MAPPING DENTAL MARKERS IN EURASIAN POPULATIONS: WHAT WAS HIDDEN IN TABLE DATA?

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The study aims to consider numerous dental data from Eurasian populations in a spatial and temporal context. Mapping dental markers and PC scores as an innovative approach involves 906 samples; 594 of them are living groups and 312 are cranial series dated from the Late Pleistocene to the Early Iron Age. The results highlight the division of the whole area into two main provinces—western and eastern. The distinctive landscape, however, changes dramatically with the chronological depth when gracile lower molars as a distinguishing characteristics of our species are considered. The maps provide the evidence of the four-cusped LM2 to be a constant marker of western Eurasian populations, while the four-cusped LM1 turns to be an eastern trait in the Upper Paleolithic and early Holocene. Since the four-cusped LM1 is generally considered a western feature in recent populations, the discovered phenomenon provides a new view of the population history of the continent. The maps demonstrate the earliest western localization of gracile LM1, followed, in different ratio, by eastern traits (shoveling, dtc, dw) only in the Mesolithic and Neolithic northeastern Europe. The most intense dispersal of a similar combination from Asia to the west is traced in the Early Metal and Bronze Ages, mainly along the steppe belt of the continent. By the turn of the Common Era the landscape takes on essentially modern outlines. The results of the study suggest that LM1 and LM2 evolved independently in Eurasian populations, thus marking two separate ancestral groups. The separate ancestry could result from different tempos of transition of the key tooth role, thus suggesting four-cusped LM1 to be more archaic. In fact, should we admit at last that all the relevant dental traits specified as eastern are basically archaic? Several implications will be discussed.

Key words: *phenogeography, Eurasia, dental markers, lower molars, gracilization, population history*

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ON THE ORIGIN OF THE SOUTHERN URALIAN AND FOREST-STEPPE VOLGA VARIETIES OF THE SINTASHTA AND POTAPOVKA CULTURES, MIDDLE TO LATE BRONZE AGE TRANSITION

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The study of the Bronze Age sites in the Southern Uralian and Volga steppes is crucial for addressing many issues of Eurasian prehistory. The discovery of a number of archaeological sites dating to the transition from the Middle to the Late Bronze Age, and in particular of a series of fortified settlements of Arkaim type, resulted in a revision of the existing periodization of the archaeological cultures in the region, and of the views concerning their origins. It was immediately suggested that people who lived in these settlements and left kurgan graveyards with remains of early battle chariots, abundant animal sacrifices, and very specific burial practices, were Indo-Iranians. We have had an opportunity to study skeletal materials from the Sintashta-Arkaim sites in Southern Urals and from the forest-steppe Potapovka sites of the Volga region, which are culturally related (materials are stored at the Volga State Socio-Humanitarian Academy in Samara). Various analytical methods were utilised, and close relationship between the two neighbouring populations was revealed. At the same time, the considerable heterogeneity of these groups, which has no parallels among preceding or succeeding Bronze Age populations, was noted. Almost all anthropological series demonstrate features that could indicate either steppe or northern forest affinities. Some series could

represent a result of a mechanical mixture while others attest to incipient hybridization. Despite the evidence of military activity in the society (fortified settlements, chariots, weapons), a small number of injuries suggests that Sintashta and Potapovka populations were involved in conflicts only occasionally. It should be emphasized that despite the apparent cultural homogeneity of the cemeteries, the buried people were not necessarily related to each other. The central and elite graves often contain individuals of a hypermorphic European type, perhaps of steppe origin. We therefore conclude that one must concentrate on elite burials to identify the founders of the Sintashta and Potapovka traditions in this archaeologically homogenous and, at the same time, biologically heterogeneous group.

Key words: *Bronze Age, Southern Urals, Sintashta-Arkaim, Potapovka, Indo-Iranian origins*

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FINGER LENGTH RATIO IN CHUVASHIANS

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In a Chuvashian sample (803 males and 738 females) we evaluated the mean values of 2D:4D ratio, the contributions of phalanges and metacarpals to the 2D:4D ratio; the symmetry between right and left 2D:4D ratios. Age, sex, anthropometric data and radiographs of both hands were collected. Each hand was visually classified with the x-ray method as either Type 1 (index finger longer than ring finger); Type 2 (equal); or Type 3 (shorter than the ring finger). The following measurements were obtained from the index and ring fingers: (1) midpoint of base of the proximal phalanx to midpoint of tip of the distal phalanx; and (2) midpoint of the base to midpoint of tip of the metacarpal. Visual classification was significantly associated with the measured 2D:4D length ratio. Women had a higher prevalence of Type 1 and Type 2, but lower prevalence of Type 3 ratio in both hands. Men had lower measured 2D:4D phalangeal, metacarpal and ray (combined) ratios than women. Symmetry between the right and left hand measured 2D:4D ratios were significant in phalangeal ($r=0.657$, $p<0.001$), metacarpal ($r=0.638$, $p<0.001$), ray ($r=0.682$, $p<0.001$) ratios and visual classification types (contingency coefficient = 0.559, $p<0.001$). No sex dimorphism was found between the right and left hands. Correlations between age and visual classification were significant on both sides before and after adjustment for sex. This is probably a sign of a secular trend and should be replicated in other samples. Evaluation of the association between 2D:4D finger length ratios (representing the prenatal environment, i.e., early androgen exposure) and reproductive indices, such as age at menarche, menopausal age and length of reproductive period was done. Retrospective data on the age at menarche and menopausal age as well as x-rays of both hands were obtained from 674 Chuvashian women aged 18-70 (mean 46.32±15.42). We found that a low 2D:4D ratio (radiologically evaluated), a masculine 2D:4D ratio type (visually evaluated), and a putative bioassay for prenatal androgen exposure were associated with a later menarche and shorter reproductive period. No association was found with menopausal age.

Key words: *hand, 2D:4D, finger length ratio, menarche, menopause, Chuvashians*

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