

subglobose. Paranota large, four areolae deep, the outer margin beset with spines. Elytra distinctly narrowed posteriorly, beset with spines along the outer margins from the base to apical fourth; costal area triseriate, the areolae large and hyaline; tumid elevation plump, moderately large, dark. Wing a little longer than abdomen, whitish.

Length, 3.10 mm; width, 1.10 mm.

Holotype (male) and two male paratypes, Nogales, Ariz., October 23, 1937, P. W. Oman; allotype (female) and paratypes (male and female) Tucson, Ariz., August 1934, C. J. Drake. Named in honor of P. W. Oman, who is taking a very active interest in collecting and studying hemipterous insects.

ANTHROPOLOGY.—Relationships of an early Indian cranial series from Louisiana.¹ HENRY B. COLLINS, JR., Bureau of American Ethnology.

One of the most significant recent developments in Southeastern archeology has been the discovery in Kentucky, northern Alabama, and Tennessee of a nonagricultural, nonceramic, shell mound culture, the earliest thus far known in the area (Webb, 1939; Webb and Haag, 1939, 1940). The Kentucky sites that have been described are Indian Knoll and Chiggerville (Moore, 1916; Webb and Haag, 1939) on the Green River in Ohio County, and the Ward and Kirkland sites on Cypress Creek, a Green River tributary (Webb and Haag, 1940). The Alabama-Tennessee sites are situated on the Tennessee River; Lu° 86 and Ct° 17, in the Wheeler Basin, have already been described (Webb, 1939), and reports on the Pickwick and Guntersville sites are in press or in preparation.

In Louisiana, Ford and Willey (1940) have recognized a similar early culture complex, the Tchefuncte, which preceded the Marksville (Hopewellian) stage. Some of the Tchefuncte sites are coastal shell middens, others are earth mounds in the interior; unlike the Kentucky sites, they all yield pottery.

The skeletal remains from these rather widely separated sites are of particular interest. Though by no means identical, the crania from Kentucky, Alabama, and Louisiana belong to the same general type, a type that differs in certain important respects from that of later inhabitants of the same areas. Measurements on Moore's Indian Knoll crania have been published by Hrdlička (1927), and the skeletal material from Chiggerville has been described by Skarland (1939). Newman and Snow are describing the skeletal remains from the Pickwick and Guntersville Basins and Snow those from the Louisiana shell middens. What I wish to do here is call attention to certain skulls

¹ Published by permission of the Secretary of the Smithsonian Institution. Received February 17, 1941.

from Pecan Island, Vermilion Parish, southern Louisiana, which I excavated in 1926 (Collins, 1927), and which, from the later archeological investigations of Ford and others, are shown to have belonged to the Tchefuncte period.²

The Pecan Island series has been included in Hrdlička's latest catalog (1940) along with other Louisiana crania. Since they represent a sample of the earliest known Indian population in the Gulf area, it seems desirable to separate them from the other Louisiana crania and point out briefly their relationship to other southern and eastern cranial types.

The skulls were excavated from a burial ground (no village site in evidence) in a grove of young orange trees on the property of John Copell. The skulls were undeformed, and like the associated long bones, showed no evidence of pathology. Some of the bones rested on layers of red and yellow pigment. The following objects were found associated with the burials: Chipped stone knives and projectile points; hollow bone and antler projectile points with asphaltum in lower end to hold shaft; awls made of raccoon penis bones and deer cannon bones and ulnae; clam shells filled with asphaltum; distal end of an atlatl; "boat-stone" and rectangular stones (atlatl weights); tubular shell bead; drumfish teeth; large shell vessel (*Busycon perversum*); inner whorls of conch shells; raccoon and otter penis bones, some perforated; muskrat jaws; perforated dog teeth; worked pieces of turtle shell; and worked sections of dog jaws and teeth. No pottery was found with the burials; a few sherds of crude ware from the surface may represent a later period.

In addition to the Copell place two other sites were investigated on Pecan Island. (1) A group of low burial mounds on the Veazey place yielded fragmentary bones including some skulls with slight frontal flattening and long bones showing lesions apparently produced by syphilis. Cultural material from the Veazey site in part resembled Copell (red and yellow pigment with burials; asphaltum; bone awls and socketed projectile points; tubular shell bead; worked sections of dog jaws and teeth; raccoon and otter penis bones; and muskrat jaws). But there were other objects at the Veazey site such as spool-shaped ear ornaments of sheet copper and of slate covered with copper; woven textile, potsherds of Marksville type, stone celts, disk shell beads, perforated bear teeth, imitation bear teeth in shell, large finely chipped flint knife, and worked pieces of galena and hematite—traits that are

² The cultural material from the site has been studied by Ford and Quimby and will be included in their report on the Tchefuncte culture.

diagnostic of the Hopewell culture, either as it exists in Ohio or in its southern manifestations, especially the Marksville of Louisiana and the Copena of northern Alabama. (2) At the third Pecan Island site, the Morgan place, were several large stratified mounds from which came skulls with pronounced fronto-occipital flattening and long bones showing evidence of syphilis. These highly deformed skulls, the nature of the mounds themselves, and the different type of pottery clearly indicated a cultural and temporal distinction between the Morgan and other sites; on the other hand, there seemed at the time no reason for separating Copell and Veazey, and I assumed them to have been contemporaneous (Collins, 1927).

Ford's later excavations in Louisiana and Mississippi and his analysis of potsherds from over 100 aboriginal sites in these States have thrown clearer light on the chronological relationship of the Pecan Island sites. Pottery analysis showed the Morgan mounds to belong to Coles Creek-Deasonville (the intermediate prehistoric culture stage in Louisiana and Mississippi) and Veazey to be somewhat earlier, since its pottery complex included Marksville sherds in addition to Coles Creek-Deasonville (Ford, 1936).

The artifacts from the Copell site, according to Ford and Quimby, are sufficiently like those from the Tchefuncte middens to be included in that complex. In some respects the Copell material is even closer to that from the Kentucky middens described by Moore (Indian Knoll) and Webb and Haag (Chiggerville and Cypress Creek). Without going into details here, I may state that the most striking and diagnostic Copell traits are also present at Indian Knoll and/or Chiggerville. The resemblances are such as to indicate a close cultural relationship, despite the considerable distance between central Kentucky and the Louisiana Gulf coast.

The exact relationship between the Copell and Tennessee-Alabama sites can not be known until we have Webb and DeJarnette's report on the Pickwick Basin excavations. However, the two sites from this area thus far described (Lu° 86 and Ct° 17 in the Wheeler Basin; Webb, 1939) reveal fewer trait correspondences with Copell than do Indian Knoll and Chiggerville.³

In the first column of Tables 1 and 2 I have listed the means of

³ Webb and Haag (1940) find that the Kentucky shell mound sites share a number of features with Ritchie's Lamoka Lake site in New York, for which reason they suggest that the Kentucky shell mound complex be assigned to the Archaic pattern. These resemblances, it might be pointed out, are of a general rather than specific character; few really diagnostic Kentucky traits are present at Lamoka and vice versa. The relationship between Kentucky and Lamoka seems definitely more remote than that between Kentucky and Copell.

measurements and indices of the Copell crania, calculated from the individual data given in Hrdlička's catalog (1940, pp. 434-436, 439-441). The series comprises 20 males and 13 females. One of the males listed in the catalog as Copell (No. 334223) came instead from the Veazey place and so is not included here. It might also be mentioned that the male skull in the deformed Louisiana series listed in the catalog as "Pecan Island" (No. 334251, p. 437) came from one of the Morgan mounds.

Following tabulation of the Copell means are columns showing the differences between these and the means of other southern and northern groups. The differences, whether plus or minus, are totaled and the average difference is given at the foot of the column. Measurements and indices are given separately, a necessary arrangement since two groups may show pronounced metrical differences and yet be very close indicially. The frequencies for all measurements and indices are given only for those series comprising the smallest numbers of skulls—the two Louisiana series, Chiggerville, the Lenape males, and New York females. To avoid unnecessary detail the only frequencies given for the other series are those for cranial length and index.

The groups selected for comparison are: (1) Those nearest geographically (Arkansas and other Louisiana); (2) the two culturally related Kentucky groups; and (3) those from Florida (Perico and Horrs Islands), the middle and upper Mississippi regions (Tennessee and Illinois), and the East and Northeast (Virginia, New York, New Jersey) that most closely approach Copell in skull form. The comparison brings out significant resemblances and differences with respect to cranial length and breadth, cranial height, face breadth, and orbital height.

In length and breadth of skull the Copell males stand midway between the southern and northeastern groups. They are considerably longer and with a few exceptions narrower headed than any other group from the Gulf region, though shorter and wider than the Algonkian-Iroquois type of the Northeast. The closest agreement in this respect is with western Virginia, where, as Hrdlička (1916) has pointed out, the skull form is intermediate between that of the North and South. The Virginia cranial index is identical with Copell, and the average difference of all measurements (1.98 mm) is smaller than for any other group.

The female Copell skulls are relatively much broader than the male. In this respect, and in most others, the females conform rather closely to the usual Gulf type, from which they differ only in having broader faces, somewhat broader noses, and lower and broader orbits.

Perhaps the most striking feature of the Copell crania is their great height. This is of especial interest because of the significance of this feature in America (Hrdlička, 1916, 1922, 1927, 1940; Stewart, 1940). Regarding height of the vault in the Southeast, Hrdlička (1940, p. 454) says:

The rest of the Gulf and neighboring States [except Texas] stand out in this important respect as a unit, characterized throughout by a relatively high vault. With that of some of the Pueblos it is the highest, in crania of similar breadth and cranial index, on the North American Continent. And we do not know as yet of such a broad high-headed large human group elsewhere.

If we consider the Louisiana crania alone the situation is even more striking. In absolute height (basion-bregma) and mean height index the Copell males are exceeded slightly by the other Louisiana males, 11 in number. The combined total of all the Louisiana males shows a cranial height of 146.4 mm and a mean height index of 89.65. With the exception of two skulls from Pensacola Bay, Fla., they are higher headed than any other group from the Southeast, from the Pueblo region, Arctic, or Northeast—in fact, the highest of any human group thus far recorded. If the comparison be restricted to the six Copell males the results are much the same: two more samples of three skulls each, from Ross County, Ohio, and Indiana (Hrdlička, 1927, p. 47) equal Copell in mean height index (89.6) and the Indiana skulls slightly exceed them in absolute height (146.3 mm).

Though the Copell males have broad faces they are exceeded in this respect by most of the Floridians and by some of the Eskimo and Plains Indian groups. The face breadth of the five Copell females, on the other hand, is the largest recorded for females anywhere. The small size of the sample should be borne in mind, however. In face height, upper and total, the Copell females fall within the Southeastern range; they are consistently somewhat higher faced than the Algonkian and other Northeastern groups. For the males, measurements of total and upper facial height are available for only two and three individuals, respectively. These measurements, and the facial indices, are given in parentheses, but are not included in the average differences.

A striking feature of the Copell males is their low orbits. In this respect they stand entirely apart from the other southern Indians, while closely resembling the two prehistoric Kentucky groups and the Lenape. Their orbital height of 33.1 mm and index of 84.65 are likewise lower than the average for the Northeast where relatively low orbits prevail. Elsewhere in North America lower orbits than those of the Copell males are recorded only for the prehistoric Texas cave

dwellers, the two Kentucky series, and Manhattan and Long Islands, N. Y.

The Copell females are less pronounced in this respect, their orbits being somewhat higher, absolutely and indicially, than those of the males. However, they are still below the general average for the Southeast in absolute height, and their orbits being unusually broad, the index falls considerably below the Southeastern average. Most of the New England and other Northeastern females listed by Hrdlička (1927) have orbits that are somewhat lower in absolute height than those of the Copell females, but again the extreme orbital breadth of the latter results in a lower index.

It will be seen from Tables 1 and 2 that the Copell crania of both sexes tend to resemble the Gulf type (Florida, Arkansas, and other Louisiana) more closely in actual measurements than in indices. In contrast, the crania from Tennessee, Kentucky, Illinois, and Virginia, which are smaller in practically every dimension, are closer to Copell indicially than metrically. This is especially true of the skulls from Chiggerville and Indian Knoll, Ky. Since these are the smallest skulls thus far known east of the Mississippi, it is not surprising that there should be a sharp metrical contrast between them and the Copell crania, which in size and massiveness are above the average even for the Southeast. But despite the fact that the two Kentucky series are metrically farther removed from Copell than any of the other groups compared—with average differences of 4.39 mm and 4.01 mm for the males and 6.58 mm and 5.05 mm for the females—they are still very close indicially. This close similarity in cranial form would seem to indicate that the prehistoric Kentuckians and the Copell (Tchefuncte) people of southern Louisiana, both groups the earliest known in their respective localities and possessing a common culture, were likewise closely related physically. The great disparity in size might be explained, at least partially, on the basis of dietary differences. The food resources of the Louisiana Indians included both land and marine animals. According to present archeological evidence neither they nor the Kentucky shell mound Indians practiced agriculture. From the sea food they consumed—fish, mollusks, crustaceans—the Copell people would no doubt have received a more than adequate supply of calcium, phosphorus, and magnesium, the minerals most essential to bone development. It is known that marine fishes, oysters, crabs, and shrimps are excellent sources of these and other necessary minerals such as iodine, copper, and iron (Nilson and Coulson, 1939). As far as I am aware there is no information regarding the mineral and vitamin

content of the fresh-water mollusks and fishes of the Tennessee-Kentucky region, though deficiency in iodine, at least, may be assumed.

Newman (1939) and Snow (1940) report that the crania from the shell mounds in Pickwick and Gunter'sville Basins on the Tennessee River are very similar to those from Indian Knoll and Chiggerville.

In the Pickwick Basin skeletal material there are two main types represented. The earliest stratigraphically is an undeformed dolichocephalic type representing in unmixed form the southernmost extension of the general Eastern dolichocephalic group, best exemplified by the so-called Northeastern Algonkians. The later intrusive deformed type links most closely with the Southeastern brachycephalic group as seen in Tennessee, Arkansas, Louisiana and Florida skeletal series. . . .

The dolichocephalic Shell Mound group in Pickwick Basin, taken as a whole, diverges somewhat from the pooled Northeastern and East-central Algonkian series in its smaller size, relatively higher vault, and shorter vertical facial diameters. Within this group there is some evidence of a more gracile, smaller-headed variant and a more rugged, larger-headed variant. The latter group more closely resembles the various more northerly dolichocephalic series, whereas the former shows close affinities to even smaller and more gracile series from Ohio County, Kentucky. These series are from Shell Mounds with pre-pottery horizons similar to the Pickwick sites. (Newman, 1939.)

The Copell people, with their low orbits and (in the males) a skull form bordering on dolichocephaly, represent a still further extension into the South of what may be described as a generalized or modified Northeastern dolichocephalic type. In some respects, however, such as the relatively broad skull of the females and the extreme cranial height and facial breadth in both sexes, the early Louisiana population diverges sharply from the Northeastern type and conforms to that of the Southeast. If we regard these southern features as evidence that the Copell people had already been subjected to local admixture we must assume that a brachycephalic population had preceded them in the Gulf region. Of this, however, there is no evidence. On the contrary, wherever it has been possible to distinguish between earlier and later peoples in the Southeast, long heads are found to have preceded the broad heads (Newman, 1939; Snow, 1940) just as they usually have in other parts of America. Moreover, it seems unlikely that mixture with some hypothetical early population embodying the essential characteristics of the historic Gulf type should have resulted in a blend that exhibited such typical southern features as extreme cranial height and facial breadth in even more pronounced form than they are usually found today; or, on the other hand, in orbits not only much lower than those of the southern Indians but lower on the average than those in the Northeast.

It seems more likely that in the Copell crania we have a sample of an early population that, with later admixture, gave rise to the his-

TABLE 1.—COMPARISON OF COPELL AND OTHER SOUTHERN AND EASTERN CRANIA—MALES

Measurements and Indices	Louisiana ¹ (Copell)	Louisiana ¹ (non-Copell)	Arkansas ¹	Florida ¹ (Horr's Island)	Florida ¹ (Perico Island)	Tennessee ¹	Kentucky ² (Indian Knoll)	Kentucky ² (Chigger-ville)	Illinois ²	Virginia ²	New Jersey ² (Lenape)	New York ²
Cranial length.....	(20) 186.3	(14) -4.6	(38) -9.6	(33) -1.4	(37) -3.0	(23) -6.9	(34) -6.3	(24) -5.2	(30) -3.3	(29) -2.7	(12) +0.2	(19) +2.9
Cranial breadth.....	(20) 141.4	(14) +4.9	(38) +1.4	(33) +5.4	(37) +4.4	(23) -1.4	(34) -5.6	(24) -7.2	(30) -2.3	(29) -2.1	(12) -2.5	(19) -1.2
Cranial height.....	(6) 146.0	(11) +0.6	(38) -4.4	(33) -2.1	(37) -4.8	(23) -2.2	(34) -6.5	(24) -6.5	(30) -3.9	(29) -3.5	(8) -6.3	(19) -7.5
Cranial module.....	(6) 157.3	(11) +0.6	(38) -3.7	(33) +1.8	(37) 0.0	(23) -1.9	(34) -6.3	(24) -5.9	(30) -2.5	(29) -2.6	(8) -2.4	(19) -1.4
Menton-nasion.....	(2) 122.5	(5) (+9.9)	(38) (+0.8)	(33) (+4.7)	(37) (+3.7)	(23) (+2.5)	(34) (-6.8)	(24) (-12.2)	(30) (+0.9)	(29) (+4.5)	(5) (-1.1)	(19) (-1.3)
Alveolar point-nasion..	(3) 73.0	(8) (+5.1)	(38) (+1.8)	(33) (+4.3)	(37) (+2.8)	(23) (+1.7)	(34) (-2.6)	(24) (-3.9)	(30) (+1.8)	(29) (+0.7)	(5) (-2.4)	(19) (-0.1)
Face breadth.....	(8) 144.0	(9) +3.1	(38) -5.2	(33) +3.8	(37) +2.4	(23) -5.1	(34) -8.0	(24) -6.3	(30) -3.5	(29) -3.3	(5) -5.2	(19) -3.0
Orbit height, mean....	(9) 33.1	(9) +3.6	(38) +2.3	(33) +3.1	(37) +3.2	(23) +0.7	(34) -0.5	(24) -0.6	(30) +2.1	(29) +0.9	(5) +0.2	(19) +1.2
Orbit breadth, mean....	(9) 39.1	(9) +2.1	(38) +0.1	(33) +0.8	(37) +0.6	(23) -0.5	(34) -1.0	(24) -0.5	(30) +0.7	(29) -0.5	(5) -0.5	(19) 0.0
Nose height.....	(5) 54.0	(10) -0.1	(38) -0.8	(33) +1.0	(37) -1.2	(23) -1.6	(34) -3.1	(24) -3.7	(30) -0.7	(29) -1.0	(5) -3.1	(19) -2.1
Nose breadth.....	(5) 26.0	(11) +0.8	(38) +0.5	(33) +0.6	(37) -0.7	(23) -0.3	(34) -2.2	(24) -0.2	(30) -0.5	(29) +1.2	(5) +0.5	(19) +1.1
Average difference of measurements.....		2.27	4.00	2.22	2.26	2.29	4.39	4.01	2.16	1.98	2.32	2.27
Cranial index.....	(20) 75.90	(14) +4.6	(38) +4.9	(33) +3.5	(37) +3.7	(22) +2.1	(34) +0.8	(23) -1.6	(30) +0.1	(29) 0.0	(12) -1.5	(19) -1.8
Mean height index.....	(6) 89.60	(11) +0.8	(38) -2.9	(33) -2.3	(37) -3.9	(22) -0.4	(34) -0.6	(23) -1.1	(30) -1.4	(29) -1.0	(8) -3.6	(19) -5.4
Height-breadth index..	(6) 103.50	(11) -2.9	(38) -4.1	(33) -5.9	(37) -6.7	(22) -1.4	(34) -0.8	(23) +0.8	(30) -1.3	(29) -1.1	(8) -2.9	(19) -4.7
Facial index, total....	(2) 86.25	(5) (+2.8)	(38) (+2.7)	(33) (+0.8)	(37) (+0.4)	(22) (+4.1)	(34) (-1.6)	(23) (-6.1)	(30) (+1.5)	(29) —	(5) (+1.3)	(19) (-0.4)
Facial index, upper....	(3) 50.96	(7) (+2.3)	(38) (+2.8)	(33) (+1.5)	(37) (+1.0)	(22) (+2.6)	(34) (+0.7)	(23) (+0.6)	(30) (+2.5)	(29) (+1.3)	(5) (-0.1)	(19) (+0.2)
Orbital index, mean....	(9) 84.65	(9) +4.5	(38) +5.6	(33) +6.0	(37) +6.9	(22) +2.7	(34) -0.3	(23) -1.5	(30) +3.9	(29) +3.6	(5) +1.6	(19) +3.1
Nasal index.....	(5) 48.16	(10) +1.5	(38) +1.7	(33) +0.2	(37) -0.3	(22) +0.9	(34) -1.3	(23) +2.2	(30) -0.1	(29) +3.0	(5) +3.9	(19) +4.0
Average difference of indices.....		2.86	3.84	3.58	4.30	1.50	0.76	1.44	1.36	1.74	2.70	3.80

¹ Hrdlička, 1940.² Hrdlička, 1927.³ Skarland, 1939.

TABLE 2.—COMPARISON OF COPELL AND OTHER SOUTHERN AND EASTERN CRANIA—FEMALES

Measurements and Indices	Louisiana ¹ (Copell)	Louisiana ¹ (non-Copell)	Arkansas ¹	Florida ¹ (Horr's Island)	Florida ¹ (Perico Island)	Tennessee ¹	Kentucky ² (Indian Knoll)	Kentucky ² (Chigger-ville)	Illinois ²	Virginia ²	New Jersey ² (Lenape)	New York ²
Cranial length	(13) 174.4	(16) -4.3	(52) -7.5	(35) +2.1	(60) +0.3	(37) -4.5	(26) -4.1	(13) -1.9	(39) -2.7	(28) +3.1	(22) +0.8	(18) +2.8
Cranial breadth	(13) 139.8	(16) 0.0	(13) -1.4	(13) -0.1	(13) +1.3	(13) -4.0	(12) -9.0	(12) -9.0	(12) -4.9	(12) -4.3	(12) -8.2	(18) -4.8
Cranial height	(2) 137.0	(13) +1.1	(13) -0.2	(13) -4.3	(13) -0.7	(13) -0.2	(6) -5.8	(6) -5.0	(6) -1.5	(6) -1.5	(6) -6.7	(16) -6.1
Cranial module	(2) 151.5	(13) -2.7	(13) -4.1	(13) -3.8	(13) -0.9	(13) -4.1	(6) -7.4	(6) -6.2	(6) -4.0	(6) -1.9	(6) -5.7	(16) -3.8
Menton-nasion	(5) 116.4	(9) -2.2	(9) -0.8	(9) +1.6	(9) +3.3	(9) -0.5	(6) -11.5	(6) -8.9	(6) -0.3	(6) -0.9	(6) —	(9) -4.1
Alveolar point-nasion . .	(5) 70.8	(13) -0.2	(13) +0.5	(13) +1.2	(13) +0.8	(13) -0.9	(6) -7.2	(6) -4.5	(6) -2.7	(6) -3.1	(6) -2.6	(13) -1.6
Face breadth	(5) 138.6	(11) -6.7	(11) -9.8	(11) -4.4	(11) -1.9	(11) -12.4	(2) -14.1	(2) -12.6	(2) -12.1	(2) -7.4	(2) -12.1	(11) -7.2
Orbit height, mean	(9) 33.7	(10) +1.1	(10) +1.6	(10) +1.6	(10) +1.1	(10) +0.1	(6) -1.2	(6) -0.6	(6) +0.5	(6) -0.7	(6) +0.2	(15) 0.0
Orbit breadth, mean	(9) 39.0	(10) -0.9	(10) -1.6	(10) -0.4	(10) -0.5	(10) -2.5	(7) -2.5	(7) -1.2	(7) -1.1	(7) -1.6	(7) -1.0	(15) -1.2
Nose height	(5) 51.4	(13) -1.4	(13) -0.7	(13) -0.8	(13) -1.3	(13) -1.9	(6) -5.4	(6) -3.6	(6) -2.0	(6) -1.4	(6) -2.5	(15) -1.1
Nose breadth	(5) 26.8	(11) -1.5	(11) -1.4	(11) -2.5	(11) -1.8	(11) -1.6	(5) -4.2	(5) -2.0	(5) -0.9	(5) +0.2	(5) -1.3	(15) -0.1
Average difference of measurements		2.01	2.24	2.07	1.26	2.97	6.58	5.05	2.97	2.37	4.11	2.96
Cranial index	(13) 80.11	(16) +2.1	(52) +2.8	(35) -0.9	(60) +0.7	(37) -0.2	(26) -3.1	(12) -4.7	(39) -1.5	(28) -3.8	(22) -5.0	(18) -3.9
Mean height index	(2) 86.35	(13) +3.3	(13) +3.2	(13) -0.9	(13) 0.0	(13) +3.2	(6) +0.9	(6) +0.6	(6) +2.1	(6) +0.1	(6) -1.4	(16) -2.6
Height-breadth index . . .	(2) 97.35	(13) +0.6	(13) +1.4	(13) -1.9	(13) -0.5	(13) +3.6	(6) +2.9	(6) +3.9	(6) +3.1	(6) +2.6	(6) +1.7	(16) -0.4
Facial index, total	(4) 84.60	(6) +2.6	(6) +6.1	(6) +2.6	(6) +3.3	(6) +6.7	(1) 0.0	(1) +3.2	(1) +6.3	(1) +3.9	(1) —	(9) +1.4
Facial index, upper	(4) 51.80	(9) +1.5	(9) +3.8	(9) +1.7	(9) +0.8	(9) +3.7	(1) +0.1	(1) +0.9	(1) +1.6	(1) +0.6	(1) +1.4	(11) +1.1
Orbital index, mean	(9) 86.45	(10) +4.8	(10) +7.8	(10) +5.0	(10) +4.1	(10) +6.3	(4) +2.6	(4) -1.1	(4) +3.9	(4) +1.9	(4) +2.9	(15) +2.9
Nasal index	(5) 52.10	(11) -0.8	(11) -2.0	(11) -4.1	(11) -2.2	(11) -1.2	(5) -2.7	(5) +0.1	(5) +0.4	(5) +1.9	(5) +0.2	(15) +0.9
Average difference of indices		2.24	3.87	2.44	1.66	3.56	1.76	2.08	2.70	2.11	2.10	1.89

¹ Hrdlička, 1940.² Hrdlička, 1927.³ Skarland, 1939.

toric Gulf type. Since the males on the whole show closer physical affinities with Kentucky, Tennessee, Virginia, Illinois, and the Northeast than with the Southeast, it would seem that the origin of the early Gulf type should be sought in that direction. The Copell people should, apparently, be regarded as the southernmost and in some respects most divergent and specialized representatives of a once widespread Indian type east of the Mississippi, a long-headed and rather high-headed type that in one form or another was characteristic of the earliest known culture horizons in the Northeast, Kentucky, Tennessee, and northern Alabama.

The affinities of the later brachycranial type in the Southeast seem to lie in the opposite direction, probably in eastern Mexico, as Hrdlička (1922, pp. 117, 131) has suggested. Though the paucity of comparative data for Mexico prevents demonstration of this point, it appears not unlikely that herein may lie the explanation of the process of brachycephalization that seems to have occurred generally throughout the Southeast. The brachycranial Gulf type would seem best explained as a blend between the earlier coastal population, of Northeastern origin, and a later broad-headed strain which probably entered the Southeast from Mexico. Such a hypothesis finds support in the evidence of strong cultural influences from Mexico, most of which, as Phillips (1940) shows, have been received in relatively late prehistoric times. Artificial cranial deformation was doubtless one of the culture traits thus introduced from Mexico. The custom was not practiced in the Northeast nor by the early southern groups which we have been considering (Stewart, 1940; Snow, 1940). It was, however, present in Mexico, Middle America, and Peru from the earliest known times, and it was evidently from this direction that it later spread to the Southeast and Mississippi Valley.⁴

BIBLIOGRAPHY

- COLLINS, HENRY B., JR. *Archaeological work in Louisiana and Mississippi*. In "Explorations and Field-Work of the Smithsonian Institution in 1926," Smithsonian Misc. Coll. 78: 200-207. 1927.
- FORD, JAMES A. *Analysis of Indian village site collections from Louisiana and Mississippi*. Department of Conservation, Louisiana Geological Survey, New Orleans. 1936.
- FORD, J. A., and WILLEY, GORDON. *Crooks site, a Marksville period burial mound in La Salle Parish, Louisiana*. Department of Conservation, Louisiana Geological Survey, New Orleans. 1940.
- HRDLIČKA, ALEŠ. *Physical anthropology of the Lenape or Delawares, and of the Eastern Indians in general*. Bur. Amer. Ethno. Bull. 62. 1916.
- . *The anthropology of Florida*. Publ. Florida Hist. Soc., No. 1, De Land. 1922.

⁴ The fact that cranial deformity is so rarely encountered in peninsular Florida would seem to preclude the possibility that the custom had reached the Southeast by way of the Antilles.

- . *Catalogue of human crania in the United States National Museum collections. The Algonkin and related Iroquois; Siouan, Caddoan, Salish and Sahaptin, Shoshonean, and California Indians.* Proc. U. S. Nat. Mus. 69 (art. 5). 1927.
- . *Catalog of human crania in the United States National Museum collections. Indians of the Gulf States.* Proc. U. S. Nat. Mus. 87: 315-464. 1940.
- MOORE, CLARENCE B. *Some aboriginal sites on Green River, Kentucky.* Journ. Acad. Nat. Sci. Philadelphia 16: 431-477. 1916.
- NEWMAN, MARSHALL T. *Physical anthropology of Pickwick Basin.* Program, Third Southeastern Archeological Conference, Birmingham, Ala. (mimeographed). 1930.
- NILSON, HUGO W., and COULSON, E. J. *The mineral content of the edible portions of some American fishery products.* U. S. Bur. Fish. Investigational Rep. 41: 1-7. 1939.
- PHILLIPS, PHILIP. *Middle American influences on the archeology of the Southeastern United States.* In "The Maya and Their Neighbors," pp. 349-367. New York, 1940.
- SKARLAND, IVAR. *The skeletal material [from the Chiggerville site].* Univ. Kentucky Rep. in Anthropol. 4(1): 28-49. 1939.
- SNOW, CHARLES E. *Preliminary remarks on the types of deformation of Gunter's crania.* News Letter, Southeastern Archeological Conference, 2(3) (mimeographed). 1940.
- STEWART, T. D. *Some historical implications of physical anthropology in North America.* Smithsonian Misc. Coll. 100: pp. 15-50. 1940.
- WEBB, WILLIAM S. *An archeological survey of Wheeler Basin on the Tennessee River in northern Alabama.* Bur. Amer. Ethnol. Bull. 122. 1939.
- WEBB, WILLIAM S., and HAAG, W. G. *The Chiggerville site.* Univ. Kentucky Rep. in Anthropol. 4(1). 1939.
- . *Cypress Creek villages.* Univ. Kentucky Rep. in Anthropol. 4(2). 1940.