the site fall between the other two groups in this measurement, and tend to be closer to the general mean of the entire series. Due to these differences in the mean cranial length and breadth, there is a difference as well in the mean cranial index, which is rather higher for both sexes in the mortuary structure sub-series than in the burial mound sub-series. This difference is almost enough to be statistically sig-

TABLE 7
Male Indices, by Location

	Mortuary Structure	Burial Mound	Elsewhere on Site	Total
Cranial				
Number	16	17	15	48
Range	75-95	72-95	72-92	72-95
Mean	85.38±.82	81.82±1.12	82.20	83.12±.61
Standard Deviation	4.85	6.84		6.24
Length-Height, Auriculo-Bregmatic				
Number	10	12	7	29
Range	63-74	57-86	60-77	57-86
Mean	67.60	70.25	68.29	68.70±.78
Standard Deviation				6.23
Length-Height, Basio-Bregmatic				
Number	8	9	9	26
Range	72-86	72-92	72-89	72-92
Mean	80.50	80.67	79.67	80.27±.67
Standard Deviation				5.04
Breadth-Height, Auriculo-Bregmatic				
Number	9	11	6	26
Range	72-89	78-95	75-92	72-95
Mean	80.67±.95	85.00±.90	83.00	83.04±.65
Standard Deviation	4.24	4.40		4.89
Breadth-Height, Basio-Bregmatic				
Number	8	8	8	24
Range	90-101	93-107	93-104	90-107
Mean	95.50±.72	101.51±1.01	97.38	98.38±.59
Standard Deviation	3.00	4.24		4.28
Cranio-Facial				
Number	5	8	7	20
Range	96-104	93-104	93-101	93-104
Mean	98.80	97.75	95.71	97.30±.45
Standard Deviation				3.00
Fronto-Parietal				
Number	12	14	13	39
Range	60-68	63-74	57-68	57-74
Mean	64.00±.72	67.86±.54	63.77	65.31±.40
Standard Deviation	3.68	3.00		3.71
Zygo-Frontal				
Number	5	9	7	21
Range	63-71	63-74	63-74	63-74
Mean	65.80	68.33	67.00	67.29±.41
Standard Deviation				2.79
Zygo-Gonial				
Number	4	6	6	16
Range	63-80	66-83	66-77	63-83
Mean	73.75	73.50	71.50	72.81±.86
Standard Deviation				5.09

TABLE 7 (Cont'd.)

	Mortuary Structure	Burial Mound	Elsewhere on Site	Total
Total Facial				
Number	5	5	6	16
Range	75-86	81-92	78-92	75-92
Mean	81.40	85.00	85.00	83.88±.75
Standard Deviation				4.61
Upper Facial				
Number	5	7	7	19
Range	45-56	48-56	48-56	45-56
Mean	50.20	50.29	51.57	50.73±.49
Standard Deviation				3.16
Nasal				
Number	8	11	14	33
Range	45-57	41-56	40-53	40-56
Mean	49.12	49.73	46.86	48.36±.99
Standard Deviation	2.81	4.29		3.99
Maxillo-Alveolar				
Number	7	6	13	26
Range	113-124	110-130	104-136	104-136
Mean	119.14	120.50	119.31	119.54±.91
Standard Deviation				6.91
Orbital, right				
Number	8	6	9	23
Range	78-95	81-89	81-95	78-95
Mean	88.38	85.50	89.67	88.13±.67
Standard Deviation				4.80
Orbital, left				
Number	8	6	8	22
Range	81-95	87-95	81-95	81-95
Mean	87.25	90.50	88.00	88.41±.61
Standard Deviation				4.29

nificant. In this connection it should be recalled that the burial mound contained a much higher proportion of the skulls with a bun-shaped occiput. The means of all groups of both sexes are brachycranial.

The dimensions of the male skull are greater than those of the female, particularly for length and basio-bregmatic height. A sexual difference may be noted therefore between a number of the cranial indices.

Since the basal portions of a great many of the skulls are missing it was frequently impossible to measure the basio-bregmatic head height. In such cases it was necessary, instead, to obtain the auriculo-bregmatic head height. While this second measurement is, of course, more comparable with the head height as obtained on the living, it is less used in dealing with skeletal material, and it has been used in this case only because of necessity. Ordinarily, both head heights were not obtained on a single skull but in some cases this was done in order to provide a check upon the actual differences between the two types of head height. It was found that on those skulls measured by both techniques the auriculo-bregmatic head height is from nineteen to twenty-seven millimeters less than the basio-bregmatic head height. This agrees very well with the tabulated mean differences, which average a little over twenty millimeters. There are no significant differences, either for males or females, in the height of the head between any two of the sub-series examined. The breadth-height indices of the males, however, show a significantly higher figure for the sub-series from the burial mound as compared to that from the mortuary structure. This is inevitable, due to the lesser cranial breadth of the former group. All groups of both

TABLE 8

Female Measurements, by Location

	Mortuary Structure	Burial Mound	Elsewhere on Site	Total
Head Length				
Number	17	12	20	49
Range	151-177	163-177	157-186	151-186
Mean	165.05±.82	169.75±.78	165.80	166.20±.56
Standard Deviation	4.95	3.98		5.80
Head Breadth				
Number	18	13	16	47
Range	131-151	125-148	131-154	125-154
Mean	142.00±.82	138.69±.84	140.81	140.68±.59
Standard Deviation	5.44	5.47		5.99
Basio-Bregmatic Head Height				
Number	9	3	11	23
Range	123-143	120-140	126-143	120-143
Mean	133.00	132.00	134.36	133.52±.84
Standard Deviation				6.00
Auriculo-Bregmatic Head Height				
Number	4	6	6	16
Range	110-124	95-127	110-118	95-127
Mean	114.75	112.50	114.50	113.81±1.06
Standard Deviation				6.34
Minimum Frontal				
Number	18	11	16	45
Range	82-96	82-93	85-102	82-102
Mean	89.16	89.00	91.44	89.93±.62
Standard Deviation				4.18
Bizygomatic-Breadth				
Number	6	1	6	13
Range	127-138	128	127-138	127-141
Mean	130.50	128.00	132.00	131.00±.67
Standard Deviation	3.24			3.52
Total Face Height				
Number	9	7	9	25
Range	103-120	103-120	106-129	103-129
Mean	113.33	110.86	115.00	113.24±.78
Standard Deviation				5.63
Upper Face Height				
Number	8	9	12	29
Range	62-73	62-73	62-76	62-76
Mean	69.75	68.00	69.25	69.00±.42
Standard Deviation	3.00	3.73		3.34
Nasal Length				
Number	11	11	11	33
Range	47-53	47-53	47-52	47-53
Mean	49.45	49.27	49.27	49.36±.23
Standard Deviation	1.76	2.00		1.87
Nasal Breadth				
Number	10	9	14	33
Range	23-26	22-28	18-27	18-28
Mean	24.50	24.78	23.64	24.21±.22
Standard Deviation	1.23	1.70		1.82
Orbital Breadth, right				
Number	6	2	7	15
Range	36-39	36	33-39	33-39
Mean	38.17	36.00	36.14	36.94±.30
Standard Deviation				1.77

TABLE 8 (Cont'd.)

	Mortuary Structure	Burial Mound	Elsewhere on Site	Total
Orbital Breadth, left				
Number	5	4	4	13
Range	36-40	35-37	33-38	33-40
Mean	37.60	36.25	35.25	36.46±.34
Standard Deviation				1.80
Orbital Height, right				
Number	7	5	8	20
Range	34-38	32-37	31-39	31-39
Mean	36.00	33.60	35.25	35.10±.32
Standard Deviation				2.07
Orbital Height, left				
Number	7	5	5	17
Range	34-38	32-36	32-37	32-38
Mean	35.71	34.60	34.40	35.00±.29
Standard Deviation				1.74
Maxillo-Alveolar Breadth				
Number	12	7	15	34
Range	58-72	58-69	49-69	49-72
Mean	64.75	62.86	60.80	62.62±.52
Standard Deviation				4.46
Maxillo-Alveolar Length				
Number	5	5	11	21
Range	47-58	50-58	47-55	47-58
Mean	52.80	54.00	51.82	52.57±.45
Standard Deviation				3.00
Bicondylar Breadth				
Number	15	7	15	37
Range	103-129	106-129	106-129	103-129
Mean	118.00	116.86	117.80	117.70±.71
Standard Deviation				6.40
Bigonial Breadth				
Number	18	14	19	51
Range	85-105	88-105	85-108	85-108
Mean	94.83	95.86	92.95	94.41±.52
Standard Deviation				5.47

sexes may be considered as reasonably high-headed, both absolutely and relatively. The mean indices are hypsicranial and metriocranial, except among burial mound males, whose mean is acrocranial.

The minimum frontal diameter also presents no differences between any of the sub-series, male or female. There is a significant difference between the fronto-parietal indices of the male burial mound and mortuary structure sub-series, but this is to be attributed to the greater cranial breadth of the latter.

It has been mentioned that in most cases the zygomatic arches of the malars were broken either before or after the removal of the skull from the grave. This has had the unfortunate effect of shortening the series to a minimum. No differences in the means of the various sub-series can be discovered, either for males or females. The males have, however, a much greater bizygomatic breadth than the females. The cranio-facial and zygo-frontal series are even shorter, and show no variation among the sub-groups represented, except such as may be attributed to chance and to sex.

The male and female total face height and upper face height series are slightly more satisfactory. There are no differences in the mean total face height or the mean upper face height of the various sub-series. Males, of course, have slightly longer faces than females, but even this sexual difference is not great. We have lamentably small series on the total facial and upper facial indices, particularly for females. Such as they are, they demonstrate no differences between any of the locational groups. All are euryprosopic but mesene.

The series for nasal length, breadth and index are longer, but portray no differences between the various locational groups. The female nose is apparently smaller, and, in particular, shorter, so that the index

TABLE 9

Female Indices, by Location

	Mortuary Structure	Burial Mound	Elsewhere on Site	Total
Cranial				
Number	14	10	16	40
Range	79-92	72-89	75-96	72-96
Mean	86.72±.88	82.90±1.02	85.38	85.38±.62
Standard Deviation	4.83	4.74		5.70
Length-Height Auriculo-Bregmatic				
Number	3	5	6	14
Range	60-77	54-77	66-74	54-77
Mean	70.00	67.60	73.50	69.36±1.08
Standard Deviation				6.06
Length-Height Basio-Bregmatic				
Number	10	3	11	24
Range	75-89	78-92	72-89	72-92
Mean	82.30	84.00	81.45	82.12±.53
Standard Deviation				3.90
Breadth-Height Auriculo-Bregmatic				
Number	4	6	6	16
Range	78-86	66-89	78-86	66-89
Mean	85.75	81.50	82.00	82.00±.77
Standard Deviation				4.68
Breadth-Height Basio-Bregmatic				
Number	10	4	10	24
Range	81-104	90-104	81-107	81-107
Mean	93.70	97.00	94.30	94.50±.80
Standard Deviation				5.82
Cranio-Facial				
Number	6	2	6	14
Range	87-95	93-98	84-95	84-98
Mean	91.00	95.50	91.00	91.64±.54
Standard Deviation				2.88
Fronto-Parietal				
Number	13	10	15	38
Range	57-71	57-71	60-74	57-74
Mean	63.08	65.20	64.20	64.08±.37
Standard Deviation				3.33
Zygo-Frontal				
Number	6	2	6	14
Range	63-77	57-71	63-74	57-77
Mean	69.50	64.00	68.00	68.07±.75
Standard Deviation				4.32
Zygo-Gonial				
Number	5	2	6	13
Range	66-80	66-80	66-77	66-80
Mean	73.00	73.00	70.00	71.62±.93
Standard Deviation				4.56
Total Facial				
Number	6	1	4	11
Range	78-89	84	78-92	78-92
Mean	88.00	84.00	85.00	84.73±.89
Standard Deviation				4.35

TABLE 9 (Cont'd.)

	Mortuary Structure	Burial Mound	Elsewhere on Site	Total
Upper Facial				
Number	4	1	6	11
Range	48-56	50	45-56	45-56
Mean	51.75	50.00	51.00	50.36±.67
Standard Deviation				3.27
Nasal				
Number	10	8	11	29
Range	47-55	45-56	39-56	39-56
Mean	49.60	50.88	48.73	49.62±.43
Standard Deviation	2.32	3.00		3.51
Maxillo-Alveolar				
Number	6	5	10	21
Range	116-142	113-136	113-127	113-142
Mean	126.00±2.09	119.60±2.07	121.20	122.86±1.08
Standard Deviation	7.67	6.93		7.07
Orbital, right				
Number	6	2	6	14
Range	87-107	87-92	84-101	84-107
Mean	95.00	89.50	93.00	92.93±1.07
Standard Deviation				5.94
Orbital, left				
Number	5	4	3	12
Range	90-104	90-98	87-95	87-104
Mean	94.60	94.00	90.00	93.25±.81
Standard Deviation				4.16

is higher than among males. All groups, in both sexes, however, fall within the mesorrhine classification.

In a great many cases the practice of measuring the breadth and the height of one orbit, and that the left, has been adopted. Due to the small size of the Irene series, however, it has seemed better to measure the breadth and height of both the left and the right orbits. As can be seen, there is no real difference within either sex between the various sub-groups in regard to the orbital measurements and indices. Due, however, to the considerably broader orbit of the male, there is a difference between the orbital indices of the two sexes, both right and left. The differences in the orbital breadth and in the orbital index are probably significant, in spite of the shortness of the series concerned, since we find the same condition to exist in both the right and the left orbit. Both male and female means are, however, hypsiconch.

The mean maxillo-alveolar measurements are greater among the males from the mortuary structure than among those from the burial mound. Among the females, however, this difference in size is not confirmed. There would appear to be a considerable difference between the mean maxillo-alveolar index of the mortuary structure females and that of the burial mound females. But these two sub-series are so small that this cannot be regarded seriously. Nor is the difference confirmed by any difference in the sub-series of male indices. All the sub-series have brachyuranic means.

The mean bicondylar breadth of the mandibles from the Irene site does not vary between any sub-series of either sex, except between the male burial mound group and that found elsewhere on the site. Even in this case the difference is not a significant one, due to the very small size of the series, and, as well, to the lack of confirmation from measurements on the other sex. The mean bigonial breadth in both male and female series is similar in two groups, but slightly narrower in the group from elsewhere on the site. In neither sex does this difference reach statistical significance, but the fact that it occurs in both is suggestive. It may be noted, too, that the zygo-gonial index, in both sexes, is lowest for the sub-series from elsewhere on the site.

Comparative Data

Other Indian skeletal material from the southeastern part of this country includes published series from Florida (Hrdlicka, 1922); from Indian Knoll in Kentucky (Hrdlicka, 1927); from Chiggerville, also in Kentucky, by Skarland (Webb and Haag, 1939, pp. 28-49); from the Wheeler Basin in Alabama by Funkhouser (Webb, 1939, pp. 109-126); and the Norris Basin in Tennessee by Funkhouser (Webb, 1938, pp. 225-251); and the Pickwick Basin in Alabama by Newman and Snow (1941). This last group contains two distinct series, one from the Shell Mounds, the other, Koger Island. Even a brief examination of these data shows that the Irene material corresponds more closely to that from the later sites throughout the Southeast, rather than to that from the earlier sites. However, it does not correspond closely to the material from the very late sites. In general the facial skeleton, as indicated by the measurements presented in these publications, seems to be rather similar throughout the entire period and throughout the entire area. In facial features which differ from site to site the population represented by our series seems to have been average. This also is true with regard to the height of the head: for instance, the greatest head height is that found among the Koger Island males of the Pickwick Basin where the mean basio-bregmatic height is 143.41 millimeters. The least seems to be 139.5 millimeters which is found at Chiggerville and Indian Knoll, both Kentucky sites. The mean head height for males at Irene is 140.89 millimeters. The mean minimum frontal diameter is least at Chiggerville, where it is 92.4 millimeters, greatest at Koger Island, where it is 95.69 millimeters, while at Irene it is 93.43 millimeters. The total facial index, which at Irene is 83.88, ranges from as high as 88.5 for the Florida series to as low as 80.2 for the Chiggerville group. The greatest mean length of the nose is found in the Pooled Florida series, where it is 52.7 millimeters, and the least in the Shell Mounds series, where it is 50.15 millimeters. At Irene it is 51.91 millimeters.

However, there are considerably greater varia-

TABLE 10

Comparison of Irene Male Measurements With Those From Other Southeastern Sites

	Irene	*Pooled Florida*	*Koger Island*	*Shell Mounds*	*Wheeler Basin*	*Norris Basin*	*Indian Knoll*	*Chiggerville*
Head Length	173.57	179.7	173.95	183.41	173	165	177.0	181.1
Head Breadth	153.82	145.3	145.45	134.18	142	156	135.8	134.2
Basio-Bregmatic Height	140.89	141.7	143.41	140.43	140	140	139.5	139.5
Minimum Frontal	93.43	—	95.69	93.37	—	—	—	92.4
Bizygomatic	139.73	141.4	142.36	140.81	—	—	136.0	137.7
Bicondylar	126.58	—	—	125.57	126	126	—	122.5
Bigonial	101.27	107.5	—	102.61	97	111	—	101.6
Total Face Height	118.18	124.0	—	119.15	—	—	115.7	110.3
Upper Face Height	71.13	74.7	73.09	71.00	—	—	70.4	69.1
Nasal Height	51.91	52.7	52.67	50.15	—	—	50.9	50.3
Nasal Breadth	24.97	24.9	25.78	25.53	—	—	23.8	25.8
Left Orbital Breadth	39.30	—	—	41.17	—	—	—	38.6
Left Orbital Height	35.12	—	—	35.43	—	—	—	32.4

tions in the length and breadth of the head. The earlier inhabitants of the southeastern part of this country would appear to have been dolichocranial. The Shell Mounds people from the Pickwick Basin have a mean head length of 183.41 millimeters and a mean head breadth of 134.18 millimeters with a mean cranial index of 73.35. The group from the Norris Basin in Tennessee have a mean head length of 165 millimeters and breadth of 156 millimeters, and a mean cranial index of 92. This last group, like most of the rather brachycranial groups, has undergone artificial deformation which shortens the skull, thereby raising the cranial index. At Irene the mean head length is 173.57 millimeters, the mean head breadth 143.82 millimeters, and the mean cranial index 83.12. This again is intermediate, but is probably much closer to the actual inherited dimensions of even the later groups since we find such ineffective cranial deformation at Irene.

The stature of our people, averaging 165 centimeters, seems to be less than that of any of the living southeastern Indians: the Creeks, for instance, according to Boas (1895, pp. 366-411), averaging 173.5 centimeters in stature. This is very considerably above the stature of the Irene population, even allowing for a considerable range of error in our estimates. However, it is possible that the past four or five centuries have seen a general increase in the size of southeastern Indians. The statures estimated for many of the prehistoric southeastern groups are not

TABLE 11

Comparison of Irene Male Indices With Those From Other Southeastern Sites

	Irene	*Pooled Florida*	*Koger Island*	*Shell Mounds*	*Wheeler Basin*	*Norris Basin*	*Indian Knoll*	*Chiggerville*
Cranial	83.12	80.8	83.61	73.35	80.22	92.0	76.7	74.3
Length Height	80.27	79.0	82.76	77.08	—	—	78.8	78.1
Breadth Height	98.38	98.3	97.88	103.75	—	—	97.3	104.3
Fronto-Parietal	65.31	—	67.23	69.47	—	—	—	68.4
Cranio-Facial	97.30	—	98.44	102.30	—	—	—	—
Zygo-Frontal	67.29	—	67.07	69.00	—	—	—	—
Zygo-Gonial	72.81	—	—	73.75	—	—	—	—
Total Facial	83.88	88.5	—	86.90	—	—	84.7	80.2
Upper Facial	50.73	52.5	52.24	51.30	—	—	51.7	51.6
Nasal	48.36	47.4	48.89	49.28	—	—	46.8	50.4
Orbital	88.41	—	—	86.73	—	—	—	82.6

much greater than those which we found at Irene (*Vide supra*, p. 58). More detailed comparison of some of the male measurements and indices of the Irene Indians with those of the other southeastern groups already mentioned is presented in Tables 10 and 11. On the basis of the evidence presented there should be no doubt that we are dealing at the Irene site with a rather ordinary medium-late southeastern Indian population. There seems to be an almost complete lack of the very early dolichocranial types. On the other hand, we have no evidence that the very late, protohistoric styles in head deformation which were practiced farther in the interior of Georgia, and in Alabama and Tennessee, had reached the coast before the use of the Irene site was discontinued. The attempts of our local population at head deformation seem to have been half-hearted for the most part.

Although the standard practice among physical anthropologists today is to depend very largely upon the means and standard deviations of any series studied, for the conclusions reached, an attempt has also been made to apply the technique of percentage distributions of the Irene skulls into various classifications. The number of brachycranial and dolichocranial skulls has been ascertained, as well as the number of those with high and low vaults, and with broad and narrow noses. Following the terminology of Dixon (1923) Table 12 has been drawn up showing the number of crania belonging to the hypothetical races postulated by him.

TABLE 12

	Mortuary Structure	*Burial Mound*	*Elsewhere on Site*	*All Irene*
Alpine	9	5	7	21
Palae-Alpine	5	4	5	14
Ural	1	–	2	3
Mongoloid	1	–	–	1
Caspian	–	–	2	2
Proto-Negroid	–	3	2	5
Mediterranean	–	–	1	1
Proto-Australoid	–	–	–	–
Total	16	12	19	47

It should be noted that the Proto-Negroid factor, comprising 25% of the classified crania from the burial mound, is lacking entirely from the mortuary structure, and that the various dolichocranial groups, which amount to 26% of the combined burial mound and elsewhere crania, are not present among classified mortuary structure crania at all.

Anomalies and Pathology

Brief mention should be made of the anomalies and the pathology of the Irene skeletal material. One case of an impacted wisdom tooth has been found. In three cases it was noted that the upper canines, instead of appearing, as they normally do, between the incisors and the first premolars, have erupted between the first and the second upper premolars, and that they are outside of the dental series. This is a very high percentage, more than 2%, for an anomaly, and since one occurs in a burial mound skull and one in a mortuary structure skull it is possible that we have here a case of inheritance of an anomaly in a certain family of Indians buried at the site. The general pathology of the teeth has been discussed, but one case, that of skeleton 154-b, deserves special attention. Here we have, on the right side of the mandible, extreme abcesses accompanied by a very great degeneration of the right ramus and its condyle. Two rather large cavities between the roof of the mouth and the nasal passage occur also in this skull, which seems to have been extremely diseased. There are also a number of cases of osteomylitis, and one of a broken tibia accompanied by periostitis of the tibia and fibula. One case of a hole in the occiput of a female skull, which was apparently caused by a projectile point, seems to have resulted in death, since there are no signs of healing to be seen. Two other victims of violent death were found buried deep in the flanks of the mound: both are youths whose brain cases had been crushed to tiny fragments, although the mandibles and the maxillae were unbroken (see pp. 29, 38, 75).

Speculations

Attention has been called to the fact that the male crania from the burial mound are very heterogeneous in cranial length and cranial index (*Vide supra* table 5), and have a lesser mean cranial breadth than those from the mortuary structure (*Vide supra* table 6). Furthermore, a large percentage of these burial mound crania have bun-shaped occiputs (*Vide supra* pp. 58-59) and a good percentage are of the type called by Dixon, Proto-Negroid (*Vide supra* table 12).

Since as many burials were found in and about the mortuary structure as in the burial mound, which served for a longer time (pp. 69, 72), it is logical to assume a lesser population during each generation of the earlier period. It might, then, have been necessary for the local girls to marry men from some other place. Clan exogamy is the rule among American Indians in general, and there is evidence to show that the nearby Timucua were exogamous (Swanton, 1918, p. 369). The Timucua also counted descent more heavily on the female side (Swanton, 1918, p. 369). This is a very common custom of American Indian tribes, frequently associated with matrilocal residence. It is not at all unlikely that the Indians at Irene followed the same pattern. Since it is known that among the Muskhogean tribes gen-

erally, and particularly among the Creeks, the process of absorption of foreign groups was continuous, local girls might even have married men of another tribe.

Should these assumptions be correct, the narrow, bun-shaped, Proto-Negroid skulls from the burial mound may well be those of men who came from other localities to marry, and to dwell with, the women of the site. However, as population increased, there would be increasing opportunity for local intermarriage. After two or three generations there would be less reason for the appearance of immigrant males at Irene.

They should, of course, have left descendants among the members of the later generations, those buried in and about the mortuary structure. The instances of tooth anomaly cited above suggest that the later inhabitants of the locality were descended from the earlier. The great changes in head breadth and cranial index are doubtless due to the operation of the genetic principles of dominance and segregation. There is considerable evidence to show that the broader is dominant over the narrower head (Frets, 1917). All individuals of the first filial generation, and three out of four in the second, among hybrids, show the dominant factor. In accordance with this rule, we may expect to find only a very small percentage of the combined later generations showing the recessive characteristic, in this case a narrow head. As a matter of fact, we find that 11 percent of the male and 7 percent of the female skulls from the mortuary structure are dolichocranial.

Thus the available evidence points to the conclusion that, while women often married outsiders of a diverse physical type during the earlier generations at the site, in the very latest generations they almost never did so, having enough potential mates in the locality.

Summary

The people who lived at Irene were American Indians similar in their physical characteristics to the inhabitants of Florida, Alabama, and Tennessee. They seem to have been a small group consisting of not very many families, and, during their period of occupancy at this site, the only major change which took place in their physical characteristics was a considerable expansion of the mean head breadth. This may well have been due to the incoming of a few new families, or even of single individuals, during the earlier period.

The analysis of the physical anthropology of the group of skeletons buried at the Irene site shows that these people were brachycranial, particularly during the latest of the ceramic periods. Artificial deformation may have emphasized this characteristic. Despite this, some of them, particularly in the earlier ceramic period, had protruding or bun-shaped occiputs. Almost all of the skulls, however, show lambdoid flattening, not necessarily artificial. During both ceramic periods they had reasonably high heads, with a tendency towards scaphocephaly. They had rather narrow foreheads, flaring cheek bones, and rather broad jaws. They were euryprosopic, but mesene. They were brachyuranic, slightly prognathous in the alveolar region, with strong jaws and strong teeth, which, however, usually were worn down by the abrasion of their gritty food. Their noses were rather high-bridged, rather broad-rooted, but mesorrhine. Brow ridges are noticeable among the males in many cases.

These people, although medium in height, in general were shorter than the later and modern groups, at least, of southeastern Indians, and they would have appeared quite short to us. This summary of conclusions with regard to the inhabitants of the Irene site shows that, like most of the later southeastern groups, they belonged to the racial type called by Hrdlicka *Gulf* and by Von Eickstedt *Centralid*.

Summary and Conclusions

The most impressive feature of the Irene site was the large proportion of presumably ceremonial buildings and inclosures, and the relatively small number of possible habitations. Evidently the site was a political or ceremonial center or both for the population of a considerable area. Despite the apparent lack of housing facilities, the large amount of midden indicates that domestic as well as ceremonial activities were carried on. Probably the population of the site was numerous only on special occasions, and temporary shelters may have been used at those times. Numerous random postmolds found on the site might represent the remains of such shelters.

On the basis of the relative abundance of the various types of pottery it has been concluded that the aboriginal occupation of the site was divisible into two main ceramic periods. The earlier of these is called the Savannah, and the later the Irene. The respective periods were connected by an interval of transition distinguished by the beginnings of rim specialization on pottery. Minority representations of certain types of pottery indicated that there was a limited degree of occupation of the site during other, still earlier ceramic periods.

During the Savannah period, however, the population (of the surrounding territory) evidently became large enough to cause the erection of mounds, extensive log inclosures, and permanent buildings.

Seven successive mounds were built in the east-central portion of the site. They resembled each other in a number of significant features: all were pentagonally shaped with ascending ramps and probably all had summit structures. Most of them were palisaded. One difference was the fact that the first four mounds were probably depressed in the center and the summits of the following three were flat (see figures 26 and 27).

There were at least two, probably more, successive plans of arrangement of inclosures and buildings around the mounds during the Savannah ceramic period (see figure 28). One arrangement was indicated by a large semicircular wall, possibly a palisade, which almost completely inclosed the mound area and separated it from the rest of the site. Another large wall, probably distinct, ran along the river bank south of the large mound and had several tributary walls which appeared to have inclosed areas of varying shapes. The purpose of these inclosures was not determined. The wall and its tributaries were aligned in the same directions as the seven superimposed platform mounds, and probably had some connection with at least one of them.

Four small buildings were constructed in the area around the mound. All of them had rectangular ground plans. Two were built on the surface and had gap entrances. Another semisubterranean house (not shown in figure 28) with a projecting entrance was built during the transitional period between the Irene and Savannah ceramic complexes.

The burial mound was begun sometime during the Savannah period, possibly before the first of the large mounds. The earliest feature of its construction was a small shell deposit which contained cremated burials exclusively. The high proportion of burial offerings in this deposit and in the subsoil below (with 57 per cent of burials) and the fact that most of them consisted of pottery vessels (43 per cent of offerings) was extraordinary. A major portion of the burial mound was made somewhat later in the Savannah period and numerous flexed articulated burials were interred. It was not determined whether the burial mound exhibited a stratigraphy of flexed articulated above cremated burials or merely a custom of beginning burial mounds with a central deposit containing cremated burials.

The apparent slightness of the changes effected in most of the elements of material culture during the succeeding Irene period indicated continuity of occupation. This was also partially substantiated by instances of tooth anomaly in the skeletons from both major periods. That the population was probably greater during the Irene period is attested by the fact that as many burials were made then as during the earlier, and probably longer, Savannah period.

However, the eighth and last mound, which was built during the Irene period, was entirely different from the earlier platform mounds. It was circular and round-topped. Nothing resembling a summit structure was found; instead parts of successive large wattle and daub inclosures encroached on the southern slope and joined the large mound with the rotunda at the extreme southeastern end of the site.

Figure 30 is a drawing made by Bartram showing the relation of the rotunda to the historic Creek ceremonial ground and town. If the mound-rotunda arrangement at Irene as shown in figure 29 is compared with that shown by Bartram, the similarity is readily apparent. In regard to the relationship between the rotunda and the public square, Swanton (Swanton, 1928, p. 176) suggests that the latter may have been a substitute suggested by the southern climate. No arrangements of buildings comparable to the square was found at Irene. However, the area of the successive connecting inclosures between the large

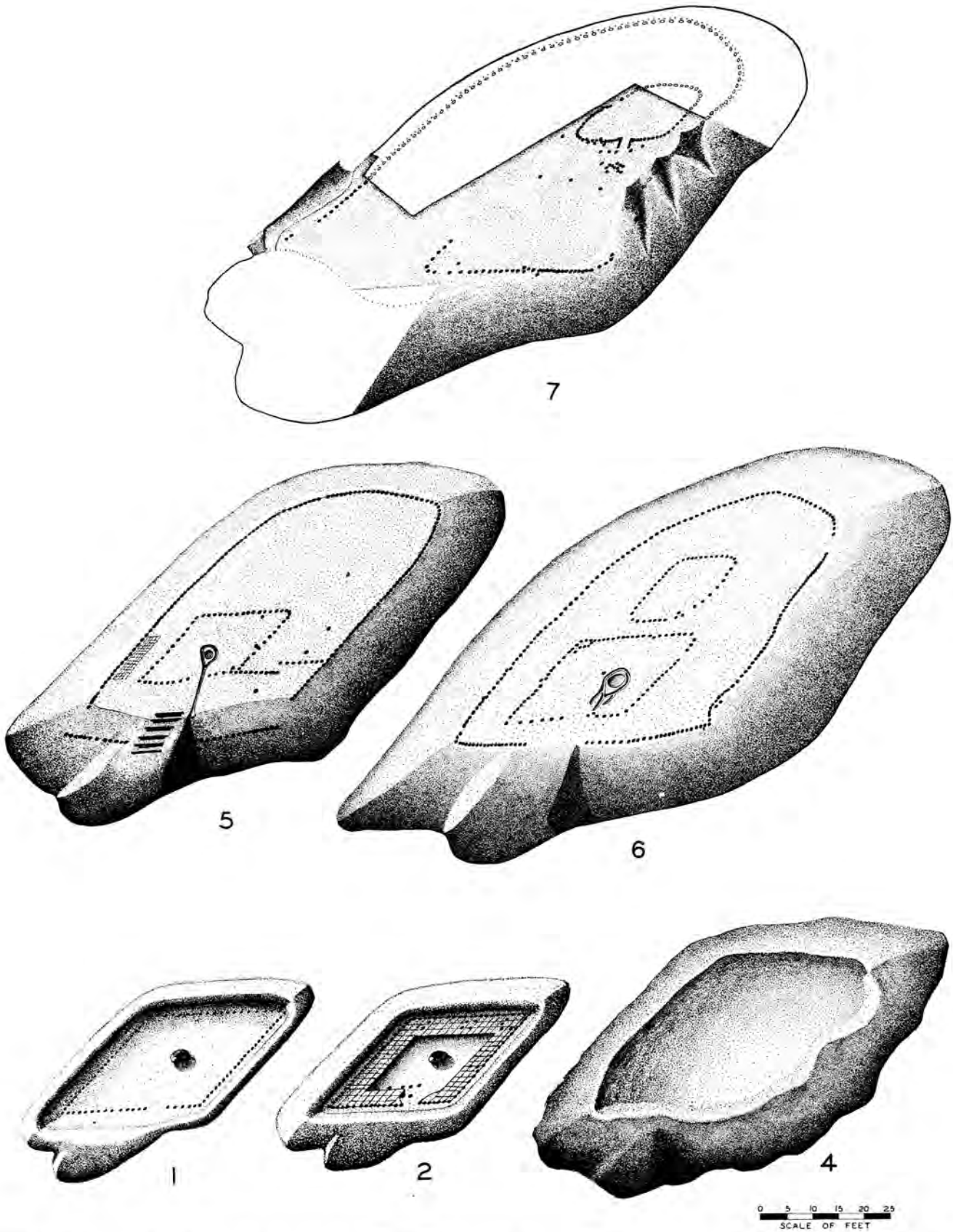


FIGURE 26.—RECONSTRUCTION OF MOUNDS (ISOMETRIC)

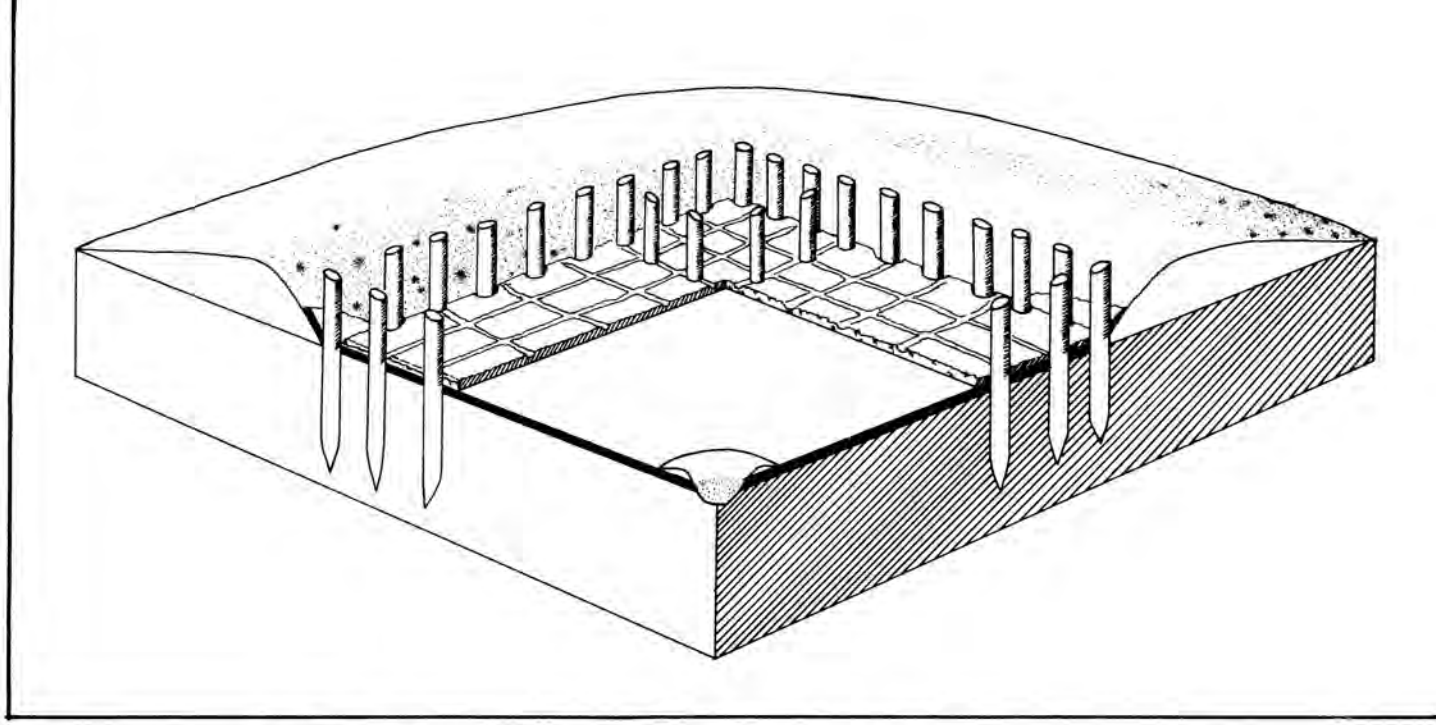
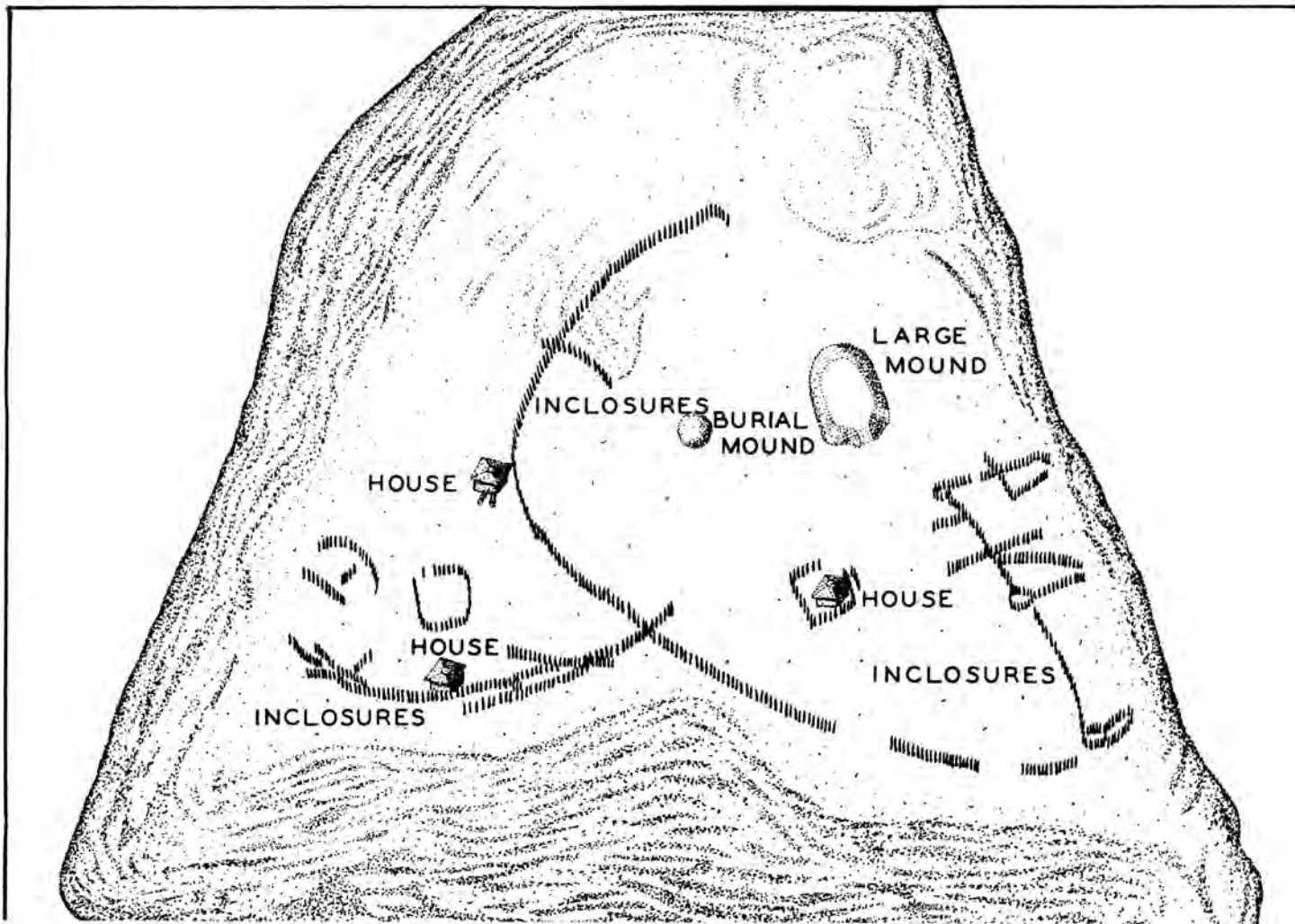


FIGURE 27.—RECONSTRUCTION OF PART OF THE MOUND 1 STRUCTURE

FIGURE 28.—ARRANGEMENT OF ARCHITECTURAL FEATURES DURING THE SAVANNAH CERAMIC PERIOD



mound and the rotunda very likely served as a place for public ceremonies, and possibly as a chunkey yard as well. It may be significant that the pentagonal shape of the Savannah period platform mounds was retained in the pentagonal shape of the later Irene period inclosures between the large mound and the rotunda. This suggests that the activities once carried out on the summits of the mounds were later transferred to the inclosure area.

The mortuary was built during the Irene period and was used in some connection with the dead, probably as a repository. It was rectangular and semisubterranean with a projecting entrance (see figures 31 and 32). There were several burials and vessels on the floor at the time of its destruction by fire. Subsequently the walls were torn down, a sand fill placed on the ruins, and the locality used as a cemetery. This was surrounded by two concentric inclosures which probably represented its boundaries at successive intervals. Burials were found in the sand fill above the mortuary and within each of the inclosures. The majority were flexed burials of adults and urn burials of children. A bundle burial also occurred, but there were no instances of extended or cremated individuals. An almost unique feature of this burial area was the use of clay plugs for grave pits. Grave furniture was found with 8 per cent of the burials in the fill, with 32 per cent of the burials in the inner inclosure, and with 17 per cent of the burials within the outer inclosure. No grave furniture was found with the burials on the floor of the mortuary.

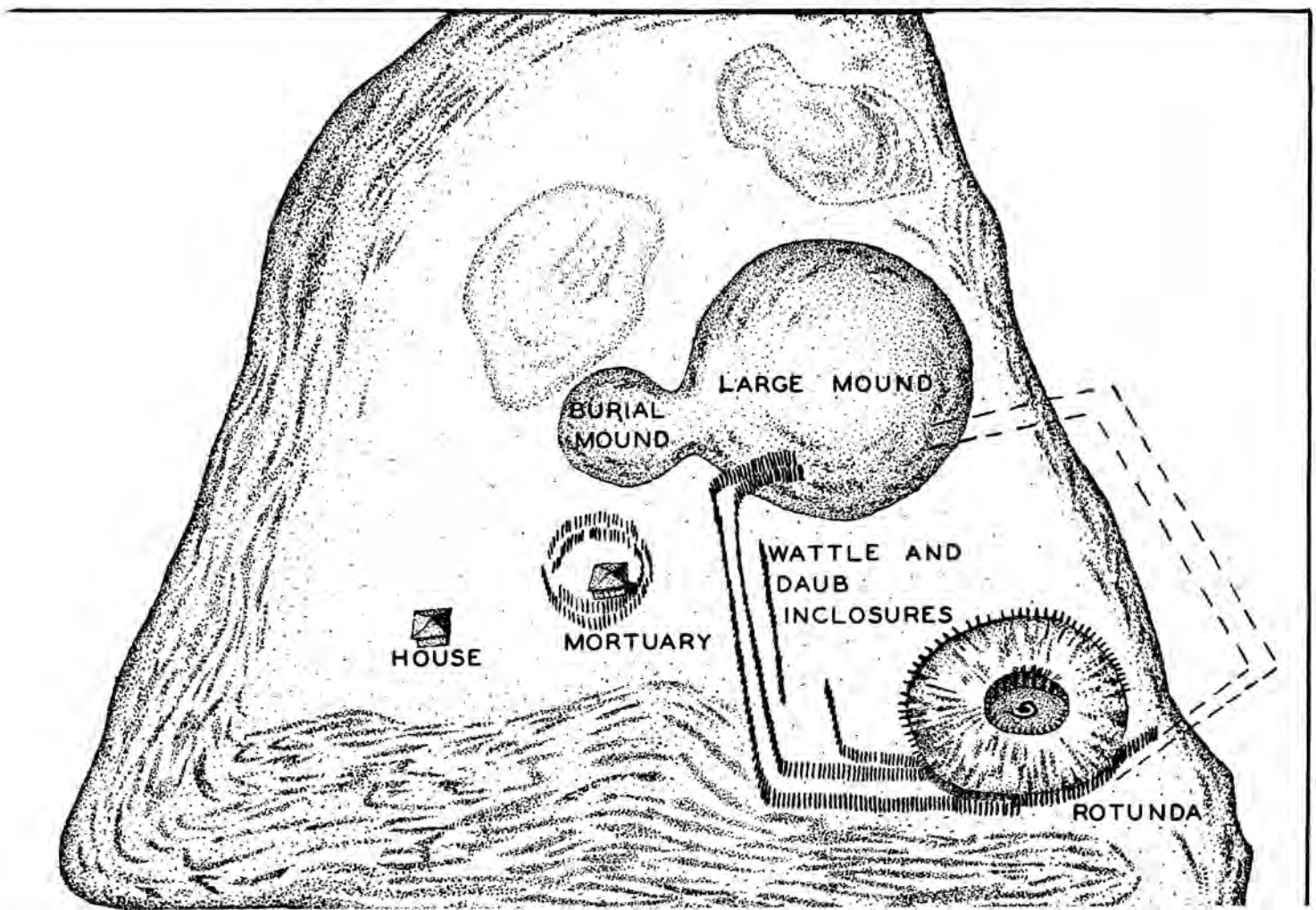
The original burial mound was enlarged during the Irene period and an undetermined number of burials was made. None of them were cremated as had been the case with the initial mound, and they were indistinguishable from the flexed articulated burials of the Savannah period.

A number of articulated burials and burials in urns, as well as one cremated burial, were found within the innermost circle of the rotunda. It was not determined whether they were buried before or after its destruction. One burial and one vessel, respectively, contained offerings.

Isolated interments consisting chiefly of articulated and urn burials occurred in various parts of the site. Grave goods were found with 13 per cent of the articulated burials and with 13 per cent of the urn burials. Only one urn burial belonged to the Savannah ceramic period, but a large number belonging to the Irene period were found.

The site was abandoned during or at the close of the Irene period. While no evidence was found to indicate historic contact, the pottery is almost identi-

FIGURE 29.—ARRANGEMENT OF ARCHITECTURAL FEATURES DURING THE IRENE CERAMIC PERIOD



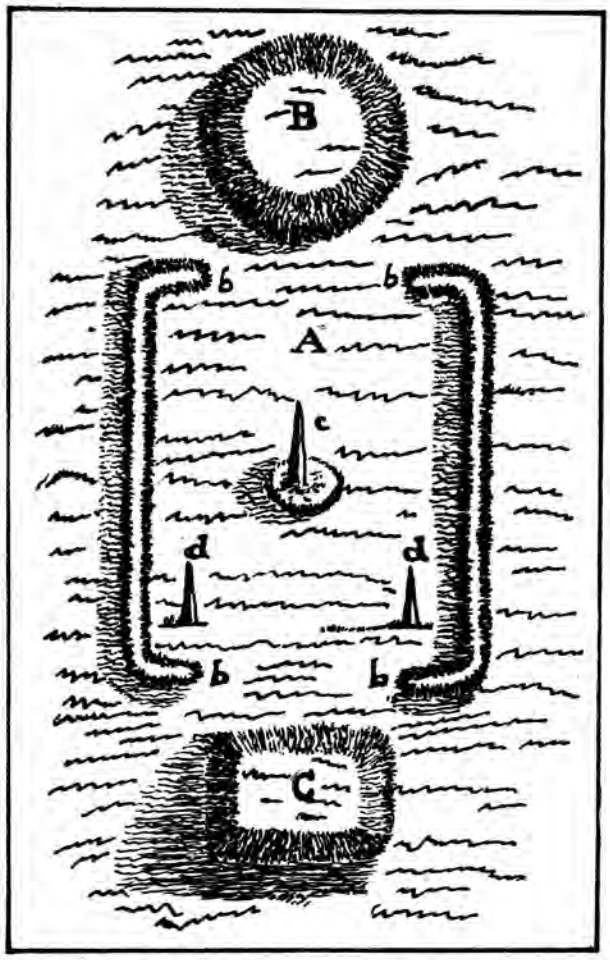


FIGURE 30.—ANCIENT PATTERN OF CREEK CEREMONIAL OR BUSK GROUND

"A, the great area, surrounded by terraces or banks.

"B, a circular eminence, at one end of the yard, commonly nine or ten feet higher than the ground round about. Upon this mound stands the great Rotunda, Hot House, or Winter Council House, of the present Creeks. It was probably designed and used by the ancients who constructed it, for the same purpose.

"C, a square terrace or eminence, about the same height with the circular one just described, occupying a position at the other end of the yard. Upon this stands the Public Square.

"The banks inclosing the yard are indicated by the letters b, b, b, b; c indicates the 'Chunk-Pole,' and d, d, the 'Slave-Posts.'"

cal with pottery associated with Spanish ceramics farther south (see p. 41). A guess is that Irene was occupied for a considerable time after 1492 and probably almost until the Spanish consolidation of the area around 1600.

A Moravian mission school house was built on the summit of the deserted mound in 1736, three years after the founding of the Colony of Georgia.

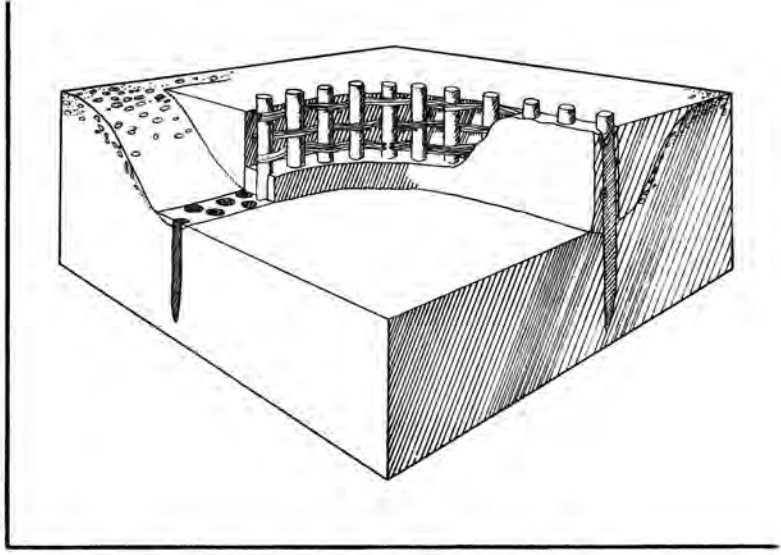


FIGURE 31.—RECONSTRUCTION OF THE MORTUARY WALL

Affiliations

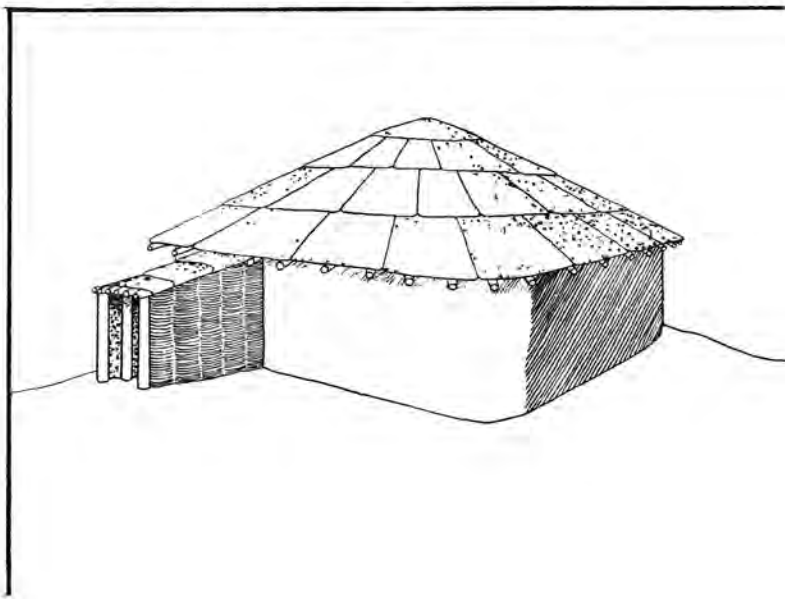
Since the Irene site lay on the border between the slightly later Spanish provinces of Guale and Santa Elena, there is a fair chance that the inhabitants of Irene were Guale (Yamassee) or Cusabo. They probably spoke a Muskhogean language.

The Savannah period pottery exhibited a mixture of coastal and central Georgia ceramic traits but appeared to have been primarily a development of the immediate area. The other culture traits of the coastal and the larger southeastern area are not adequately defined, but it is the impression of the writers that Irene was occupied by a well acculturated group which had been in the coastal area for a considerable time.

The later Irene period pottery showed a majority of much wider affiliations which related it to various Muskhogean-speaking and proto-Creek groups in Georgia.

The relative ceramic homogenity of the protohistoric Irene-Lamar period in Georgia is very noticeable and is possibly the reflection of a trend toward integration which culminated in the later Creek confederacy.

FIGURE 32.—RECONSTRUCTION OF THE MORTUARY



Trait List

GENERAL

Chief function of site appears to have been ceremonial or political.

MOUND BUILDING

	Ceramic Period		
	Irene	Sav'h	Uncertain
Mound constructed of alternate layers of sand and shell	2	8	
Circular with round top	1	1	
Pentagonal with flat top		4	
Pentagonal embankment surrounding structure		2	
Perpendicular ramp		7	
Lateral ramp		1	
Log steps leading to mound summit		1	

ARCHITECTURE

Types			
Rotunda	1		
Mortuary (semisubterranean)	1		
Presumed dwelling (not on mound	1	4	1
(1) on ground surface	1	2	1
(2) semisubterranean		2	
Palisade or inclosure (not on mound)	5	4	12
Palisade or inclosure around mortuary area	2		
Building on mound		7	
(1) on summit		5	
(2) mound forms embankment around building		2	
Shed or outside partition on mound		2	
Palisade on mound		3	
Palisade at base of mound		2	
Mound palisade inclosing adjacent area		14	
Inclosure between mound and rotunda	3		
Buildings:			
Rectangular ground plan	2	9	2
(1) right angled corners	1	5	2
(2) rounded corners	1	4	
Circular ground plan	1		
Wall posts singly set	2	4	2
Wall posts staggered	1	1	1
Wall posts in wall trench	1	1	
Wall posts in shallow trough		3	
Wall posts in multiple alignment		1	
Wall posts in line bordering wall trench	1		
Wall construction of wattle and daub	3	3 (?)	1
(This includes wattling of reed or cane, sometimes split, and woven in bundles between uprights; daub tempered with vegetable fiber, probably Spanish moss, and smoothed at least on the interior surface.)			
Roof supported by central upright(s)		2	1
Roof supported by four posts	1		
System of grouped supports (also includes supports in line paraleling wall)		1	
Gap entrance	(?)	4	1
Overlap entrance	1		
Projecting entrance passage	1	2	1
(1) Sloping, defined by boat-ended wall trenches lacking visible postmolds	1	2	1
(2) Defined by single posts		1	
Entrance passage floored with clay	1	1	
Prepared sand floor		1	
Prepared clay floor		4	
Floor not prepared	2	2	2
Low bench of clay around wall (Covered with reed or cane matting.)		1	
Circular fire basin			
(1) Raised above floor	1	3	
(2) Sunken in floor	1	1	
"Tear drop" shaped fire basin (raised above floor and surrounded by gutter)		2	
Inclosures and Palisades:			
Rectangular ground plan (right angled corners)		13	1
Circular ground plan	2	4	3
Pentagonal ground plan	5	3	
Extensive pattern of connecting inclosures		1	
Forking walls	1	2	2
Wall posts singly set	2	7	
Wall posts in wall trenches	6	16	6
Wall posts singly set and in wall trench		2	
Wall posts in line bordering wall trench		1	
Wall construction of wattle and daub	4	5 (?)	
Overlap entrance	1		

BURIAL

Burial in mound	6	8	92
(1) accretion	3		
(2) intrusion	3		
Burial in cemetery	80		
Burial in mortuary building	4		
Burial in center of rotunda	22		
Burial in village area	24	1	39
Clay plug in burial pit	18		
Flexed burial	68		94
Flexed "jitterbug"	3		1
Extended prone			4
Double burial	11		5
Bundle burial	1		2
Partially disarticulated	1		
Partially disarticulated with another individual	2		
Portion burial	2		6
Skull burial	5	1	3
Individual cremated burial	1	6	
Individual burial partially charred	2		
Infant or child urn burial	17	1	
Adult urn burial	3		
Cremated urn burial		1	
Urn without cover	40	1	
Urn with cover inverted	34		
Urn with cover mouth up	3		

	Ceramic Period		
	Irene	Sav'h	Uncertain
Burial without offering	85	2	118
Burial with scanty or single offering	12	5(71%)	9
Burial with abundant or multiple offering	9		4
Burial with red ochre	1		
Burial with mica	1		
Burial with vessels as offering	1(?)	4(57%)	
MISCELLANEOUS			
Special dump for broken ceremonial vessels	1		
Adult skulls exhibit pronounced tooth wear	100%	100%	100%
Frontal or occipital flattening			
(1) Males	25%		33%
(2) Females	31%		17%
Individuals with upper portions of skulls crushed, causing death	2		
Skull pierced by projectile point	1		
(Naturally it cannot be determined whether the two immediately preceding traits should be ascribed to the Irene Indians or to their enemies.)			
POTTERY			
Irene Filfot Stamped	X		
Irene Incised	X		
Irene Plain	X		
Savannah Fine Cordmarked		X	
Savannah Check Stamped		X	
Savannah Burnished Plain		X	
Savannah Complicated Stamped		X	
ARTIFACTS OF POTTERY AND SHERD			
Sherd disc	215	428	74
Perforated sherd disc			13
Pottery disc			1
Sherd hone	152	690	95
Elbow pipe		1	36
Bored cylindrical object	33		
Pottery effigy			1
Pottery bead			2
ARTIFACTS OF BONE			
Ulna awl			18
Splinter awl			78
Bone pin			16
Decorated flat pin			1
Needle			1
Fish hook			3
Bone tube			1
Bone bead			2
Socketed section of bone			1
Fossil shark tooth			2
ARTIFACTS OF SHELL			
Large circular gorget	4		4
Small circular gorget		4	

	Ceramic Period		
	Irene	Sav'h	Uncertain
Shell disc			2
Pendant			1
Cut section of conch columella			1
Columella pin	1		5
Knob-headed columella pin	8	2	1
Columella auger (?)			2
Perforated and worn conch shell			13
Conch bowl		1	1
Disc beads			30 sets
Tube beads			4 sets
Massive beads			3 sets
Marginella bead			1 set
Oliva bead			1
GROUND STONE ARTIFACTS			
Celt	5		
Large stone disc			2
Small stone disc	1		
Perforated stone disc			1
Stone elbow pipe	1		
Boat stone (Plate XXI G,H,I)	1		2
Fire drill outfit (?) two pieces (Plate XXI B,E)	1		
Incised object of talcose schist (Plate XXI F)	1		
Rectangular tablet of shale			1
CHIPPED STONE ARTIFACTS			
Projectile points, group A (Plate XXII) (small, isosceles triangular)	11		7
Projectile points, group B (hollow base, medium size)		1	2
Projectile points, group E (small, contracting stem)	2		9
Projectile points, group G ("spinners")	2		
Projectile points, group H (crudely chipped of quartz)			31
Miscellaneous (groups C,D,F,I,J,K)			20
End scraper			5
ROUGH STONE ARTIFACTS			
Large stone disc			9
Small stone disc			13
"Net sinker"			89
Hone			38
Biconcave mortar			1
Pitted stone			1
METAL			
Fragment of sheet copper with repousse decoration		3	
UNWORKED STONES AND MINERALS			
Mica	1		
Red ochre	1		3
Galena		1	
Graphite		1	

Addendum

While this manuscript was going to press, Ford and Willey (1941) proposed a series of four chronological divisions for the prehistory of the Southeast. It will be a step forward if the following terms and implied concepts are adopted:

Temple Mound II (contains some historic contact sites)
Temple Mound I
Burial Mound II
Burial Mound I
Archaic

The two major ceramic periods at the Irene site belong to either or both of the Temple Mound I and II stages. The pottery of the Irene ceramic period is similar to that which Ford and Willey define as belonging to Temple Mound II. The slightly earlier Savannah period pottery partakes of the features ascribed to Temple Mound I. Although the Savannah and Irene ceramic periods are fairly similar in other traits of material culture, the marked differences between the two stages in the interior may be reflected only in ceramics on the coast.

The Archaic, and Burial Mound I and II stages are represented at Irene only in the earlier, sporadic occupation preceding the main mound building periods. It appears, however, that sites belonging to all three stages occur elsewhere in Chatham County. The sites of the St. Simons ceramic period are Archaic. The succeeding Deptford period would be Archaic as defined by Ford and Willey, although it actually has more traits in common with the later stages. Perhaps it would be convenient to divide the Archaic into upper and lower stages. The next period, the Wilmington, should be classed as Burial Mound I, although Ford and Willey appear to consider it Burial Mound II. The latter stage, however, seems more closely related with the early Savannah sites.

Appendices

I The Moravian Mission Schoolhouse

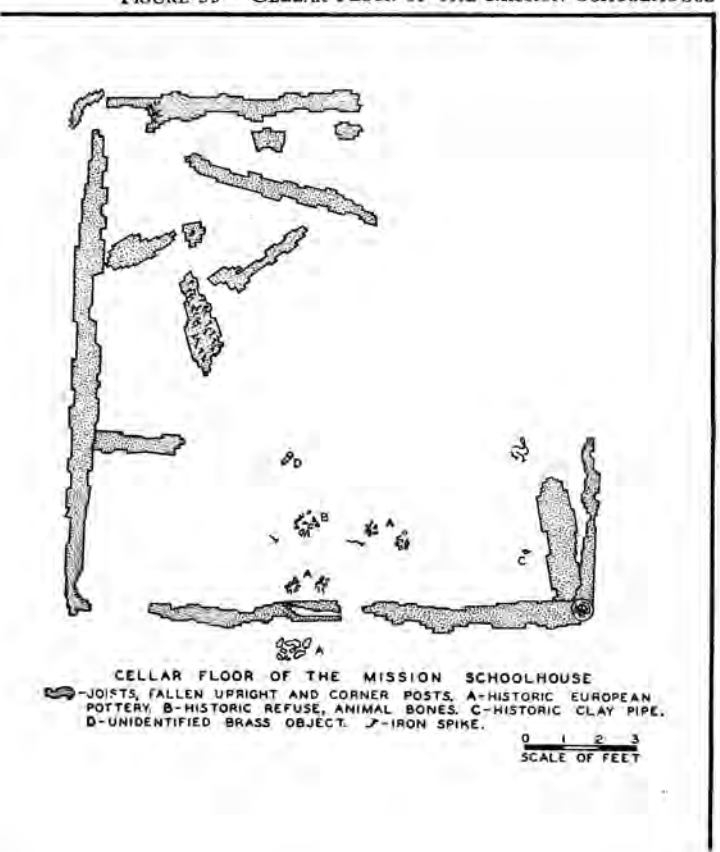
Excavation of the summit of the last mound (Mound 8) disclosed the cellar of the Moravian schoolhouse which was built there in 1736. On the floor of the cellar, between five and six feet below the surface of the mound, were found joists, fallen uprights, and various historic materials as indicated on the accompanying plan (figure 33).

The exposing of the entire summit of the mound failed to reveal any traces of the superstructure of the building and it is assumed that such remains were destroyed by erosion.

The logs on the cellar floor were arranged as though they had been part of the actual cellar construction and were not fallen from the superstructure. Presumably there was an upright at each corner and a joist along the base of each wall. The logs were heavily charred, an interesting fact since the burning of the school is not historically documented. They were partly surrounded by fired sand and ashes. The wood was gum, pine, and cypress.

On the floor of the cellar were numerous hand wrought, stub-headed, and partially corroded spikes, some of them embedded in the wood. A large number of sherds of European wheel-turned pottery comprised parts of two vessels, both glazed. There was also a fragment of brick, possibly derived from the chimney. A trade pipe bowl, stamped with the initials "ER" within a circle; an unidentified brass object; and numerous cut animal bones were also found.

FIGURE 33 —CELLAR FLOOR OF THE MISSION SCHOOLHOUSE



According to historical data, the cellar was under one of the end rooms of the schoolhouse and the schoolhouse itself was oriented north-south. Our findings show that the cellar stood under the southern end room.

It seems appropriate to quote from the publication of Dolores Boisfeuillet (Mrs. Marmaduke H.) Floyd, (1936, pp. 8-11). This contribution established the identity of Irene Mound and aroused interest in its excavation.

"During 1734, the year preceding the removal of Tomochichi's people to New Yamacraw, Tomochichi had been in England, and while there had expressed a desire for the Christianizing and educating of his people; and as a result, Irene came into existence. In February, 1736, Rev. Benjamin Ingham, with Rev. John and Rev. Charles Wesley and some Moravian settlers for the colony, arrived in Georgia and while they were yet on shipboard at the mouth of the Savannah River, on the fourteenth of that month, Tomochichi, with several Indians, including the Savannah king or mico, who was settled with him at New Yamacraw, and 'Mrs. Musgrove,' an interpreter, visited the ship to welcome the missionaries . . .

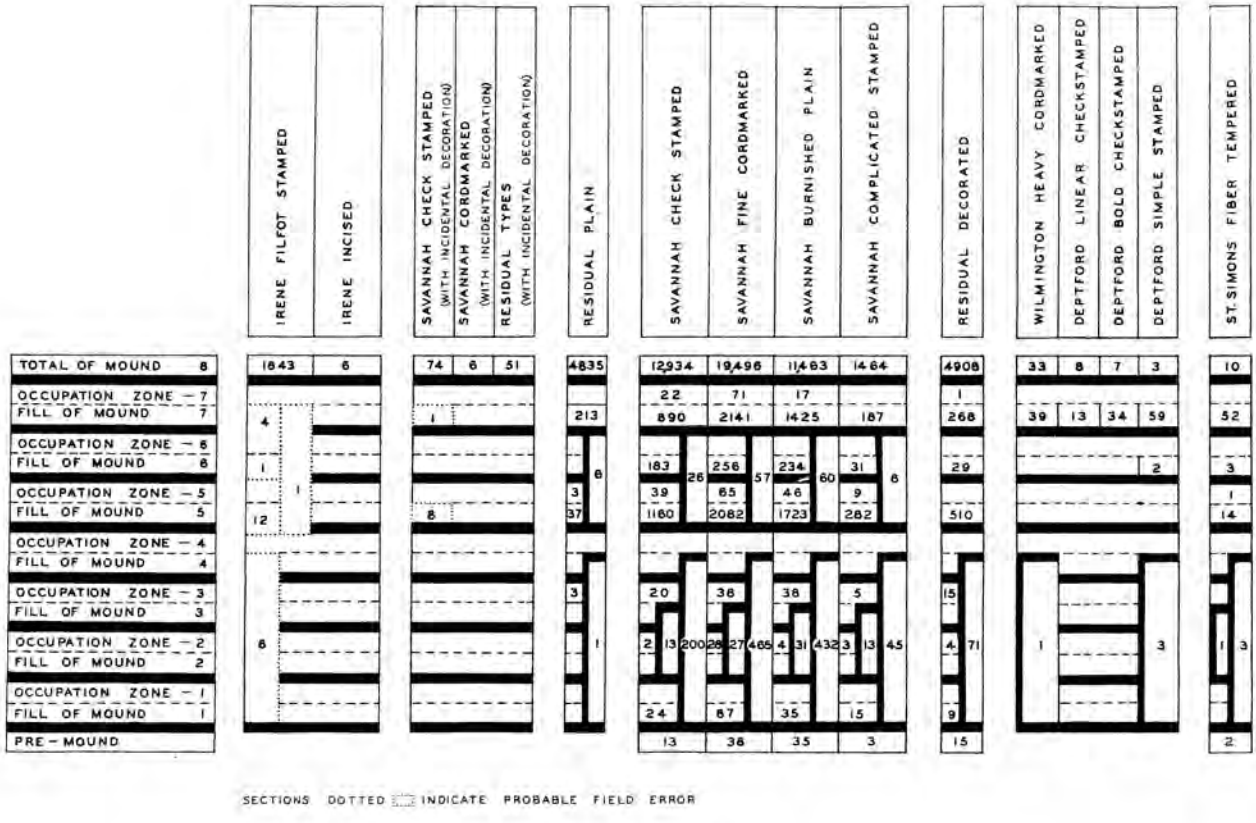
". . . On February 19th, the two Wesleys, with Mary Musgrove as interpreter, paid their first visit to the town of New Yamacraw. On the twenty-fifth, John Wesley accompanied by three of the Moravians —namely, Bishop David Nitschman, August Gottlieb Spangenberg, and Andrew Dober, a potter who was looking for a clay—went up to Mary Musgrove's for the purpose, according to John Wesley's own words: 'to choose a spot for the little house which Mr. Oglethorpe had promised to build us.' On the twenty-sixth, they saw the ground allotted for the house which was to be the mission Irene, at which Ingham was to live.

". . . By August of that year the schoolhouse at Irene was begun, and completed in September.

". . . In his letter, . . . referring to Irene he (Ingham) related the following: . . . 'there is A Door now Opening for the Conversion of the Indians. There is already A School almost built amongst them. The House 60 Foot long & 15 Wide. It will be divided into 3 Rooms, One at Each End, consisting of 15 Foot Square, & the School Room in the Middle as large as both the Other. Under one of the End Rooms they have dug A Cellar. The Foreside of the

House faces the rising Sun, and the two Ends are due North and South. It stands on a little Hill which we call Irene, by a Brook Side, about half a Quarter of a Mile above Tomochichee's Town, where the River divides it Self into 3 Streams. This Hill has been made Some Hundred Years ago, for what Reason I can't tell; Perhaps to perpetuate the Memory of some Illustrious Hero or famous Action. In digging the Cellar, they found Abundance of Oister Shells, and some Bones and Buck Horns. When I fixed upon this Place, the Indians asked me if I was not afraid to live upon A Hill, I answer'd No. They said, the Indians were, because they believed that Fairies haunted Hills' ".

II Sherd Count for the Large Mound



III Faunal Remains

Mammals

Virginia or Whitetail Deer (*Odocoileus virginianus*)
Brown or Black Bear (*Euarctos americanus*)
Opossum (*Didelphis* sp.?)
Florida Raccoon (*Procyon lotor elucus*)
Gray Squirrel (*Sciurus carolinensis*)
Cottontail Rabbit (*Sylvilagus floridanus*)
Bobcat or Bay Lynx (*Lynx ruffus floridanus*)
Beaver (*Castor* sp. ?)
Florida Skunk (*Mephitis elongata*)
Dog (*Canis familiaris*)
Bison (*Bison bison*) ?

Birds

Florida Wild Turkey (*Meleagris gallopavo osceola*)
Wild Goose (*Genus and species unknown*)
Mallard (*Anas platyrhynchos*) or Black Duck (*Anas rubripes*)
Teal (*Genus and species unknown*)

Reptiles

Alligator (*Alligator mississippiensis*)
Turtle (*Unidentified*)
Tortoise (*Unidentified*)

Fish

Shad (*Alosa sapidissima*)
Sturgeon (*Acipenser oxyrhynchus*)
Gar (*Unidentified*)
Triggerfish (*Unidentified*)
Houndfish (*Unidentified*)
Drumfish (*Unidentified*)

Invertebrates

Callinectes sapidus Rathbun (Blue Crab)

Arca campechiensis Gmelin (Ark or Bloody Clam)
Arca incongrua Say
Ostrea virginica Gmelin (Eastern or Virginian Oyster)
Modiolus demissus plicatulus Lamarck (Humble Mussel)
Polymesoda caroliniana Bosc.
Cardium robustum Solander (Great Heart or Strong Cockle)
Venus mercenaria Linne (Hard-shelled Clam or Quahog)
Venus mercenaria alba Dall
Tagelus gibbus Spengler
Ensis directus Conrad (Razor Shell)
Solen viridis Say (Green Solen)
Polinices duplicata Say (Bull's Eye or Cat's Eye)
Crepidula fornicata Linne
Crepidula plana Say (Flat Slipper)
Littorina irrorata Say (Salt-marsh or Lined Periwinkle)
Busycon carica Gmelin (Right-handed Busycon)
Busycon carica eliceans Montfort
Busycon canaliculatum Say (Channeled Busycon)
Busycon perversum Linne (Left-handed Busycon or Lightning Shell)
Fasciolaria distans Lamarck (Banded Tulip)
Oliva sayana Ravenel (Olive Shell)
Elliptio folliculatus Lea (Freshwater Mussel)
Elliptio insulsus Lea (Freshwater Mussel)
Elliptio fraternus Lea (Freshwater Mussel)
Elliptio icterinus (Freshwater Mussel)

Bibliography

ASHLEY, MARGARET E.
1932 "A Study of the Ceramic Art of the Etowans." *Etowah Papers*, New Haven, Connecticut: Yale University Press.

BARTRAM, WILLIAM
1791 *Travels through North and South Carolina, Georgia, East and West Florida, the Cherokee Country, the Extensive Territories of the Muscogulges or Creek Confederacy, and the Country of the Chactaws.* Philadelphia: James & Johnson.

BOAS, F.
1895 *Zur Anthropologie der Nordamerikanischen.* Zeitschrift für Ethnologie, Vol. XXXVIII, pp. 366-411. Berlin.

CALDWELL, JOSEPH and HULSE, FREDERICK S.
"Excavations at Fort King George, McIntosh County, Georgia." (Manuscript on file at the State Department of Natural Resources, Division of State Parks, Atlanta, Georgia.)

CLAFLIN, WILLIAM H., JR.
1931 *The Stalling's Island Mound, Columbia County, Georgia.* Cambridge, Massachusetts: Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard University, Vol. XIV, No. 1.

COLE, FAL-COOPER and DEUEL, THORNE
1937 *Rediscovering Illinois.* Chicago: University of Chicago Press.

DIXON, ROLAND B.
1923 *The Racial History of Man.* New York: Charles Scribner's Sons.

FEWKES, VLADIMIR J.
1940 "Methods of Pottery Manufacture." *American Antiquity*, Volume VI, No. 2.

FLOYD, DOLORES B.
1936 *New Yamacraw and the Indian Mound Irene.* Savannah, Georgia: privately printed.

FORD, JAMES A.
1936 *Analysis of Indian Village Site Collections from Louisiana and Mississippi.* New Orleans: Department of Conservation, Louisiana Geological Survey, Anthropological Study No. 2.

FRETS, G. P.
1917 *On Mendelian Segregation with the Heredity of Head Form in Man.* Proceedings of the Royal Academy of Science. Amsterdam, 20 (3),

HAWKINS, BENJAMIN
1848 *A Sketch of the Creek Country in the years 1798 and 1799.* Savannah, Georgia: Georgia Historical Society Collections, Volume III.

HEYE, GEORGE G., HODGE, E. W., and
PEPPER, GEORGE H.
1918 *The Nacoochee Mound in Georgia.* New York: Museum of the American Indian, Heye Foundation.

HOLMES, W. H.
1903 *Pottery of the Eastern United States.* Washington: Bureau of American Ethnology, Twentieth Annual Report, for 1897-1898.

HOOTON, E. A.
1930 *The Indians of Pecos, a Study of Their Skeletal Remains.* New Haven: Yale University Press.

HRDLICKA, A.
1922 *The Anthropology of Florida.* Deland: Publications of the Florida State Historical Society, No. 1.
1927 *Catalogue of human crania in the United States National Museum Collections, The Algonkin and related Iroquois; Siouan, Caddoan, Salish and Sahaptin, Shoshonean, and Californian Indians.* Proceedings of the United States National Museum, Vol. LXIX, Art. 5.

JONES, CHARLES C.
1873 *Antiquities of the Southern Indians, Particularly of the Georgia Tribes.* New York: D. Appleton & Company.

KEITH, SIR ARTHUR
New Discoveries relating to the Antiquity of Man. New York: W. W. Norton and Co.

KELLY, A. R.
1938 *A Preliminary Report on Archeological Explorations at Macon, Georgia.* Washington: Bureau of American Ethnology, Bulletin 119.
1939 "The Macon Trading Post, an Historical Foundling." *American Antiquity*, Volume IV, No. 4.

LEMOYNE, JACQUES (Illustrator)
1927 *Voyages en Virginie et en Floride.* (Translated from Latin by L. Ningler.) Paris: Duchartre et Van Buggenhoudt.

MANOUVRIER, L.
1893 *Le determination de la taille aprés les grands os de membres,* Memoire de la Societe d'Anthropologie de Paris.

MOORE, CLARENCE B.
1892 "Certain Shell Heaps of the St. Johns River." *American Naturalist.*
1894 *Certain Sand Mounds of the St. Johns River, Florida.* Philadelphia: Journal of the Academy of Natural Sciences (second series), Volume X.
1897 *Certain Aboriginal Mounds of the Georgia Coast. Ibid.,* Volume XI, Part I.
1898a *Certain Aboriginal Mounds of the Coast of South Carolina. Ibid.,* Volume XI, Part II.
1898b *Certain Aboriginal Mounds of the Savannah River. Ibid.,* Volume XI, Part II.
1898c *Certain Aboriginal Mounds of the Altamaha River. Ibid.,* Volume XI, Part II.
1900 *Certain Antiquities of the Florida West Coast. Ibid.,* Volume XI, Part III.
1901 *Certain Aboriginal Remains of the Northwest Florida Coast. Ibid.,* Volume XI, Part IV.
1902 *Certain Aboriginal Remains of the Northeast Florida Coast. Ibid.,* Volume XI.

NEWMAN, MARSHALL T. and SNOW, CHARLES E.
1941 *Preliminary Report on the Skeletal Material from Pickwick Basin.* Washington: Bureau of American Ethnology, Bulletin 129.

SOUTHEASTERN ARCHAEOLOGICAL CONFERENCE
1939a *News Letter.* (mimeographed.) University of Kentucky, Lexington, Kentucky, Volume I, No. 1.
1939b *News Letter.* (mimeographed.) University of Kentucky, Lexington, Kentucky, Volume 1, No. 2.

1939c *News Letter.* (mimeographed.) University of Kentucky, Lexington, Kentucky, Volume I, No. 5.
1940 *News Letter.* (mimeographed.) University of Kentucky, Lexington, Kentucky, Volume II, No. 2.

SOUTHEASTERN POTTERY CONFERENCE
1938 *Report* (mimeographed). University of Michigan, Ann Arbor, Michigan.

SWANTON, JOHN R.
1918 *Early History of the Creek Indians and Their Neighbors.* Washington: Bureau of American Ethnology, Bulletin 73.
1928a *Social Organization and Social Usages of the Indians of the Creek Confederacy.* Washington: Bureau of American Ethnology, Forty-second Annual Report, for 1924-1925, pp. 23-472.
1928b *Aboriginal Culture of the Southeast. Ibid.*, pp. 673-726.

THOMAS, CYRUS
1894 *Mound Explorations.* Washington: Bureau of American Ethnology, Twelfth Annual Report.

VON BONIN, G. and MORANT, G. M.
1938 "Indian Races of the United States. A survey of previously published cranial measurements." *Biometrika.* Vol. XXX, Parts I and II. London.

WEBB, W. S.
1938 *An Archaeological Survey of the Norris Basin in Eastern Tennessee.* Washington: Bureau of American Ethnology, Bulletin 118.
1939 *An Archaeological Survey of the Wheeler Basin of the Tennessee River in Northern Alabama.* Washington: Bureau of American Ethnology, Bulletin 122.

WEBB, W. S. and HAAG, W. G.
1939 *The Chiggerville Site.* Lexington: University of Kentucky.

WILLEY, GORDON
"The Kasita Site."
(Manuscript on file at the Ocmulgee National Monument, Macon, Georgia.)

WYMAN, JEFFRIES
1875 *Fresh-Water Shell Mounds of the St. Johns River, Florida.* Memoirs Peabody Academy of Science, Salem, Massachusetts.

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Mound 8: L—Fill.

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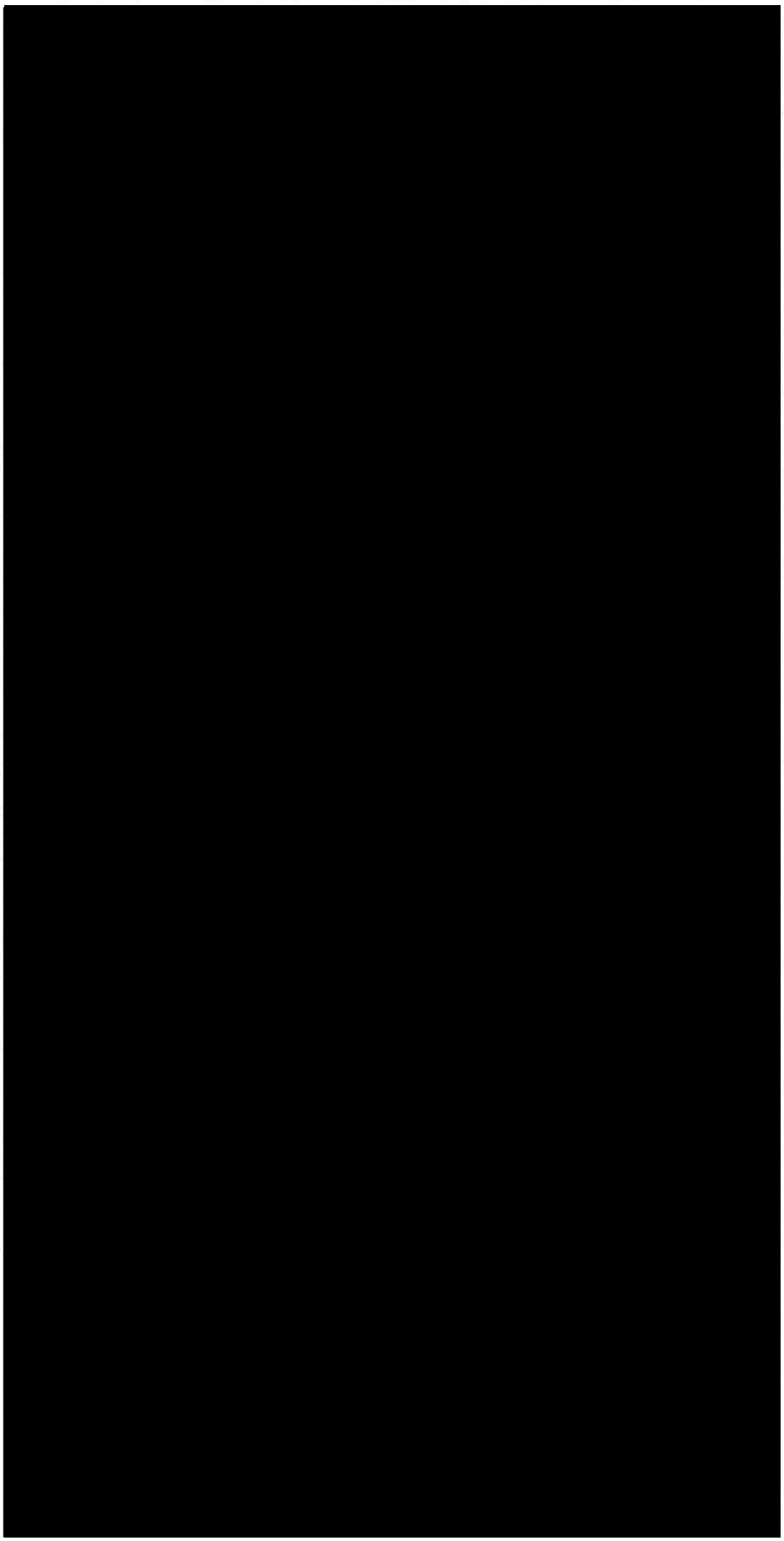

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b. SECTION OF PROFILE SHOWING THE SHELL CONSTRUCTION

c. BURIAL 5

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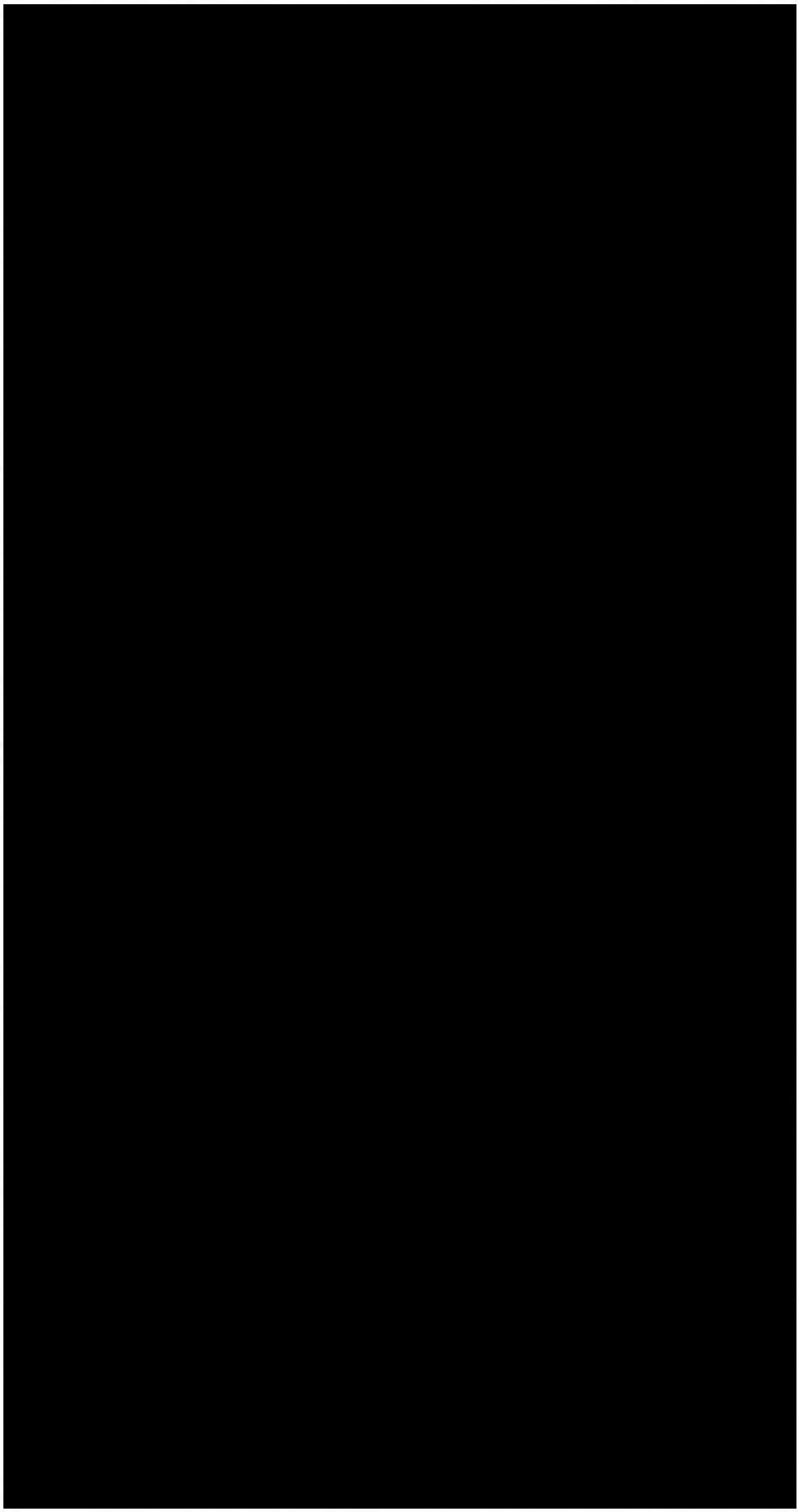

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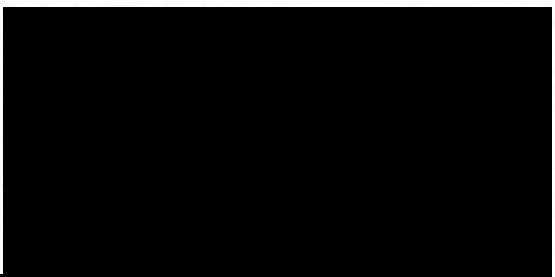

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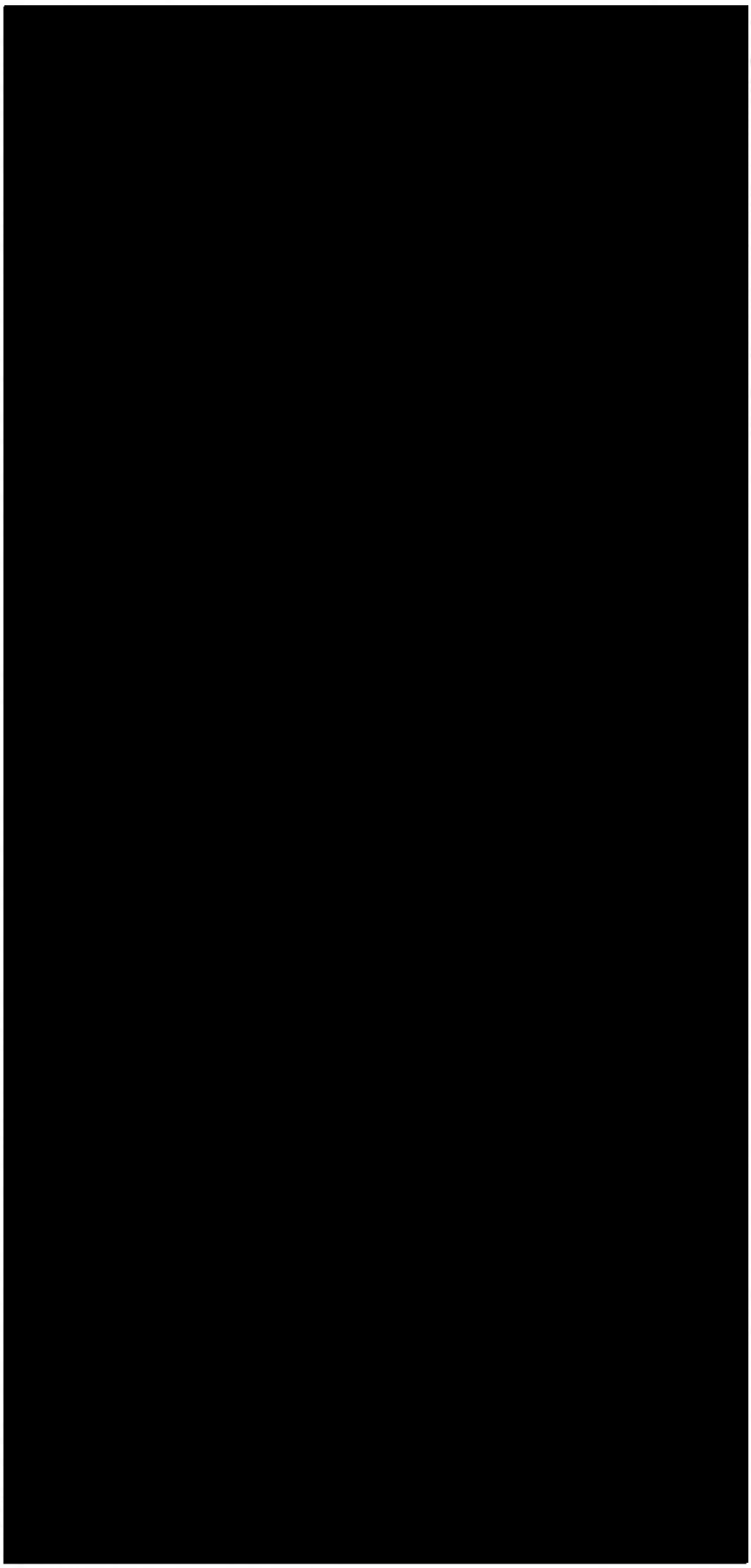

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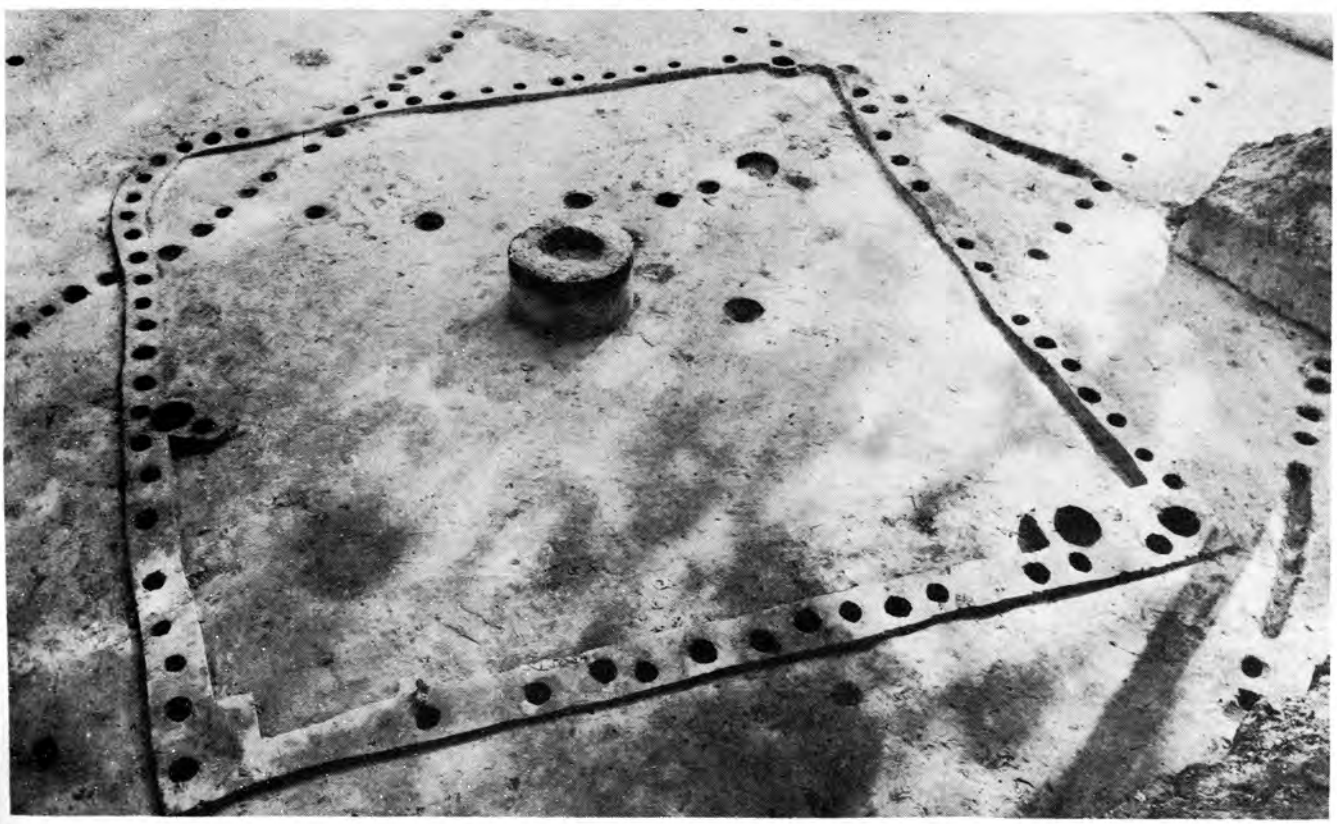

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b. "JITTERBUG" BURIAL 171

a. POTTERY DUMP NEAR THE ROTUNDA

c. URN BURIAL COMPRISING VESSEL 37 AND COVER 38

PLATE XVI. POTTERY VESSELS OF THE SAVANNAH CERAMIC PERIOD

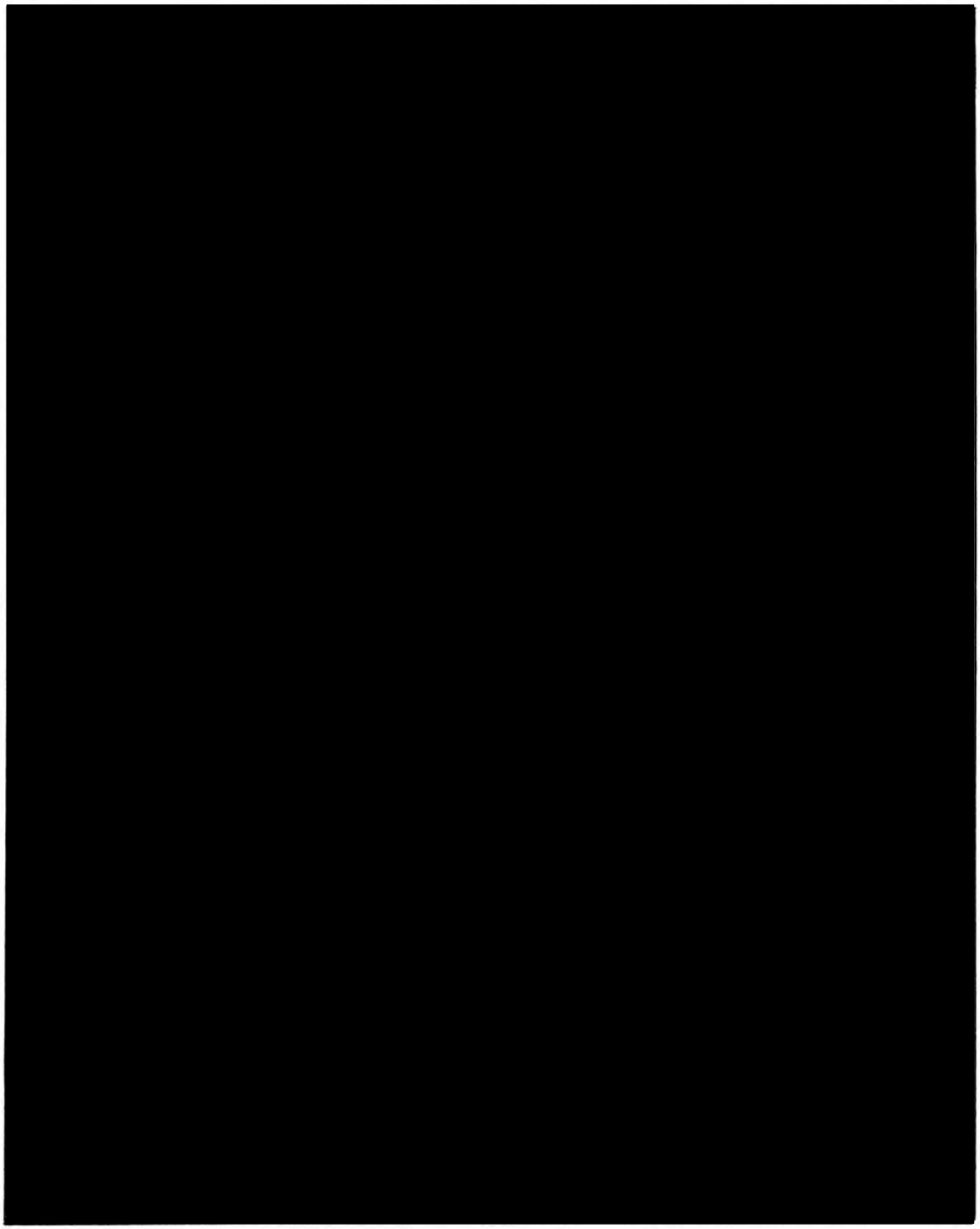

PLATE XVII. POTTERY VESSELS OF THE IRENE CERAMIC PERIOD

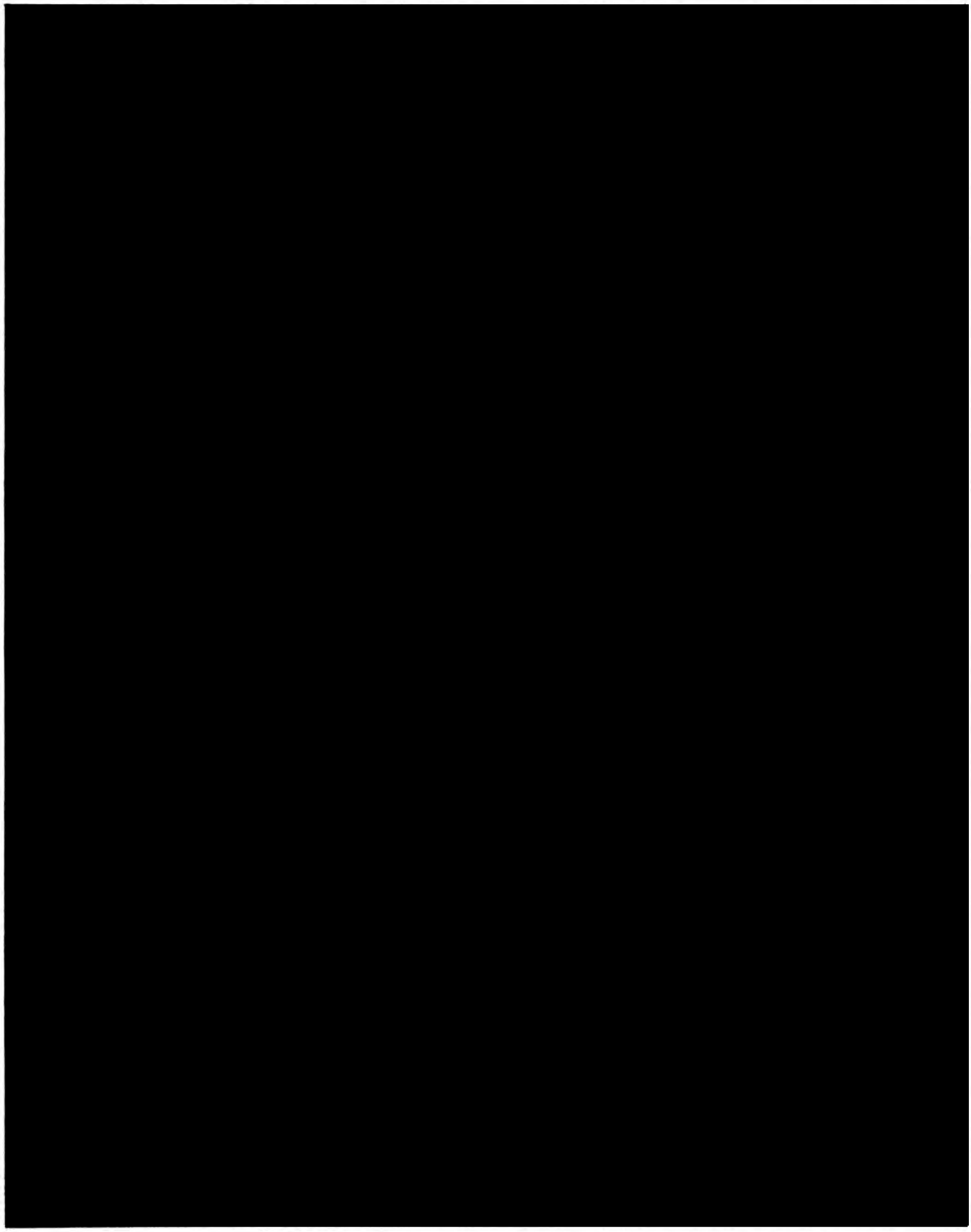

PLATE XVIII. POTTERY AND POTSHERD ARTIFACTS

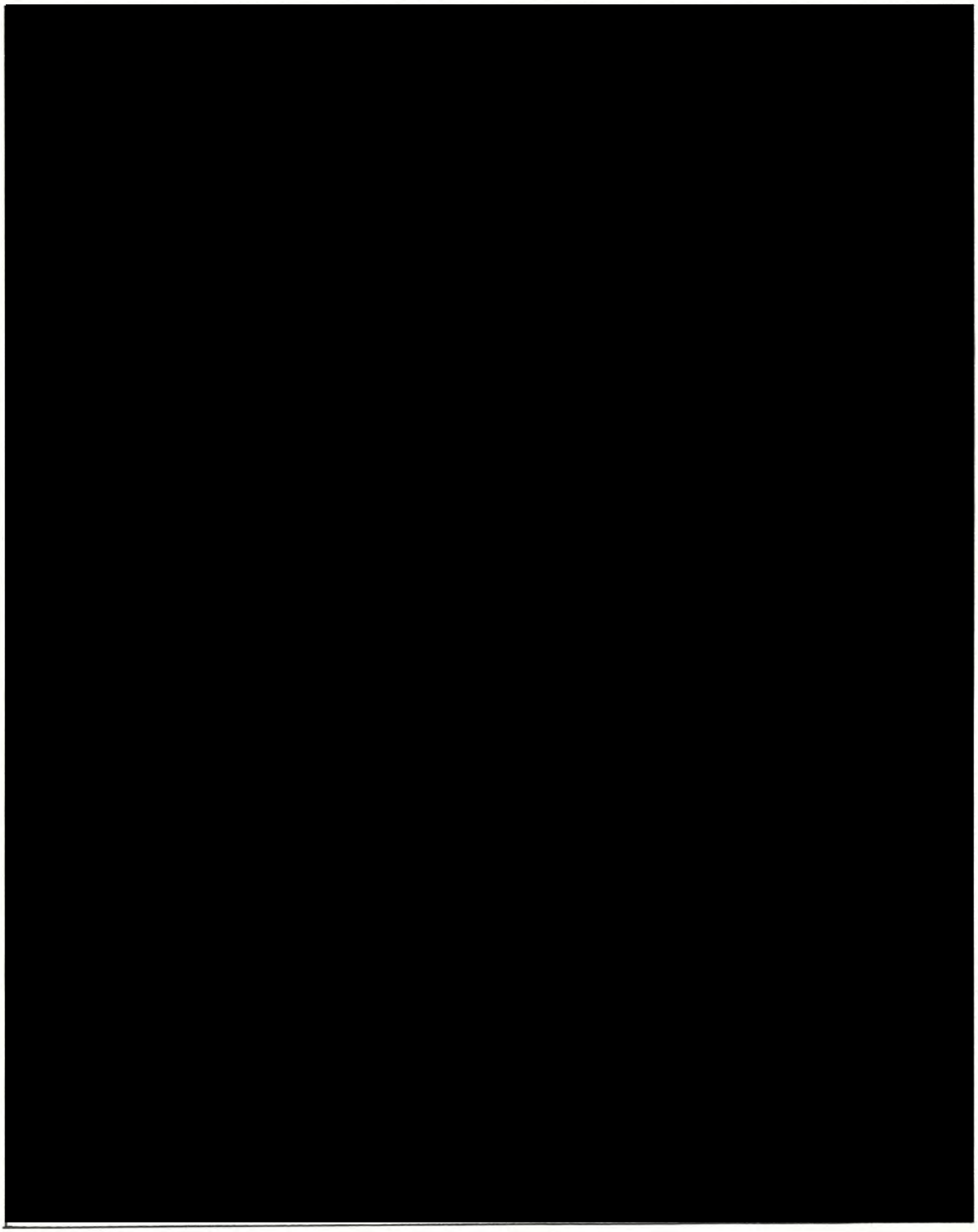

PLATE XIX. ARTIFACTS OF SHELL

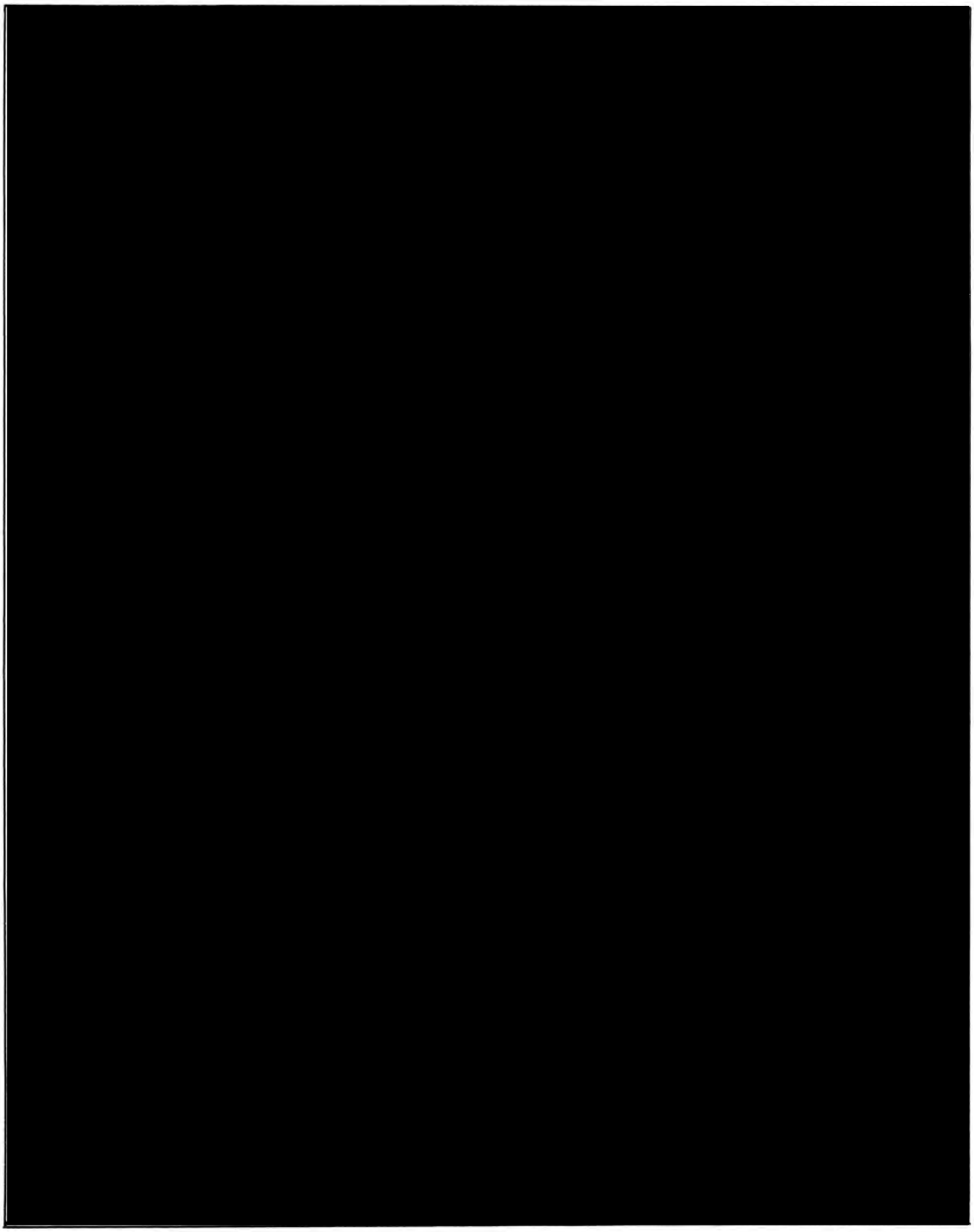

PLATE XX. ARTIFACTS OF BONE

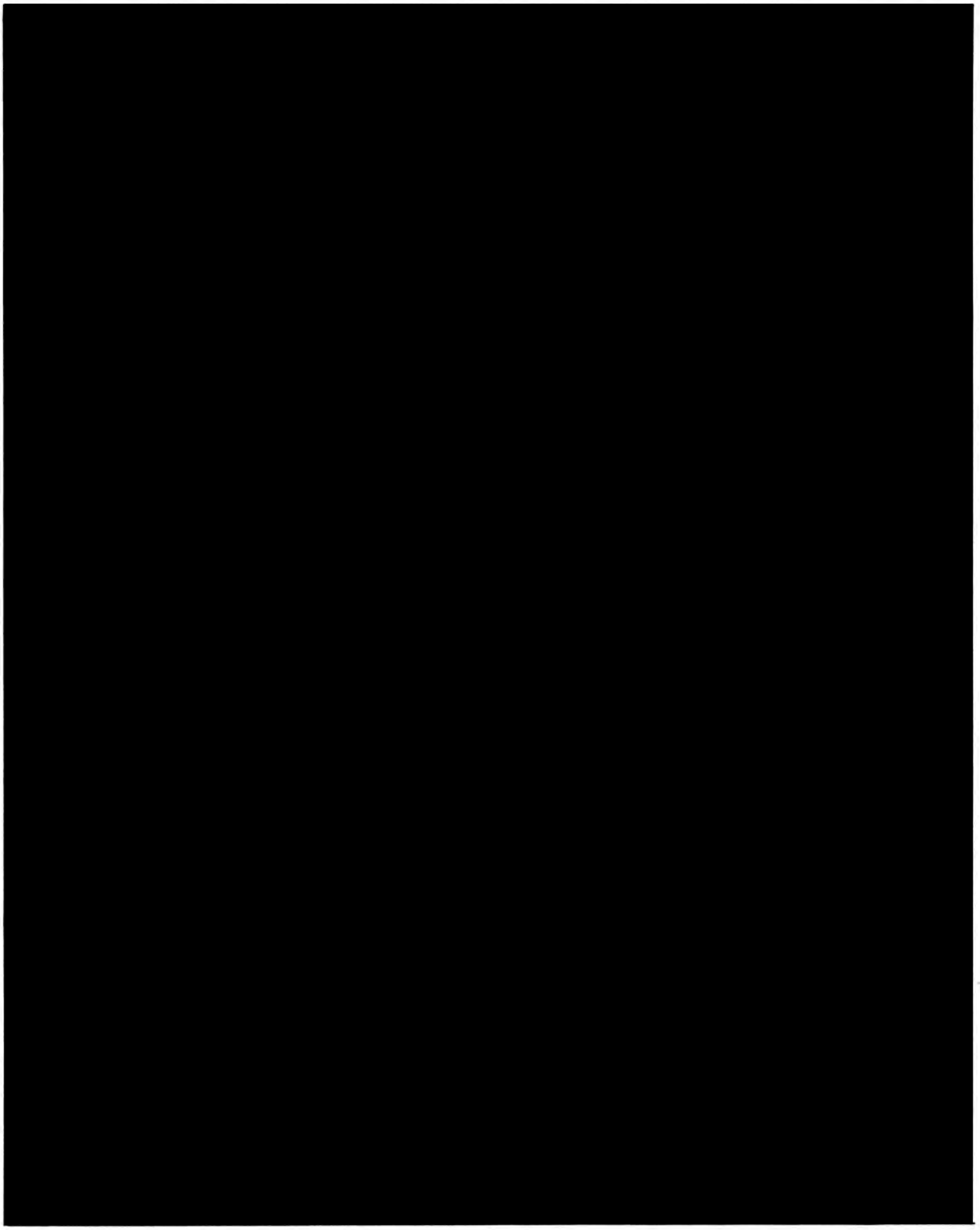

PLATE XXI. ARTIFACTS OF GROUND STONE

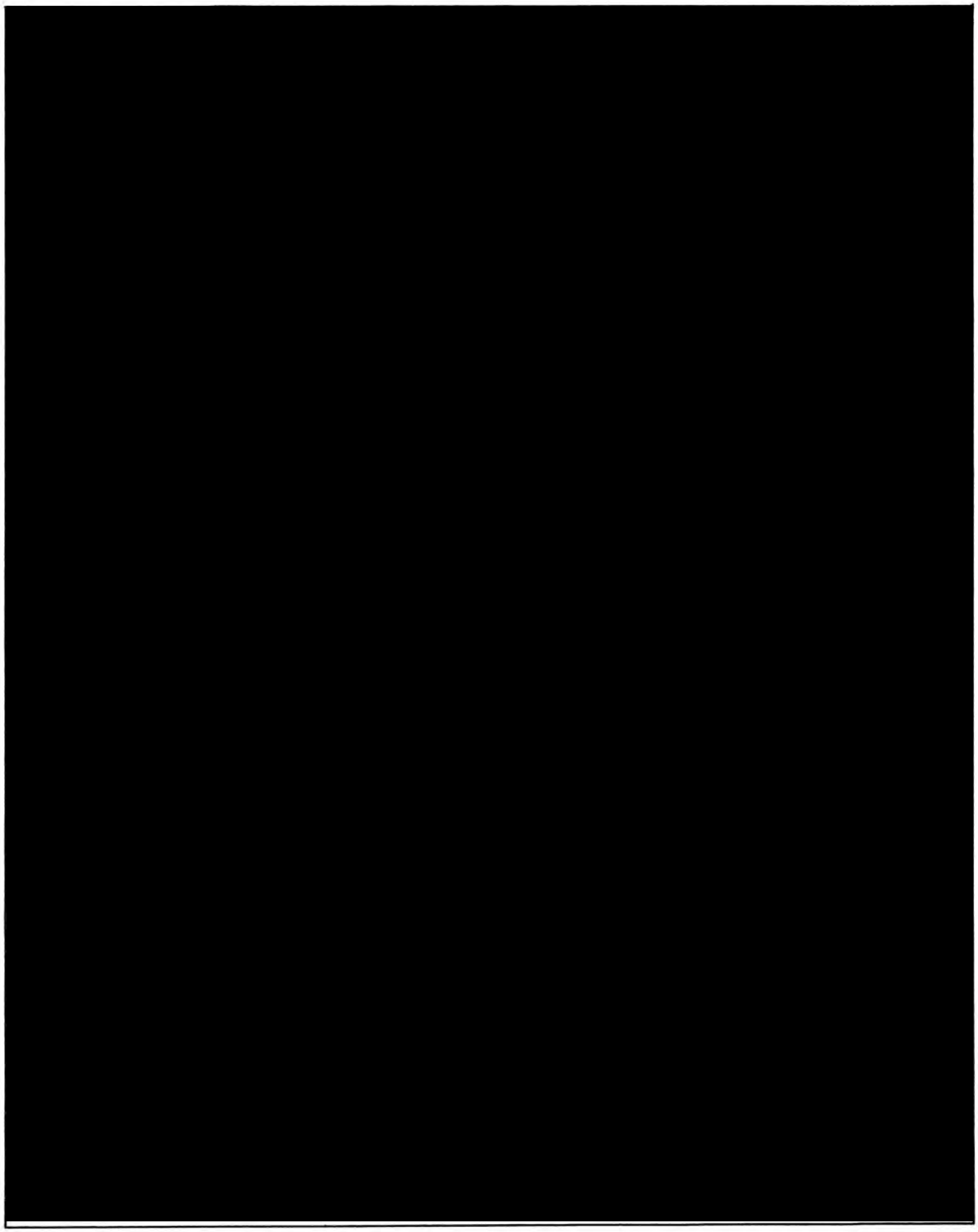

PLATE XXII. ARTIFACTS OF CHIPPED STONE

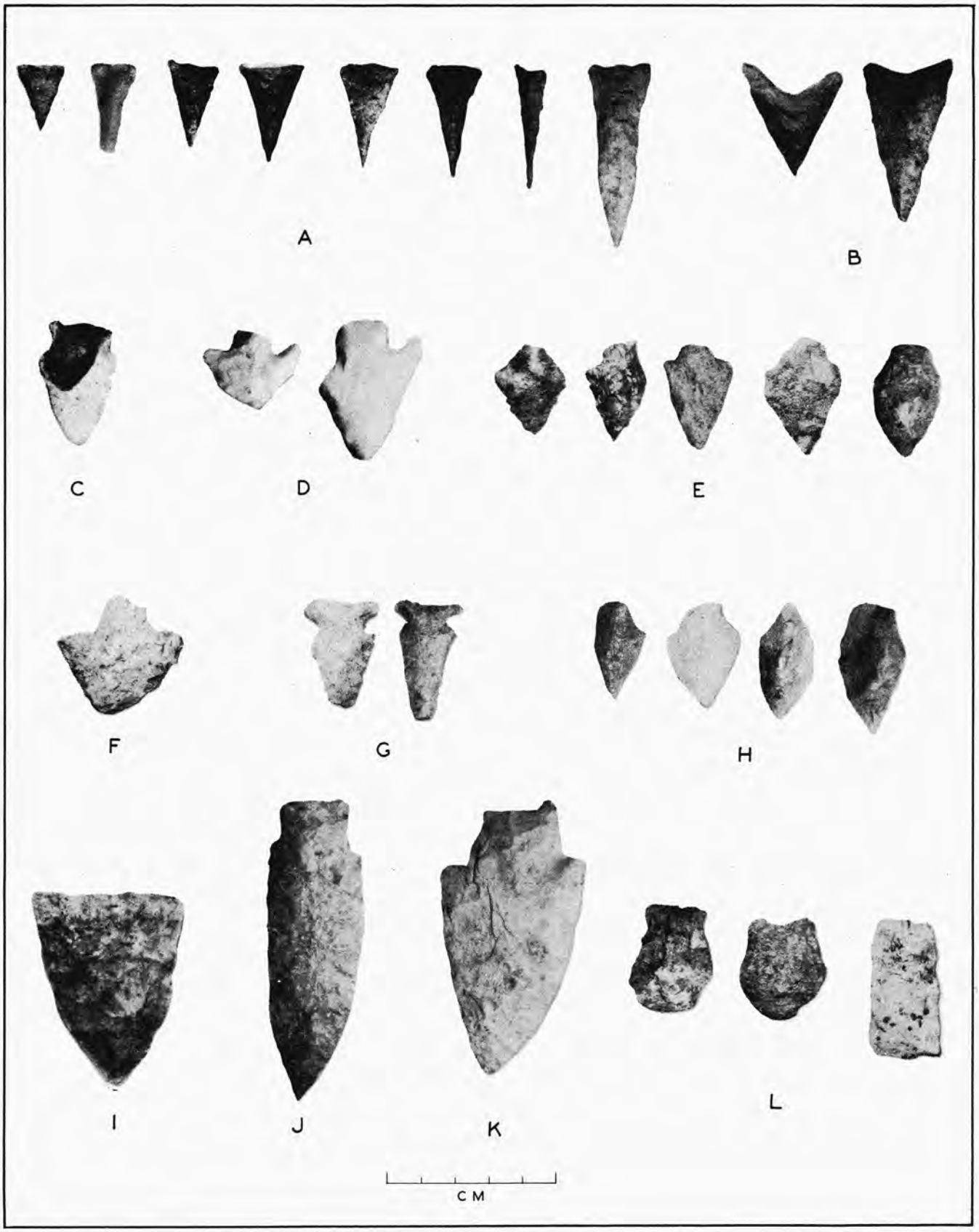

PLATE XXIII. SKULL 41, SIDE, TOP, REAR, AND FRONT VIEWS

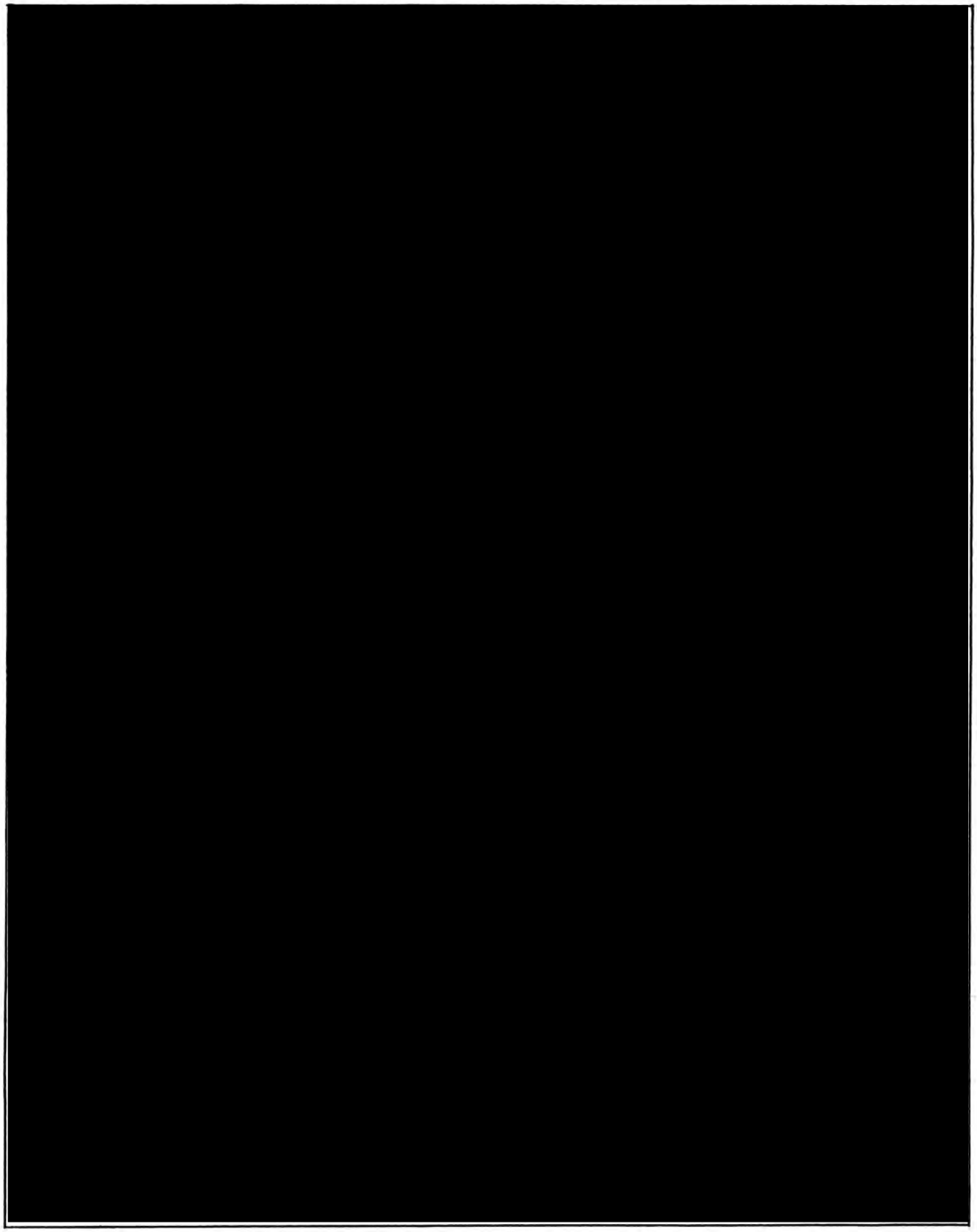

PLATE XXIV. SKULLS 44 AND 199, FRONT VIEWS; SKULLS 148 AND 168, SIDE VIEWS

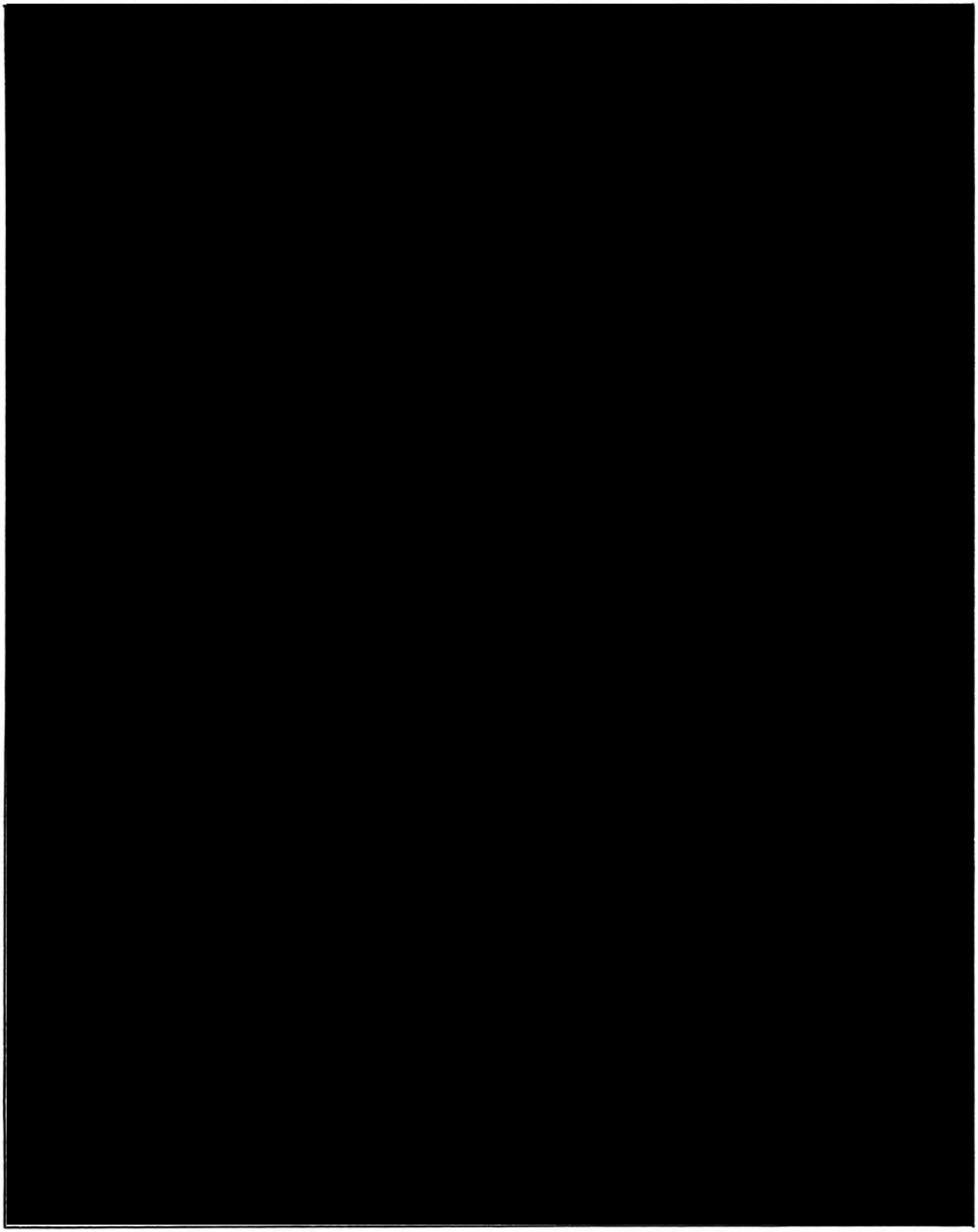

PLATE XXV. SKULL 207, FRONT VIEW; SKULL 56, REAR VIEW; SKULLS 10 AND 158, SIDE VIEWS.