

The common origin of modern populations of *Homo sapiens* and the universal spirit of the Olympic games

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PALAEOANTHROPOLOGY

The scientific sector of Palaeoanthropology describes the “epic” of the biological and intellectual evolution of the genus *Homo*, culminating in the appearance of the anatomically modern *Homo* species (Grimaud-Hervé et al 1998) and the “odyssey” of his geographical spread in the whole planet, till his efforts to conquer space. Also, it describes the scientific “epic” of development of Palaeoanthropology itself (Aiello & Dean 1990).

HUMAN EVOLUTION

The biological evolution of man, that was completed in the last five million years, includes three basic stages and successive biological species: *Homo habilis*, *Homo erectus* and *Homo sapiens* (Leakey 1994).

The central point of human evolution during the last 2.5 million years was the evolution of the brain and the development of human intelligence (Tobias 1971, Calvin 1991). According to the latest views, the basic incentive for the continuous development of intellectual human functions was not so much –as it was believed earlier– the need to invent technical means in order to exploit food sources and to cope with the environment, as the continuous development of intricate social human behavior and complex interpersonal relations among members of human society (Pitsios 2003).

In Biology, the success of a species is measured by demographic magnitude. During the long span of his evolutionary progress, the presence of man in the natural world was marginal and in permanent survival struggle of his demographically limited and wandering population groups, surrounded by extended environmental

dangers. The biological success and the geometrical growth of human populations –also known as demographic explosion– which constitutes by itself a framework of adaptation of contemporary man, but also a factor threatening his existence, began only 10,000 years ago by the development of agricultural farming.

HOMO SAPIENS

In recent years, the question of modern human origins has become a topic of great interest outside the community of specialists who have studied this phenomenon for almost 150 years.

Over the last several years, a combination of new fossil discoveries, new dating and analyses of previously-known specimens, and interpretations of human genetics variability has, for many of these experts, pointed to Africa as the most likely site for the evolution of *Homo sapiens* (Tattersall 1995, 1998).

In the geographical region of Africa, a series of fossilized forms dating from the period of 600,000–150,000 years before our age, substantiate the evolution of the african *Homo erectus* to the anatomically modern *Homo sapiens*. Those forms which, in the past, often were recognized as latest forms of *Homo erectus* and even more as archaic forms of *Homo sapiens*, confirm –according to the Darwinian concept– a continuous and slow evolutionary process between the two basic biological species of human evolution.

In the 1970’s, palaeoanthropologist Bräuer G, based on those findings, put forward the idea of the origin of *Homo sapiens* from Africa before 150,000 years, and his resulting migration to the rest of the world (Bräuer 1992, Bräuer & Smith 1992).

In the next decade, the 1980’s, those conclusions were confirmed by relevant evidence of molecular biology. Comparative analysis, initially of mitochondrial DNA and, afterwards, of genetic material of the Y-chromosome in contemporary human populations, gave results which support



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the basic conclusion of Palaeoanthropology regarding the origin of the anatomically modern *Homo sapiens* from the geographical region of Africa, 200,000–150,000 years BP.

These early mtDNA studies and later DNA work utilizing restriction fragment polymorphisms, as well as linguistic trees, are consistent with African genetic roots for all modern human populations (Cavalli-Sforza et al 1994, Cavalli-Sforza 1995).

NEANDERTHALS

Altogether, the human evolution in Africa appears already before 250,000 years to be in the borderline of appearance of the contemporary *Homo sapiens*, whose morphology had been completed until 150,000 years ago. On the contrary replacement of archaic human forms by the contemporary man in the rest of the world, appears to have happened relatively suddenly, without morphological continuation, just before 30,000 years in Europe and even later in Asia. Thus, the theory of origin of contemporary man from Africa, after the “Out of Africa Model” replaced the older prevalent theory of the “Multiregional Model”.

The oldest findings of *Homo sapiens* were discovered in the Middle East, at the cave site of Quafzeh and are dated to 100,000 years BP. Thus, it is believed that *Homo sapiens* migrated in the entire European region before 40 to 30 thousand years, causing the complete disappearance of Neanderthal (Tattersall 1995).

According to the predominant theory of recent years, the theory of “Replacement”, the disappearance of Neanderthals was not so much a result of his displacement by *Homo sapiens*, as a result of genetic incompatibility between the two anthropological types. If this is proven right, by future research, then Neanderthals will be classified finally in a different biological species, as *Homo neanderthalensis* (Breitinger 1964, Tattersall 1995, 1998).

The fossil record of Europe is critical to our understanding of the emergence of *Homo sapiens*, even if the area was not central to the original evolution of our species. In Europe, we have a unique record of apparent regional continuity for the establishment of Neanderthals over 400,000 years (Arsuaga et al 1997) and the critical evidence of their disappearance over a much shorter period of time during the middle of the last glaciation, 35,000–30,000 BP (Charles 1965).

The Museum of Anthropology of the University of Athens has conducted since 1980 systematic palaeoanthropological research at the cave site of Apidima in the area of Mani peninsula, in South Peloponnese (Pitsios 1999, 2000, Coutselinis et al 1991). Research has uncovered one of the most significant localities of Paleolithic human habitation, during the Upper and Middle

Pleistocene, in Greece (Zötl et al 1999) and its most important result was the location of fossilized human remains of Early Neanderthals and *Homo sapiens*.

Possibly the location of both Neanderthals and *Homo sapiens* at the same very spot of Apidima, reflects the conflict between them for terrestrial control and exploitation (Pitsios 2003).

DIASPORA

It is believed that the “exit” of *Homo sapiens* from the geographical region of Africa before 100,000 years and the following dispersion of *Homo sapiens*, was achieved through the natural passage of the Middle East that connects Africa with Asia and Europe. The settlement of modern man in the entire European region was effected in a period 40,000–30,000 years BP. His oldest appearance in the eastern and southeastern Asia is also dated back to 50,000–40,000 years BP (Howells 1992).

The settlement of Australia appears to have happened during the same period, as shown by the palaeoanthropological findings of this insular continent. This is a particularly interesting fact, given that the sea level of that period required the invention of adequate technical means in order to sail across a sea route longer than 50 nautical miles.

On the contrary, the initially limited settlement of North America was effected through the natural terrestrial bridge of Bering Strait, 25,000–20,000 years BP, at a lowering of the sea level during the last glaciation. The continuation of the settlement in the whole geographical region of North and South America was made possible even later, 12,000 years BP, after the gradual climate warming and melting of the glaciers of Canada, which obstructed the advance of *Homo sapiens* groups towards the south of the American continent.

ADAPTATION

Therefore, the phenotypic differentiation of modern human populations must have been formed, by adaptation to specific natural conditions of large geographical units of the earth, after the exit of *Homo sapiens* from Africa, 100,000 years ago and, especially, after the settlement in Europe and Asia, 50,000–40,000 years ago and, even later, in America (Foley 1992, Bilsborough 1992, Henke & Rothe 1999).

There are obvious physical differences between populations living in different geographic areas of the world. Some of these differences are inherited and others, such as body size and shape, are influenced by nutrition, way of life, and other aspects of the environment.

As a consequence, we are adapted to many of the earth's environments in general, but to none in particular. For many millennia, human progress in any field has been based on culture and not on genetic improvement.

Peoples of the world today appear to possess equal biological potential for assimilating any human culture.

According to the International Convention of the United Nations of 1966, the Charter of the United Nations is based on the principles of dignity and equality inherent in all human beings. The Declaration of Human Rights proclaims that all human beings are born free and equal in dignity and rights, without distinction of any kind, in particular as to race, color, or national origin. Considering that all human beings are equal before the law and entitled to equal protection of the law against any discrimination and against any incitement to discrimination.

State Parties condemn all propaganda and all organizations based on ideas or theories of superiority of one race or group of persons of one ethnic origin, which attempt to justify or promote discrimination in any form.

According to the Declaration on Race of the United Nations Educational, Scientific and Cultural Organization of 1978, the purpose of UNESCO is to contribute to peace and security by promoting collaboration among nations through education, science and culture in order to promote universal respect for justice, for the rule of law and for human rights and fundamental freedoms, which are affirmed without distinction of race, sex, language, or religion.

According to the Statement on Biological Aspects of Race of the American Association of Physical Anthropologists, in 1996, all humans living today belong to the same biological species of *Homo sapiens* and all living populations in each of the earth's geographic areas have evolved from a common ancestral group, over the same amount of time. Human populations have at times been isolated, but have never genetically diverged enough to produce any biological barriers between members of different populations.

OLYMPIC GAMES

The spirit of the ancient Greek civilization and the focus of its philosophical essence were deeper insight of –Hippocratic– human nature, the understanding of human being and the pursuit of his happiness. In this direction, crowning spiritual and political achievement of ancient Greek world, were the ingenious invention of the Democratic State and as its ideal reflection, the establishment of the Olympic Games.

The central conclusion of anthropological research the last decades is recognition of the close genetic relationship and the uninterrupted biological unity of modern human populations (Stringer & Andrews 1988). This recognition could be considered as the main ideological

and pedagogical objective of the recent Olympic Games, supporting the efforts for peaceful coexistence of people and democratic organization of our society.

The concept of the Olympic “Ekechereia” –the peaceful period of the Olympic games- dates back to an ancient Hellenic tradition. In keeping with this tradition all hostilities would cease during the Olympic Games. Today, the Olympic “Ekechereia” has become an expression of Mankind's desire to build a world based on the rules of fair competition, humanity, understanding, and tolerance.

REFERENCES

- Arsuaga JL, Martinez I, Gracia A, Lorenzo G (1997). The Sima de los Huesos crania (Sierra de Atapuerca, Spain). A comparative study. *Journal of Human Evolution*, 33:249–284
- Aiello L, Dean Chr (1990). *Human evolutionary anatomy*. London
- Bilsborough A. (1992). *Human Evolution*. London
- Braüer G (1992). Africa's place in the evolution of Homo sapiens. In: Braüer G, Smith Fr (ed) *Continuity or Replacement*, 83–98
- Braüer G, Smith FR (1992). *Continuity or replacement*. Rotterdam
- Breitinger E (1964). Der Neandertaler von Petralona. Vortrag, VII. *Int Kongr Anthropol Ethnogr* (Moskau)
- Calvin WH (1991). *The ascent of mind*. New York
- Cavalli-Sforza LL, Menozzi P, Piazza Al (1994). *The history and geography of human genes*. San Francisco
- Cavalli-Sforza LL (1995). *The great human diasporas*. New York
- Charles RP (1965). Le neanderthalien de Petralona en Chalcidique (Grèce). *Cah Ligur Préhist Archeol*, 14:182–194 (Montpellier)
- Coutselinis A, Dritsas C, Pitsios Th (1991). Expertise Médico-Legale du Crane Pleistocene LAO 1/S 2 (Apidima II), Apidima, Laconie, Grèce. *L'Anthropologie*, 95:401–408
- Foley R (1992). Studying Human Evolution By Analogy. In: *Cambridge Encyclopedia of Human Evolution*, 335–340
- Grimaud-Hervé D, Serre FR, Bahain J (eds) (1998). *Histoire d'Ancêtres. La grande Aventure de la Préhistoire*. Paris
- Henke W, Rothe H (1999). *Stammesgeschichte des Menschen*. Berlin
- Howells WW (1992). The dispersion of modern humans. In: *Cambridge Encyclopedia of Human Evolution*, 389–393
- Jones S (1992). *The evolutionary future of humankind*. In: Cambridge Encyclopedia
- Leakey R (1994). *The origin of humankind*. London
- Lucotte G, Ngo KY (1985). A highly polymorphic probe that detects TaqI RFLPs on human Y chromosome. *Nucleic Acids Res*, 13:8285
- Pitsios Th (1999). Paleoanthropological research at the cave site of Apidima and the surrounding region (South Peloponnese, Greece). *Anthrop Anz*, 57:1–11
- Pitsios Th (2001). The fossil hominid from Apidima and the evolution of Neanderthals in Europe. *Proc 4te Kongr Dt Gesell f Anthropologie*, 13–17 (Berlin)
- Pitsios Th (2003). *Evolutionary anthropology*. Athens (In Greek)
- Stringer CB, Andrews P (1988). Genetic and fossil evidence for the Origin of modern Humans. *Science* 239:1263–1268
- Tattersall I (1995). *The Fossil trail*. New York
- Tattersall I (1995). *The last Neanderthal*. New York
- Tattersall I (1998). *Becoming human*. New York
- Tobias PhV (1971). *The brain in hominid evolution*. New York
- Wilson AC, Cann RL, Carr SM, Geirge M, Gyllensten UB, Helmbachowsky KM et al. Mitochondrial DANN and two perspectives on evolutionary genetics. *Biol J Linn Soc* 1985, 26:375–400
- Zötl JG, Geyh MA, Riepler F, Mettos A, Georgiou Ch (1999). Klimaepochen, eustatische Meeresspiegelschwankungen und Strandterrassen im östlichen Mittelmeer (Griechenland). *Beitr Z Hydrogeol*, 49/50:5–66