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GEOARCHEOLOGICAL AND ENVIRONMENTAL HISTORICAL
STUDIES ON THE KARANCSSÁG-ALSÓ-RÉTEK SITE

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Introduction, aims

Investigations at Karancsság-Alsó-rétek, a multi-component site in Nógrád County, northern Hungary, began with the opening of three excavation blocks in 2002. Part of three Neolithic (Notenkopf, Zseliz and Lengyel Culture) and a 10-11. century AD settlements were excavated. We excavated 84 features in the 3 blocks and collected samples (animal bones, malacology and stone artifacts) from ca. 72 m³ (100-120 t) of anthrosol. This site is close to the Ménes stream at an elevation of 180-190 m. The site is on a sloping surface and a depression directed to North-South. Our excavation blocks were set out on the upper part of the slope, on the former settling surface. The core samples were taken from the archeological site and adjacent to the stream. The whole area of the archeological site is unknown. Maybe the Northern edge of the site is under the road Nr. 22. and the Kossuth street of the modern village. We could identify the Eastern, Southern and Western boundaries of the site so we could determine the largest area of the Neolithic settlement.

Three characteristic periods of the Neolithic were excavated in the site, so it was possible to reconstruct the inner development of the first farming communities and the process of their adaptation to the Sub-Carpathian environment.

The speciality of the site is the undisturbed Neolithic layers and even its position in an uninvestigated area. Furthermore the archeological material of the lower layers is still the oldest investigated Neolithic site in Nógrád County. So we took 3 core samples from the archeological site and adjacent to the stream in 2008 and 2010. The samples were subjected to soil chemical, sedimentological, palynological, and malacological analyses.

The aims of the investigation of archeology, geoarcheology, environmental history was to reconstruct the original Neolithic human impacts and the local environment in the Late Pleistocene and Early Holocene.

I would like to present the Early Holocene and Neolithic environment of a wider region. The archeological, environmental historical and the former published datas could help in this work. The main goal is the development of the Neolithic the local settling environment and the regional comparison of this local environment. This datas are very important to recognize the development of the first food producing in the mountains and the environmental setting of its improvemnet.

Materials and methods

The archeological finds and samples were taken from the identified archeological layers and levels during the excavation. The "so-called" microstratigraphic excavation method was used during the excavation. The samples were subjected to archeozoological, malacological and archeometrical analyses. The core samples were subjected to soil chemical, sedimentological, palynological, and malacological analyses.

The age of the archeological finds was determined by the tipology.

I made a separate analysis about the possible information losing. The reason of this chapter is the difference of the archeological methods and the erosion processess in the research area and the mountain area.

Major results as thesis points of the research

1. A sediment sequence, a filling series was developed in the investigated area, than a luvisol was developed on the top of the alluvial sediment sequence on strength of the soil chemical datas. The Neolithic people were settled on the top of this layer and significant sediment. The soil blendig evolved because of Neolithic activity. A part of the parameter of the soilchemistry (phosphate, carbonate and humus) indicated cyclic

changes. This data indicate a cyclic land using and the archeological data support this result because they detect 3 Neolithic settling waves. Besides the soil blending, the cyclic increase of human impacts (cumulation of bones, humus, charcoal, manure, compost) evolved more significant changes which indicate erosion. The significant sediment, soil moving and the cumulation of them started in that time.

2. By the chemical analysis in floodplain of Ménes stream we could identify the Pleistocene floodplain layer. This layer is low in organic materials and high in minerals (225-195 cm). The deposition was still low in organic material in the Early Holocene (215-225 cm). The organic farming horizon could be same with the layer what removed by human impacts and high in organic materials and humus (95-125 cm). This layer is permanent under the groundwater level. The next horizon is characterized with clay and cyclic groundwater moving (30-95 cm). The recent soil horizon is in 0-30 cm which is full with modern chemical material.
3. The most important result of the investigation of the possible information losing is the high rate of the missing information. This rate can be very high in the archeological site in the area with hard erosion (mountains, hills) and it can hinder the correct reconstruction. We have to make the reconstruction of the archeological site very carefully in this case. We can identify same problem - but with other reason - in the case of the preventive archeology (CRM) too.
4. It was possibly to identify 5 pollenzones in the investigated area. In the layers 14000-11200 cal BP (12400-9200 cal BC) the true grasses (*Gramineae*), mugworts (*Artemisia*) and the conifers were dominant but it is possible to notice the change from scots pine to birch. There were

mosaics of scots pine - birch - wet grassland in the floodplain in the end of the Pleistocene. They transformed to the Early Holocene and the reed - reed mace - rush, softwood forest, oak - elm - ash hardwood forest areas and zones of oak - linden varied in the catchment area. In the period of Early Holocene, 11600/11400 - 10000 cal BP (9600/9400 - 8000 cal BC), the coniferous woods were rolled back and the rate of the birch were risen. In 10000 - 7600 cal BP (8000 - 5600 cal BC) the deciduous forests - willow, alder softwood and oak - elm - ash hardwood forests covered the dominant part of the valley-system. Oak forest mixed with linden were dominant in the upper highlands. The human impacts appeared in the 7600 - 6000 cal BP (5600 - 4000 cal BC) horizon. The cereals and weeds (plantain family) appeared and the rate of the deciduous forest started to decrease. The signs of the human impacts appeared only in few spots not in the whole valley-system (*landam* system). By the time of the earliest Neolithic settlement we suppose a cyclic and spotlike farming on the clearings of the Ménes valley. In this clearing spots the Neolithic people stopped the farming after a few years. Few years later, when the vegetation started to recover then the Neolithic people burning the bushes (mainly the hazels), the young sprouts of the trees and the young trees. After the burning the ashes were ploughed into the soil. This method is very simple and effective and the settlers could crop the neighborhood of their houses. A diffuse settlement, agglomeration could develop in case of growing population. The morphological circumstances controled the size and shape of the settlement. The change of the Neolithic landscape and original vegetation got its top in the development and settling of the Late Neolithic Lengyel Culture. In 6800 - 6600 cal BP (4800 - 4600 cal BC) a whole Neolithic husbandry system worked in the investigated area on the long term (400-700 years) human impacts. This system developed on a long term - 400 - 700 years - organic and continuous human impact. The

rate of the trees felt back in the Copper Age - Early Bronze Age, 6000 - 4400 cal BP (4000 - 2400 cal BC). The rate of the hazel was high and the growing of the rate of weed was significant too. This weeds indicate the pasture, walked surfaces and ploughed areas. The Ménes valley and its forest covered slopes transformed by the human impacts. The typical vegetation of the Ménes catchment area was grasslands, bushes and crops close to settlements. Unfortunately we could not investigate the later periods because of dehydration of the sediment.

5. The habitats of the most of the molluscs were forest clearing, forest boundaries and forest-steppe. Moreover the typical habitat of the *Bradybaena fruticum* is the fresh clearing. This species were excavated in every period, so we can suppose a cyclic forest clearing and closing from the Neolithic to the 10-11. AD. The species of groves indicate the trees around the settlement and the Ménes stream.
6. The main dominance of the obsidian, limnoqaurzite and krakkow-jura flint were common in every Neolithic period in Karancsság. This fact let suppose a long term experiences and connection. There was a blade industry in the all of Neolithic settlement in Karancsság. The obsidian was the dominant raw material in the Zseliz and Lengyel site, its rate was more than 50%. This area was close to the borderline of the Zseliz and Bükk Culture in the Middle Neolithic. The ceramics from the Bükk territory prove the intensive connection between the two people too. The obsidian sources were occupied by the people of the Lengyel Culture in the Late Neolithic. Besides the common sources every Neolithic settlement had their own special raw material source too. A Prut flint was a special source in the Notenkopf period of Karancsság site. It missed in the Zseliz period and we can identify the Tevel and Moravian flint as new

raw material. They missed in the Late Neolithic but the Lengyel people had the chocolate flint from Poland as a new raw material.

7. The animal bones are dominated by the domestic animal bones in every period, even in the 10-11 c. AD. Hunting for meat was only a complementary activity. The goat – sheep were the dominant species in the Notenkopf period in Karancsság, the cattle was on the second place. This rate was equal in the Zseliz period and the cattle were the main domestic animal in the Lengyel site in Karancsság, the sheep – goat was on the second place. The pigs were on the third place every time. The forest species were dominant the hunted species and the aurochs missed completely.

Summary

The cycles of Neolithic settlement and abandonment were also evident in the results of the geoarcheological and archeological analyses. The development of the settlement began with deforestation in the Neolithic and again in the 10th – 11th Century AD. The lifestyle and the relative proportions of the three Neolithic cultures identified at Karancsság are largely the same. Neolithic farming practices were very similar in the three different settlement phases, but a few differences were observed in terms of animal husbandry: cattle became the most important domesticated animal in the Late Neolithic. Cultural connections, based on the chipped stone industry, are again largely the same amongst the Neolithic phases at Karancsság, but each phase showed some raw materials particular to the culture.

The significant human activity associated with occupation transformed the natural environment. The environment of the settlement during the 10th – 11th Century AD was very different from the Neolithic environment. The medieval

road system – next to the modern system – probably formed around the Ménes Stream at this time.

Presentations related to the thesis

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