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Craniometric analysis of the Late Palaeolithic population of the Wadi Halfa region (Lower Nubia)

The Late Palaeolithic skeletal series found at Site 117 at Gebel Sahaba, 3 km north of Wadi Halfa, and at Site 8905 at Tushka, 77 km north of Wadi Halfa, as well as another series from Site 6 B 36 found opposite Wadi Halfa, on the left bank of the Nile, have been analysed as separate groups (Anderson 1968; Greene and Armelagos, 1972). The first two series were excavated by the expedition of the Colorado University at Boulder, the third by the expedition of the Southern Methodist University in Dallas, Texas. The small number of individuals in each series excluded the use of statistical tests in the analysis made by Anderson (1968) and made it also impossible to prove the significance of several differences in the tests performed by Greene and Armelagos (1972).

These series are not only geographically in proximity, but also belong to the same cultural (industrial) complex called Qadan by Wendorf (1968), or the Wadi Complex by Wheat and Irwin (1965). Chronologically, they belong to the same Late Palaeolithic horizon, dated 12,000 - 10,000 B.C. or slightly later.

By comparing mean values of different measurements of these series Anderson (1968) concluded their proximity, which was later on confirmed by Green and Armelagos (1972) in statistical tests dealing with metric, non-metric and dental traits. Even the behavioural pattern of the population, as reflected in their pathological findings, showed close resemblances.

During my study of these materials at the Universities of Boulder and Dallas [1] in 1973 I reached the conclusion that the series can be pooled together in a larger series representing the Late Palaeolithic population of the Wadi Halfa region of Nubia. To the three pooled series mentioned I added another skull [2] from tomb 45 at

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[2] Its publication will apear soon in the journal "Anthropologie" (Brno).

Site 117, and donated by the Southern Methodist University Expedition to the National Museum in Helsinki, Finland [3]. The whole pooled series consists thus of 59 adults: 26 males and 33 females.

In the previous analyses Anderson (1968) and Greene and Armelagos (1972) showed that the Wadi Halfa material resembles the Upper Palaeolithic Cromagnon type, especially that of the Northwest African variety (most closely the Afalou-Bou-Rhummel series). At the same time, a possible relation to some Central African material (Ishango) was also discussed by Greene and Armelagos (1972). The question of whether the Late Palaeolithic Wadi Halfa material was genetically linked with the Predynastic Egyptian material was, however, not solved. The same applies to the problem of the place occupied by the Wadi Halfa series in the Late Palaeolithic material in relation to the origin of recent human races.

Taking all this into account I compared the pooled Wadi Halfa series with the Predynastic Egyptian series from Naga-ed-Der (Upper Egypt), dated to 4th millennium B. C., which I studied in the Lowie Museum of Anthropology, University of California, Berkeley [4] (36 individuals). To elucidate the relation of the Wadi Halfa series to the European Upper Palaeolithic material I used the data of Billy (1972) on 33 Aurignacian and Perigordian as well as 25 Magdalenian individuals. For the evaluation of the complex of features pointing to Negroid affinities I used, as a model, a series of West African Ashantee Negro skulls ($n=32$), which I studied in the American Museum of Natural History in New York [5]. This was necessary because of the lack of ancient Negro skulls.

For this paper I analysed, in both sexes, 71 craniometric features, viz. 23 on the neurocranium, 16 in the facial skeleton according to Martin's (1928) technique, 6 features of the vertical and 7 features of the horizontal profilation of the face, measured, mostly, according to the technique of Woo and Morant (1934), 7 specific measurements of the maxilla and zygomatic bones and 12 features of the mandible and teeth. Besides the usual gross or complex measurements some very detailed morphological features could thus be evaluated. The same measurements were determined in the comparative series with the exception of those two by Billy (1972) where only 11 measurements were available for comparison. The significance of differences found was tested by the F- and t-tests.

In all measurements of the neurocranium but one [6], the Wadi Halfa series showed higher values than both the Predynastic Egyptians and the West African Negroes, most of the differences being significant ($p=0.05$) or even highly significant ($p=0.01$). In the neurocranic measurements (except one [7]), the Wadi Halfa series resembled more the younger (Magdalenian) Upper Palaeolithic European series.

[3] I would like to thank the Director of this institution for the facilities he granted me.

[4] I would like to thank the Director of this institution for the facilities he granted me.

[5] I would like to thank the Director of this institution for the facilities he granted me.

[6] The porion-bregma height.

[7] Very broad minimum breadth of the forehead.

In all classical measurements of the facial skeleton but one [8], the Wadi Halfa series showed higher values than both the Predynastic Egyptians and the West African Negroes. In features discriminating Europoids and Negroids (measurements of the piriform aperture, the facial length, both maxillary diameters), the Wadi Halfa skulls are closer to the West African Negroes than to the Predynastic Egyptians. The Wadi Halfa series showed also bigger dimensions than both the Upper Palaeolithic European series with the significant exception of the nasal height which was lower in the Wadi Halfa series.

In the measurements of facial profilation the Wadi Halfa series was found to be much closer to the West African Negroes than to the Predynastic Egyptians. In both the Wadi Halfa and the West African Negro series we find a well developed total and alveolar prognathism, a smaller prominence of the nasal bridge, a flattened nasal bone, a less prominent subspinal region and more prominent zygomatic bones.

In the mandibular and teeth measurements the Wadi Halfa series showed preponderance of size and robustness over the Predynastic Egyptians and the West African Negroes.

In a paper prepared for the journal "Anthropologie" (Brno, Czechoslovakia) I shall publish all the metric data supplemented by the indices and the non-metric features.

It may be concluded that there is no morphological relation in any of the studied measurements between the Wadi Halfa and the Egyptian Predynastic series. If the Predynastic Egyptians were the result of microevolution of the Wadi Halfa people as was presumed (Anderson, 1968), at least some similarities would be expected.

In the make-up of the Wadi Halfa people, features of massive robustness and great size, correlated with the heavy masticatory function and common with most of the Upper Palaeolithic series, clearly predominate. Heavy, long and basally large skulls with very large faces and low orbits are characteristic for younger Upper Palaeolithic hunters and food collectors, not yet affected by gracilisation produced by the change in food habits and nutrition connected with the beginning of agriculture.

In features discriminating the White and Black races of recent *Homo sapiens*, the Wadi Halfa series has been found nearer to the African (Black) side. Whether this finding should be explained in terms of relationship to the area of formation of the Black race or by convergent adaptive development under similar climatic pressure or even as the result of hybridisation cannot, however, be established on the available evidence.

References

Anderson, J. E. 1968. Late Palaeolithic Skeletal Remains from Nubia. In: Wendorf (ed.) *The Prehistory of Nubia* 2 : 996 - 1040. Dallas.

Billy, G. 1972. L'évolution humaine au paléolithique supérieur. *Homo* 23 (1 - 2) : 2 - 12.

[8] Lower orbital height.

Greene, D. L. and G. Armelagos. 1972. *The Wadi Halfa Mesolithic Population.* Research Report No. 11, Dep. of Anthropology, University of Massachusetts. Amherst.

Martin, R. 1928. *Lehrbuch der Anthropologie in systematischer Darstellung.* 2. Jena.

Wendorf, F. 1968. Site 117: A Nubian Final Palaeolithic Graveyard near Jebel Sahaba, Sudan. In: F. Wendorf (ed.), *The Prehistory of Nubia* 2 : 954 - 995. Dallas.

Wheat, J. B. and H. T. Irwin. 1965. *Results of the University of Colorado's Excavations of Palaeolithic and Mesolithic Sites in Nubia.* Boulder International Association for Quaternary Research.

Woo, T. L. and G. M. Morant. 1934. A biometric study of the "flatness" of the facial skeleton in man. *Biometrika* 26 : 196 - 250.