

**ETHNOMATHEMATICS AND TECHNOLOGY I.
COPPER, BRONZE AND IRON-TO-STEEL SMITHWORKS
FROM THE GREAT EURASIAN STEPPE-BELT
AND WESTERN EUROPE**

Sz. BÉRCZI, B. LUKÁCS, T. FÖLDI

Eötvös Loránd University, Rákóczi út 5., Budapest, H-1088 Hungary,
Hungarian Academy of Sciences Central Research Institute of Physics, P.O. Box
49, Budapest, H-1525 Hungary

Ethnomathematics may use up knowledge from metalwork technologies from two important aspects. One is: the algorithm of the operation of production, which may be connected - as in the case of other material-producing technologies - pattern formation of the final product. Other is: the ornamental art, which adorned the mounts and weapons of highly appreciated warriors, who used the products in defense of the community.

Both kind of knowledge is present in metal industry, which developed during the Copper, Bronze and Iron Ages in the Eurasian history. The birthplace of these industries is around Asia Minor and Mesopotamia. We could see, that copper and bronze industry was somehow copied, when iron-steel industry developed, but the role of the heavenly metal: meteoritic nickel-iron always played a triggering role in these developments. Contrary to this multi-step development of European iron-industry, on the Far East melting and alloying was ready at the early stages of iron industry.

Parallel to the technology developments we show in the exhibition that how ornamental art expressed intuitive mathematical inventions on bronze and iron age weapons and mounts of mostly royal persons. Their heritage could be found in the rich kurgans and other tombs from Eurasia. Bronze Age will be richly represented from the Celtic and Saka (Central Asian Scythia) archaeological finds. Iron Age is also represented by Celts and Scythians, and other later steppe peoples as Sarmatians, Huns, Avars, Onogurians, Hungarians (Árpád's people) and Normanns (Vikings).

Our work and exhibition will show not only the great flow and continuity of myths and ideas reflected by the rich "Animal Style" on the Great Eurasian Steppe, taken by Celts and Normanns, too, but the intuitive geometrical variations of goldsmiths who were artists of this not so well know age of human culture.