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**ROLE AND SIGNIFICANCE OF LOWER SILESIAN SERPENTINITES  
AS A RAW MATERIAL FOR PRODUCTION OF NEOLITHIC POLISHED  
STONE TOOLS**

INTRODUCTION

The Neolith, known also as Young Stone Age, lasting approximately from 4200 till 1900 B.C. brought radical changes of Lower Silesian inhabitants. The neolithic population living in the Silesia at this epoch was uniform in neither the economic, cultural and the ethnic respect. This resulted from the inflow of tribes coming from the Danubian Zone. It was manifested in the differentiation of the material culture, of the individual population groups, in the shape of items of daily use, in the manner of burrying the dead in the character of general culture level. The incoming populations brought also new and higher level of the technique of stone tools working (Romanow 1970).

Serpentinites were most popular stone raw material for preparing of different stone tools. The large neolithic mines of raw material for producing of tools were situated at the vicinity of Ślęza hill, as well as Nasławice, Janówek, Piotrówek villages near Jordanów Śl on the Fore-Sudetic block (Wojciechowski 1988).

The aim of this abstract is to present role and significance of serpentinites for preparing of different stone tools in the Aneolith-Neolithic epoch in the Lower Silesia region.

TECHNIQUES OF PREPARING SERPENTINITE STONE TOOLS

Technique of stone tools preparing was very simple. It includes two main stages of working. Firstly, the irregular rock fragment was chipped by another stone. The obtained sizes of stone pieces depended on purposes of the prepared tool. In the next stage, the semi-finished piece of stone was grinded, smoothed and polished to obtain of the luster sheen. In many cases stone tools were drilled for mounting of wooden handles. Preparing of holes using neolithic methods required many time. Interestingly, the primitive bow-drillers with fire-hardened bone bits were applied very often by neolithic newcomers. The neolithic peoples, during drilling a holes, used as a grinding materials the wet sand or small fragments of granite. Also I have tounderline, that in the serpentinite neolithic tools many of holes were situated at the gravity centers of these stones. In many cases the

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serpentinite tools such as: axes, adzes, hoes, chisels and battle-axes (also known as a Ślęza-type axes) were prepared very carefully. They differ one to another by size and shape, are often perfectly polished and they occasionally had very sharp and bent blades. An other characteristic feature of neolithic settlements localised near Jordanów is occurrence of semi-manufactured, semi-finished serpentinite products or bungs after drilling of holes. Such finds gave more informations about techniques of preparing of neolithic serpentinite stone tools (Wojciechowski 1983).

#### ROLE AND SIGNIFICANCE OF SERPENTINITE AS A RAW MATERIAL

Serpentinites represented very popular stone raw materials for polished artefacts in the Neolith (Aeneolith). According to investigation of Cholewa (1999) in the collection of 670 Neolithic artefacts (stone tools) coming from Lower Silesia, the large part (about 100 pieces) was made of serpentinite. Interestingly, the majority of serpentinite artefacts were axes (91), chisels (17), pegs (2), grinders (2) and a club (bludgeon) (1). Most of them belong to the Funnel Beaker, Corded Ware and Lengyel cultures. No serpentinite tools were found among studied artefacts representing the Linear Pottery and Globula Amphora cultures (Cholewa 1999).

Serpentinites prevail also among battle-axes of the Corded Ware Culture in Moravia and the Czech part of Upper Silesia (113 artefacts out of 416 pieces, i. e. 27 %; Hence, frequent finds of the serpentinite Corded Ware battle-axes in central Moravia were transported very probably along the Odra river and than through the valley of Moravian Gate at a distance of about 200 km (Prichystal & Sebel 1992).

Petrographic studies of serpentinite indicate presence of preserved textures which could have resulted from recrystallization of antigorite. Mesh textures predominate in the studied thin sections in which magnetite is usually filling cracks and fissures in the groundmass. Several samples showing abundant relics of olivine and pyroxene enclosed in antigorite background. Comparison of textures of neolithic artefacts with textural features of Lower Silesian serpentinites suggests that most of them display interpenetrating and interlocking textures.

Based on this observation, we can conclude that the main primary source of serpentinite rough material for production of artefacts was likely to have been located near the Jordanów village in the northern margin of the Sowie Góry gneissic Block (Majerowicz et al. 2000). Similar results were obtained by measurements (using portable kappameter) of magnetic susceptibility of serpentinites from the artefacts and samples of ultrabasic rocks from surroundings of Sowie Mts. Gneissic Block (Prichystal & Gunia 2001).

#### CONCLUDING REMARKS

The described progress of studies of serpentinite neolithic artefacts from Lower Silesia area indicates, that continuation of these investigations is necessary. Despite these we can to explainate many problems concerning production, import and migration paths of stone tools during Neolithic (Aneolithic) time in Europe.

Particularly the application of modern methods of mineralogical investigation such as x-ray powder diffractometry, microprobe analyse, ion-microprobe analyse can be perspective for solution of many petroarcheological problems.

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