

## **T-shaped antler axes in the Mesolithic and Neolithic of the Central European Lowland**

For hundreds of thousands of years Northern Europe was inhabited by various human groups practicing hunter-gatherer style of life. Situation has changed substantially ca. middle of the 6<sup>th</sup> millennium cal BC when the first farmers – called Linear Band Pottery Culture, arrived to Central Europe. They appeared in Poland after crossing the Carpathians and Sudeten mountains and settled on the uplands of southern Poland. That first people practicing agriculture are named Neolithic societies. They brought with them the knowledge on how to cultivate plants and how to domesticate wild animals. At the beginning they settled the most fertile lands – loess soils on the south of Poland and black soils on the North. Subsequent waves of farmers arriving from southern Europe less than millennium later gradually colonized also less fertile sandy soils. The process of settling the Central European Lowland by farmers - called neolithization - was completed about 4000 cal BC when farmers of the Funnel Beaker Culture spread north as far as the southern shores of the Northern Sea and the Baltic Sea.

When crossing the southern mountain ridges farmers colonized territory that was already occupied by numerous groups of Mesolithic hunter-gatherers, and contacts with them was inevitable. When they approached the coastal areas of the Northern Sea and the Baltic Sea they discovered that lands were already settled by socially and economically advanced hunter-gatherer-fisher societies, called by archaeologist Swifterbant, Ertebølle and post-Maglemosian cultures. Those people were excellent fishers, and produced very characteristic pointed-bottom clay vessels and lamps. They were also very skillful craftsmen manufacturing axes, harpoons, daggers and other tools of bone and antler. In consequence, they stayed resistant to an alien, farming style of life. Therefore it seems that neolithization of northern parts of the European Lowland was a relatively slow process of growing mutual relations where both sides had a lot to offer.

Archaeological evidence of contacts between the hunter-gatherers and early farmers on the Central European Lowland is very scarce. These are mostly objects exchanged during the trade they practiced, like single clay vessels of farmers or hunter-gatherers, amber from the Baltic beaches or animal furs.

A special role in those contacts were played by T-shaped antler axes – a very characteristic tool named by archeologists after a characteristic appearance resembling ‘T’ letter. They are unique because that is the only tool that we may find in the same time in large quantities in the Late Mesolithic and Early Neolithic settlements of Northern Europe.

Researchers still don’t know where these tools were firstly produced in Northern Europe and two possibilities are taken into account: either that axes were invented by hunter-gatherers and than the technology was transferred to some Neolithic farming groups on the European Lowland, or they were produced independently by foragers and farmers.

The main goal of the project is to multilaterally characterize the production of T-shaped axes in the broad context of the Mesolithic and Neolithic settlement of the Central European Plain in respect of the technology of manufacturing, chronology, origin and cultural affiliations. We believe that it would allow to solve the issue of their genesis on a systematic way, especially in the context of neolithization. Basic hypothesis that will be tested in the course of the project assumes that there was a transfer of technology of T-shape axes’ manufacturing from the milieu of hunter-gatherers to early farmers. Certainly such a transfer of technology would be a unique social phenomenon with consequences reaching far beyond a developed exchange relations. A special role would be than played by the societies of so called Brześć Kujawski Group of Lengyel Culture. They settled the Polish Lowland in the first half of 5<sup>th</sup> millennium cal BC, and, beside T-shape axes’ manufacturing expose other traces of Mesolithic influence, in genetic structure and burial practices.

Above hypothesis, if confirmed, would have a crucial importance for understanding relations between Mesolithic hunter-gatherers and the earliest farmers. In consequence, the project would be an important voice in the ongoing discussion on the neolithization of Northern Europe.