

## CRANIAL NONMETRIC TRAITS OF PALEOANTHROPOLOGICAL FINDINGS FROM EASTERN MONGOLIA (BRIEF INFORMATION)

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Nonmetric traits or epigenetic variants of the human skull are considered one of the most important phenotypic expressions used in craniology. It's usefulness in considering biological differences between the populations were demonstrated by many researchers in the series of paleoanthropological survey and number of craniological studies (Berry & Berry, 1967; Ossenbergh, 1970; 1976; 1990; Мовсесян А А, Мамонова Н Н, Рычков Ю Г, 1975; Sir Won Seok et al., 1989; Lee Kyu Seok, et al., 1991; Ishida & Dodo, 1993; etc.) especially when distances based on them are interpreted in conjunction with cranial measurements and tooth morphology.

The theoretical basis of such an investigation lays on an assumption that nonmetric traits of human skull are primarily under genetic control. Though these traits are not inherited in a single Mendelian pattern and involve multiple genes being remote from their phenotypic effects, it's development depends on an underlying continuous distributed traits and, as a result, has much common with a measurement traits of the skull.

Thus, a research of the epygenetic variants of Mongols could be an important source of information not only in the problem of ethnogenesis of Mongolians but in ethnohistorical questions of Asian and Native American populations.

### **Materials and methods**

The materials examined in the current survey consist of the 8 paleoanthropological remains collected during archaeological excavation in Uguumur site, Hulunbuir soum, Dornod aimag, Eastern Mongolia. The outer surface structure and archaeological findings suggest that Uguumur site graves in Hulunbuir soum belong to Mongolian empire period (XI-XIII c.) of Mongolian history.

All data on nonmetric cranial variants in this report were collected by author. From a large potential list of nonmetric cranial traits the most frequently observed 21 traits were selected in this report. Those traits that were not observed in the sample are omitted in the report. All nonmetric cranial traits used in this study were scored as present or absent following by criteria of Hauser G & G.F.De Stefano (1989) and Мовсесян А А, Мамонова Н Н, Рычков Ю Г (1975).

All characters were scored separately on the two sides, and then summed up in subsequent statistical treatment without taking into consideration the side of occurrence e.g. adding all observations together and so doubling the sample size and then dividing them by two, i.e. giving only side incidence.

As long as the investigation of cranial nonmetric traits of paleoanthropological remains has just begun in Mongolia and included sample with a small number of skulls, it wasn't our aim to make a full set of scientific analysis in this report. So, here we present only preliminary results of our observation, but neither full range of description nor comparative analysis.

### **Results discussion**

Table 1 lists the 21 features of non-metric cranial traits and gives their incidences in the sample.

The results of the study show that more than 50 percent of the individuals have the supraorbital, zygomaticofacial and parietal foramen and half of the observed samples have condylar canal and posteriorly protruding transverse palatine suture. Incidences of ossicles at cranial suture for epipteric bone, parietal notch bone, coronal ossicles, inca bone complete and inca bone incomplete range between 0.1 and 0.2, while frequencies of ossicles at lambda and asterion are more than 0.3 and incidences of occipitomastoid ossicles are under 0.1. Frequencies of pharyngeal foveola, palatine and mandibular torus are 0.20 to 0.25. Occurrences of metopic suture and trochlear spine are as low as 0.125 and 0.083 respectively.

### Conclusion

The high frequency of supraorbital foramen for Mongols is already pointed out by researchers previously (Ishida, Dodo (1993) which is supported in our study of nonmetric traits of X-XIII century populations of Eastern Mongolia. Incidences of ossicles at cranial suture, sagittal groove left, palatine and mandibular torus in paleoanthropological materials from Eastern Mongolia also agrees with those of other researchers. However we could not find any information regarding zygomaticofacial and parietal foramens, transverse palatine suture and trochlear spur. It requires further detailed investigation of the nonmetric traits of the paleoanthropological remains not only from Eastern Mongolia but whole territory of Mongolia to elucidate the origin and ethnogenesis of Mongolians.

Table 1.

### Incidence of nonmetric cranial traits in Uguumur site sample, Eastern Mongolia

	Trait	n	P
1.	Metopism	4	0.125
2.	Supraorbital foramen	6	0.583
3.	Trochlear spine	6	0.083
4.	Accessory infraorbital foramen	5	0.200
5.	Zygomaticofacial foramen	5	0.800
6.	Epipteric bone	4.5	0.111
7.	Parietal notch bone	5.5	0.182
8.	Coronal ossicles (Os wormii suturae coronalis)	7.5	0.133
9.	Parietal foramen	8	0.875
10.	Inca bone complete	4	0.125
11.	Inca bone incomplete	4	0.125
12.	Ossicles at lambda	7.5	0.333
13.	Asterionic ossicle	6.5	0.385
14.	Occipitomastoid ossicles	7.5	0.067
15.	Sagittal groove turns left	4	0.375
16.	Palatine torus	2.5	0.200
17.	Transverse palatine suture (posterior convexity)	2	0.500
18.	Pterygo-alar bridge	3	0.333
19.	Condylar canal	4	0.500
20.	Pharyngeal foveola	2	0.250
21.	Mandibular torus	4	0.250

### Acknowledgements

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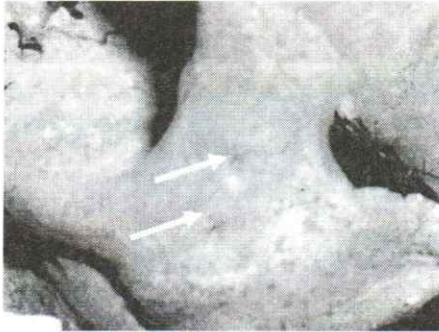


Fig.1. AAT-549. Zygomaticofacial foramen



Fig.2. AAT-549. Wormian bone at lambdoid suture

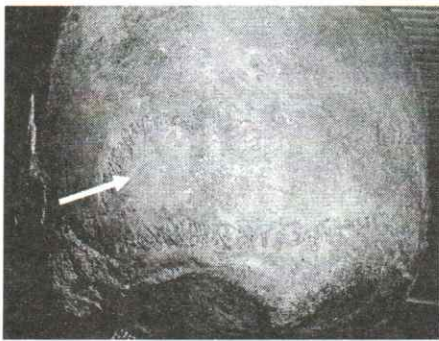


Fig 3. AAT-549. Inca bone complete

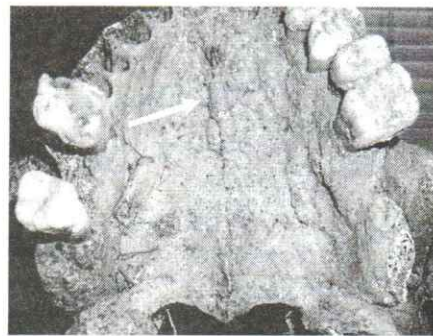


Fig. 4. AAT-549. Palatine torus

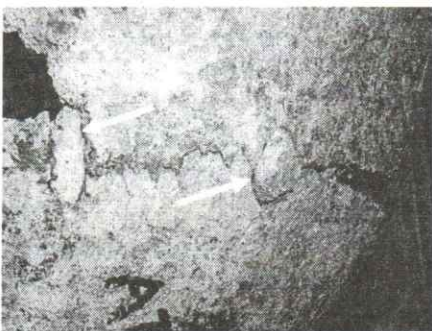


Fig. 5. AAT-550. Wormian bone at lambdoid coronal suture



Fig. 6. AAT-550. Wormian bone at suture

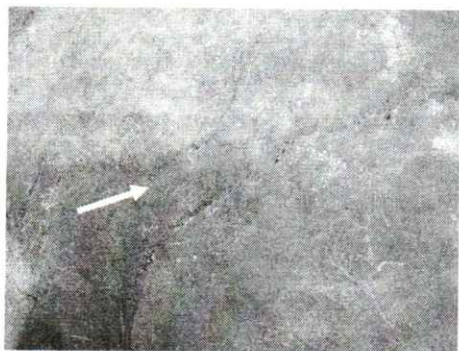


Fig. 7. AAT-551. Ossicle at asterion

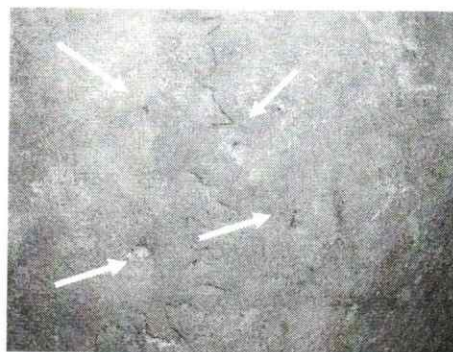


Fig. 8. AAT. 551. Parietal foramen

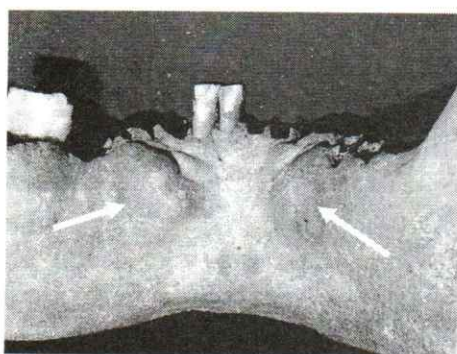


Fig. 9. AAT-551. Mandibular torus

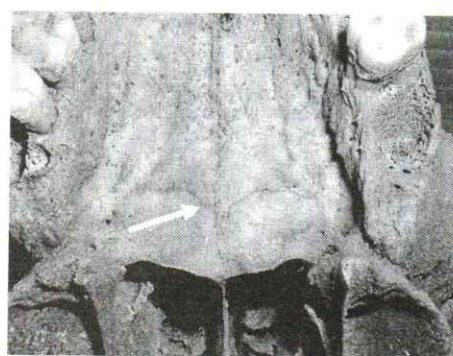


Fig. 10. AAT-551.  
Posteriorly convexed palatine suture



Fig. 11. AAT-557. Wormian bone  
at lambdoid suture

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## Summary

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