

Anatomical evidence for the "hylobatian" model of hominid evolution. A.G. FILLER, Harvard University.

Thoracolumbar anatomy in Pan troglodytes provides far less leverage for extension of the lumbar spine or for supporting objects held ventral to the line of gravity than in Homo sapiens. Lateral flexion is emphasized instead. The Sts 14 pelvis and lumbar vertebrae of Australopithecus africanus show an intermediate condition.

Dissections of six adult chimpanzees revealed that much of the musculature originates on the posterior superior iliac spine and the medial iliac crest. Dorsal-ward rotation of these bony features during hominid evolution took place quite late in the course of pelvic adaptation to bipedalism. The change is nearly absent in A. afarensis.

A knuckle-walking stage followed by incompletely erect posture is not possible. Australopithecine thoracolumbar anatomy suggests that only fully erect posture could be maintained. A heritage of arboreal bipedalism by a small bodied form still partially reliant on forelimb support is suggested. These proto-hominids may have travelled bipedally between trees. This view is supported by the pedal morphology of A. afarensis. The arches are well developed but the phalanges are relatively long and curved. Competition from rapidly radiating cercopithecoids in the late Miocene may have motivated increased terrestriality.

Sexual dimorphism and settlement pattern in Middle Eastern skeletal populations. D.J. FINKEL, Fordham University.

Seventeen osteometric variables of the skull of 35 male and female skeletal samples from the Middle East and Mediterranean Europe, dating from 3100 B.C. to 200 A.D., are analyzed with regard to the level of sexual dimorphism. Variables of the cranial vault, the face and the mandible are analyzed separately. In general, the highest level of sexual dimorphism is observed in the mandible, the cranial vault and the face, in that order. Samples in the same geographical subregion do not appear to have similar levels of sexual dimorphism, and only short term fluctuations can be observed in the geographical region over time. However, when samples are grouped according to settlement type, substantial differences are noted in levels of sexual dimorphism, especially in the cranial vault.

Village agricultural communities exhibit lowest levels of sexual dimorphism, independent of time; highest levels are found in market towns; ur-

ban settlement types show high levels of sexual dimorphism in the cranial vault and low levels in the face and mandible. An association is demonstrated between settlement type, differential utilization of resources and subsistence activities, intensity of labor, population size and nutrition and observed levels of sexual dimorphism.

The assessment and analysis of interobserver error in non-metric cranial studies. M. FINNEGAN and R.M. RUBISON, Kansas State University, Manhattan.

Few notations of intraobserver error are made in the recent proliferation of papers dealing with the scoring and analysis of non-metric traits for population comparisons. No notations of possible interobserver error is noted in these same papers. In order to assess the magnitude of interobserver error replicate non-metric observations on 10 crania by 22 observers were examined using a distance statistic, cluster analysis, and a trait-by-trait frequency count of the traits utilized. The resultant scores of the observers were compared with the modal score ( $x_{ij} - \bar{x}_i$ ) for each crania examined as well as a standard score ( $(x_{ij} - \bar{x}_i) / s_i$ ). Additionally, the difficulty of scoring a particular cranium was checked against other crania over all observers. The results show that while many non-metric variables are highly comparable between observers, other non-metric variables generate large interobserver error. It is suggested that the greatest amount of error generated is due to varying experience on the part of the observer and that specific variation of non-metric traits seem to be dependent on the population sample. This suggests that, even though standardized data collection techniques are employed, population comparison using data from two or more researchers could be significantly affected by interobserver error.

Population structure, malaria, and hemoglobin E in Southeast Asia. A. G. FIX, University of California, Riverside.

In recent discussions concerning the distinctions among individual, kin, and group selection, population structure has proven to be a critical factor. When population structure is introduced into some models, the simple group vs. selection dichotomy becomes no longer useful.

The present paper employs a selection model based on a fission-fusion local group structure to assess the role of population structure in the evolution of the hemoglobin E allele in Southeast Asia. Aspects of the early history of malaria in Southeast Asia are reconstructed and ethnographic evidence for fission-fusion in the area is discussed. Under plausible conditions for malaria and assuming that the hemoglobin AE heterozygote has the highest genetic fitness, it is shown that "group" selection may work in concert with "individual" selection to increase the rate of evolution of the hemoglobin E allele.