MOLARS FROM DENISOVA CAVE AND PALEOGENETIC DATA OF A HOMININ FROM SIMA DE LOS HUESOS: PERSPECTIVES OF THE HUMAN EVOLUTION MODELS

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The much more interesting results of new coming investigations for the emergence of Homo sapiens in Eurasia are the mitochondrial and nuclear DNA sequence retrieved from few anthropological samples excavated in Denisova Cave in the Altai Mountains in southern Siberia. The individuals from Denisova cave represent an unknown type of hominin that shares a common ancestor with anatomically modern humans and Neanderthals. While both Denisovan mtDNA sequences from different individuals represent individual archaic hominin lineages, the Denisovan nuclear genome from one of them appears less divergent, forming a sister group with Neanderthals. An almost complete mitochondrial genome sequence of a hominin from Sima de los Huesos (Spain) was quite recently published. The site became famous due to the largest assemblage of Middle Pleistocene hominin fossils dated about 300,000 years ago. According anthropological investigations, the skeletal remains and teeth share a number of morphological features mostly closed to Homo heidelbergensis and also display distinct Neanderthal derived traits. Data of mitochondrial genome sequence of a hominin from Sima de los Huesos show that it is closely related to the lineage leading to mitochondrial genomes of individuals from Denisova cave. Paleogenetics explained that the background of Denisova genome derives from a population that lived before the separation of Neanderthals, Denisovans and modern humans. This component may be present due to gene flow, or to a more complex population history (Krause et al., 2010; Reich et al., 2010; Meyer et al., 2012; 2014). Nowadays odontological studies provide additional criteria for comparing morphological data, because teeth are preserved in greater numbers than are other parts of the skeleton, they are a closer reflection of the genotype, they are more directly affected by the forces of naturals election, and they are easily treated by quantitative methods. The morphological data gave possibility to stress that two upper molars of Denisovans preserved some archaic morphological features, and that is why they are separated from the odontological morphological complex of Homo neanderthalensis and Homo heidelbergensis, both as AMH. In context of genomic data Denisovans received gene flow from a hominin whose ancestors diverged deeply from the lineage leading to Neanderthals, Denisovans and modern humans. Who is this general ancestor of all the taxa? Data on odontology allow assuming that Homo erectus sensu lato can be the most probable applicant for the role. The investigation was done in frame of the Project of RFBR # 13-06-12035.

Key words: *paleolithic, emergence of Homo sapiens in Eurasia, Denisova cave, Neanderthals and Modern Humans*

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THE FIRST MODERNS IN ANATOLIA: ÜÇAĞIZLI CAVE AND ORNAMENT USING

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Üçağızlı Cave is located on the Mediterranean coast in the Hatay Province, about 10 km South of the point where the Asi River empties into the sea. The cave is on a steepslope at about 18 m above the current sea level and was discovered and first investigated in the late 1980s by Angela Minzoni-Deroche. The current excavation began in 1997 and has been led by Prof. Dr. Erksin Savaş Güleç, from the University of Ankara. Two principal cultural components are represented in Üçağızlı Cave. The first, more recent component closely

resembles the Ahmarian complex known from other sites in the Levant. The second, earliest of these, corresponds to the so-called Initial Upper Paleolithic phase. The Initial Upper Paleolithic is considered a technocomplex transitional between Middle and Upper Paleolithic. Paleolithic deposits preserved within Üçağızlı Cave span a period of approximately 12,000 years; Accelerator Mass Spectrometry (AMS) radiocarbon dates indicate ages between 29,000 and 41,000 radiocarbon years (circa 31,000 to 43,000 calendar years). In all layers of the cave abundant amount of shell beads which used as ornaments, have been found. Advanced lithic technology and coordinated ornament use found in the cave indicate the presence of the first modern humans in Anatolia.

Key words: *Anatolia, first moderns, Initial Upper Paleolithic, Upper Paleolithic, ornament using*

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THE THREE LEAPS IN THE HUMAN EVOLUTION

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Human are very special and very different. These are the only living being on earth endeavoring in self investigation. Then one can ask if the evolution processes regarding human are specific to this species only, or not. My answer is “yes”. This species had to experience three consecutive and important leaps before becoming modern human. 1. The Leap of Bipedalism. 6–7 mya as a result of Rift and plateau formation in east Africa, a primate made an adaptive response to that formation. This adaptive response was hunting and gathering food in shallow waters on two legs. This shallow water made a selective pressure on that primate to walk bipedally. 2. The Leap of Mental Overturning. When about 2 mya the body erection reached a certain angle, the embryo made an adaptive response to this vertical body posture. The embryo turned upside down. This is the mental overturning that started the growth of the cranium as well as the brain. 3. The Leap of Mental Threshold. After chasing its enemy, the chimp throws the stick and does not say to itself: “This stick has served me effectively; I better keep it for another occasion”. If the chimp had a brain of 500 cc, would it say: “I better keep this stick and even improve it”. The chimp may not think so with 500 cc brain, not even with a 550 cc or even a 600 cc brain. But there will be a time and a brain capacity that such a thought will occur. I call that point “Mental Threshold”. Once this mental threshold was transcended, the hominid that held a stone in one hand and a stick in the other; had the courage to intrude into the hunting zone of any animal including the worst predator.

Key words: *mentis eversionis, bipedalism, mental overturning, mental threshold, human evolution*

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