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REGIONAL DIFFERENTIATION IN THE NEOLITHIC STONE RAW MATERIAL ECONOMY: BALTIC COASTAL ZONE VS. MIDDLE POLISH PLAIN

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The petro-archaeological research on Neolithic stone raw material economy, which has been carried out for several years,[1] has recently been broadened territorially. It embraces now, besides the Mid-western part of Poland (i.e. a part of Great Valleys Region), also East Pomerania (the Gdańsk Coastal Region). The results so far obtained from this new research area make it possible to draw some conclusions concerning the development of Neolithic stone industry in these two geographical regions, which differ much both in the respect of natural environment and in that of cultural development during the Neolithic.

Below we would like to investigate – on the basis of the results of the analysis of a group of Neolithic stone tools from East Pomerania – some detailed questions and then to compare them with the results obtained earlier in regard of the Mid-western part of Poland. We shall be interested in the following features of both collections:

1. the list of raw material types,
2. the raw material structure of each collection and its chrono-cultural and typological analysis,
3. the origin of raw materials:
   a) possibility of localizing the deposits of imported raw materials,
   b) a comparison of the raw materials of erratic origin with the structure of local erratics.

The collection representing Neolithic production of stone implements in the Mid-western part of Poland, which was analized in many aspects in a series of earlier publications,[2] has 1558 items studied macroscopically, of which 104 were then verified microscopically. This is, it seems, representative for the Neolithic of that region both in the chrono-cultural respect, and in that of typology. On the other hand, the series of analogical samples from the area of East Pomerania is not very numerous yet (85 items, including 48 with determined chrono-cultural classification); 9 items have so far been investigated by the use of thin section method.

In the collection from the coastal region only 11 kinds of raw materials have been identified, compared with 110 recognized in the Mid-western series. After having neglected subtypes and variants of raw materials as well as the categories of low frequency, there remain 6 categories of raw materials in the Baltic series as compared with 25 categories from the Great Valleys. It seems that this discrepancy can only partially be explained by the difference in the number of samples in both collections. A part of the differences must have an objective character as there are no implements made of leptite or sedimentary rocks in the East Pomeranian series, though these raw materials belong to the most popular ones in the Mid-west. Therefore one can state that the coastal stone industry is characterized by a far greater monotony of raw materials (75% of the collection contains items made of only three kinds of rocks: amphibolite, gabbro and gneiss, while the same part of the Mid-western series contains six most numerous raw materials, i.e.: amphibolite, basalt, diabase, gabbro, gneiss and leptite). This monotony can be explained either by greater distance of Pomerania from the original rock deposits (in the case of imported raw materials) or by different cultural traditions in the exploitation of local resources of erratic rocks.

The small number of implements in the Pomeranian collection does not allow us to carry out a full, multi-aspect internal analysis because the lower grade categories that would be differentiated, would not fulfill condition of statistical representativeness.[3] Therefore we shall confine ourselves below to signalizing some characteristic phenomena that are relevant for the whole of Neolithic stone production in that region. What has been observed in this collection is a special way of utilizing gabbro – almost only for the production of perforated axes (15 items vs. 2 flat axes). In Mid-western Poland this rock played a more universal role, being used in a more similar degree for the production of perforated axes (12.7%), hoes (13.9%), hammeraxes (19.2%), mace-heads (15.1%) and other implements (17.8%).

Another regional peculiarity is a completely different raw material content in the group of hoes which is dominated by diabase as compared to the dominance of amphibolite and considerable participation of gabbro, gneiss and leptite in the Mid-west. Most probably, this pehonemon has a genetic basis: a particular type of hoes, appearing in the Gdańsk region, form one of the leading features of the Baltic Culture in which separate raw materials traditions were probably active.

Among the 11 raw material categories recognized in the Pomeranian sample, the character of far-reaching import can be attributed to serpentinite and probably also to talc-actinolite schist and anamesite (phyric and aphyric). A closer microscopic analysis of a serpentinite from the flat axe of Danubian Cycle from Biskupiec (former county Susz, Elbląg voivodship) makes it possible to synchronize this raw material with its known deposits in the Gogołów—Jordanow Massif in Silesia (the distance of more than 600 kilometers). Probably from the same massif comes the talc-actinolite schist of which the flat axe from Oziersk (raj. Kaliningrad, USSR) was made (the distance about 600 km). The petrographic analysis of the phyric anamesite from the late Neolithic perforated axe found in Gdańsk-Oliwa and of the aphyric anamesite from the flat axe of Danubian Cycle from Tolkmicko (Elbląg voivodship) indicates their Sudetian origin. However, a single macroscopic identification of basalt may only be generally connected with submontane and mountain zone.

In comparison to the dimension of the raw material import to the Mid-western Poland, where a number of rocks with high utilitarian qualities were known (e.g. the basalt from Volhynia[4] and the Sudetes,[5] the serpentinite from the Sobotka massif,[6] amphibolite, greenstone from the Kaczawskie Mountains,[7] etc.), in Gdańsk Pomerania it is, so far, represented in a very modest amount. Besides the objective reasons for this difference — a far greater distance from southern, mountain areas, a greater number of boulders and their bigger size, a lack of local deposits of variegated Poznań clay and other sedimentary rocks — there may be also a subjective reason, i.e. much less advanced research.

Among the rocks of probable erratic origin, in the material from Gdańsk Pomerania the following kinds have been differentiated: amphibolite, diabase, gabbro, gneiss and granite. From these, only the last two are more numerous among the erratics (31.4% and 20.9% respectively).[8] The remaining ones are not even mentioned in the structure of erratics because of their low frequency and were included in the group "other rocks". This confirms the observation made earlier regarding the Polish Great Valleys Region, that the exploitation of local erratic resources was characterized by careful selection: it aimed especially at rocks possessing optimal technological features even if they were rarely found in that area.

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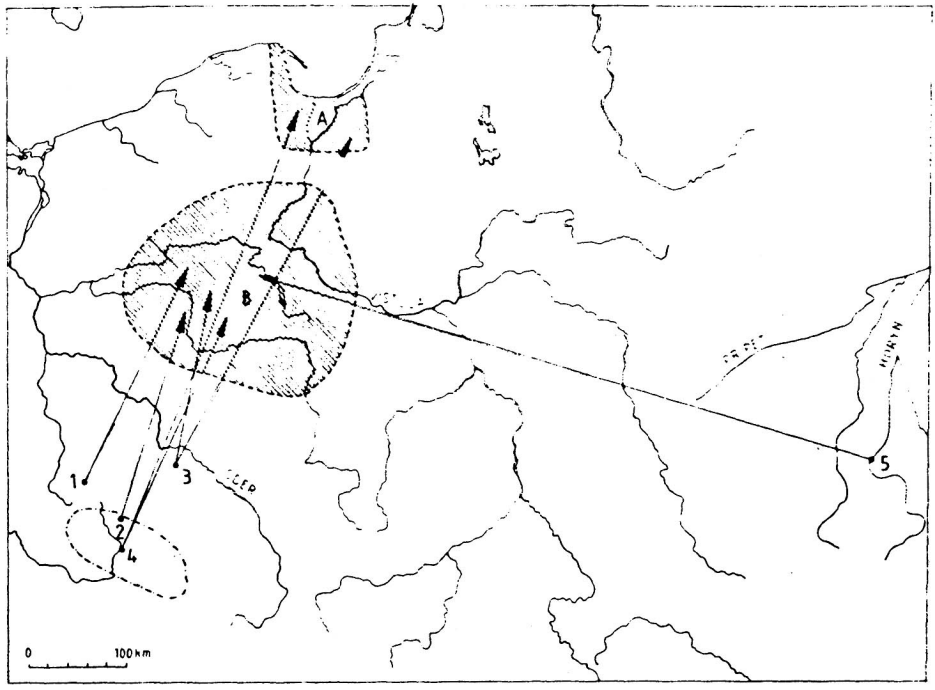

Fig. 1. Influx of raw materials from primary quarries in submontane and mountain zone into the Polish Lowland
A – Baltic Coastal Zone (East Pomerania); B – Great Valleys Zone (Mid-western Poland). Primary quarries: 1 – Lubań, 2 – Kaczawskie Mountains, 3 – Ślęża Massif and Gogołów-Jordanów Massif, 4 – West Sudetian Mountains, 5 – Horyń Massif