PROBLEMS OF SILICEOUS ROCK TERMINOLOGY IN CROATIAN ARCHAEOLOGY

A KOVAKŐZETEK NEVEZÉKTANÁVAL KAPCSOLATOS PROBLÉMÁK A HORVÁT RÉGÉSZETBEN

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Abstract

This paper will give a short overview on the problems concerning terminology of siliceous rocks in archaeological context in Croatian language. Short history of the use of specific terms will be presented, as well as some discrepancies in use of certain terms in archaeological and geological context.

Kivonat

A cikk rövid összefoglalást ad a régészeti kontextusban előforduló kovakőzetek nevezéktanának problémáiról a horvát nyelvű szakirodalomban. Bemutatja a speciális szakkifejezésének használatának rövid történetét és rámutat néhány ellentmondásra és hiányosságra a régészeti és a geológiai terminológiai gyakorlatban.

KEYWORDS: TERMINOLOGY, SILICEOUS ROCKS, CROATIA

KULCSSZAVAK: TERMINOLÓGIA, KOVAKŐZETEK, HORVÁTORSZÁG

Introduction

Research of siliceous rocks in archaeological context is rather a new discipline of interest in Croatian archaeology. Palaeolithic, the period most closely related to chipped stone industries was not subject of research of Croatian archaeologists until the middle of the 1990s. There was the same lack of interest in chipped stone tools in later prehistoric periods as well. Research on Palaeolithic archaeology for most of the 20th century, was conducted by two geologists; D. Grojanović Kramberger and M. Malez. D. Grojanović Kramberger was also the first one to register data on radiolarian cherts and radiolarites associated with magmatic rocks at Medvednica Mt (Gorjanović-Kramberger 1908). Mirko Malez did not have particular interest in siliceous rocks, so he did not make many efforts to improve the nomenclature. At present, there is growing number of both archaeologists and geologists working on prehistoric chipped stone assemblages, facing many problems concerning terminology.

As main problems we can identify the lack of tradition in systematic analysis of the artefacts, general lack of interest in stone artefacts, and scarce cooperation with geologists. Further on, we meet inadequate translations and there is no consistency in using specific terms. There has been some amount of cooperation and consultation with geologists, but not nearly adequate or enough. Therefore, use of adequate and uniform terminology is still far from being satisfactory.

Frequently used terms

Kremen

There are two words most commonly used as general name for siliceous rocks used as raw material for chipped stone tools. One is "kremen", and the other is "rožnjak" (chert). The word that is most commonly used when describing chipped stone industries is „kremen". Origin of that word is in the old Slavic language, word *kremy* (Croatian language portal). We can say that the word *kremen* as a general term has a long history in Croatian language and archaeology. Translation of that word means *Feuerstein* in German, and *tűzkő* in Hungarian. It is used by the archaeologists for all siliceous rocks used for prehistoric tools and it is also widespread in everyday language. It has been used since the beginnings of archaeology in Croatia (Ljubić 1876). Also, it is in the root of the word for gunflint - *kremenjača*. Toponyms with word *kremen* indicate either archaeological sites (usually Neolithic open air sites, abundant with chipped stone artefacts on the surface) or geological formations with siliceous rocks. This word has traditional and almost historical use and meaning among people and archaeologists and is part of

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everyday language, understandable for all. On the other hand, in Croatian geological literature *kremen* means the mineral, quartz. So, it can be misunderstood when reading geological literature as an archaeologist (for example Marić 1953). The situation is the same in other countries with similar Slavic languages, such as Serbia. For example in the Archaeological lexicon kremen is defined as a: "Sedimentary rock consisting of cryptocrystalline quartz, chalcedony and opal, white grey or yellow coloured, with hardness of 6-7 Mohs; not translucent, 97-99% SiO2, **"most frequently used raw material before the use of metal"**. Difference is that it has conchoidal fracture while chert (rožnac) has flat. Also, "there are opinions that kremen is just synonym for chert and that the use of that term is justified only in archaeology" (Jović, V. 1997, 524). Another aspect causing further confusion is translation: the word kremen is usually translated to English (in archaeological literature) as *flint*, which is incorrect and deepens the misunderstanding.

Chert

According to the geological definition chert is cryptocrystalline silica which may be of organic or inorganic origin. It occurs as bands, layers or nodules in sedimentary rocks. Sometimes it is a primary deposit, sometimes formed by the confluence of disseminated silica in rocks and sometimes as secondary replacement material (replacement cherts). Such definition covers various siliceous rocks and could be adequate for general use. In Croatian language the word for chert is *rožnjak*. It is the same word as Hornstein in German, hornstone in English and szarukő / kova in Hungarian. Next to kremen, it is the second most popular term among Croatian archaeologists as a general term for siliceous rocks. Some authors claim that this rock was "used in Palaeolithic for tools and weapons and in Roman period for gems" (Jović 1997, 900). It is more accurate to use it as a general term instead of "kremen", but further education is required in order not to be mixed with other types of siliceous rocks.

Flint

According to some of the geological literature the word flint is a "synonym for cryptocrystalline chert of nodular or laminal shape, usually of Cretaceous age; used by prehistoric people (Tišljar, 1994, 281)." However, prehistoric people used other cherts as well, so the definition is – although not incorrect, - insufficient. Flint is also most frequently used in English translations of Croatian texts, as a general term for siliceous rocks, which is also the case in other languages.

Radiolarite

Generally, radiolarites *sensu stricto* are cherts with more than 50% of radiolarian tests embedded in a siliceous matrix (Ruitz-Ortiz et al. 1989). On the other hand, radiolarian cherts are cherts with less than 50% radiolarian tests embedded in siliceous matrix. In archaeological literature, radiolarite is sometimes used to describe siliceous rocks, without information about their geological origin. It is also used in wrong context such as to emphasize good quality of the raw material, or sometimes the raw material is recognized as radiolarite because of its red colour. Jasper and opal are also used to describe good quality, nice or unusual pieces. Radiolarites are often equalled with cherts, but it is necessary to provide geological analysis in order to determine whether the raw material is radiolarite, radiolarian chert or chert. Such research is especially required in some areas where radiolarites occur, such as Hrvatsko Zagorje. The detailed geological map of the magmatic-sedimentary complex of Ivanščica, Kalnik and Medvednica Mts. revealed many occurrences of radiolarian cherts and radiolarites of Triassic and Jurassic age (Halamić & Goričan 1995; Halamić 1998; Halamić et al. 1999; Halamić et al. 2001, 2005). It would be useful to determine whether this raw material was used by the Vindija Neandertals (Blaser et al. 2002; Kurtanjek & Marci 1990).

Silex

Silex (with Croatian spelling) is sometimes used, mostly by archaeologists influenced by the French tradition. It seems to be a very useful term in cases when detailed explanations are not available, but unfortunately it is used very rarely.

Conclusions

It is important to continue and strengthen cooperation with geologists which started during the last decade (for example Forenbaher 2003, Karavanić et al. 2008, Crnjaković 2009). Also, petrological and geochemical analysis should become a standard in analysis of chipped stone assemblages. Some of the terms describing siliceous rocks became "rooted" in the language, so it is to be expected that they will still be used in the future. It is very important to have clear image and consensus about the meaning of a specific term. Joint efforts among geologists and archaeologist from the neighbouring countries are crucial in making such consensus possible. Further on, it is important to establish strict criteria for distinguishing siliceous rocks (by the geologists) and to present in a form understandable for archaeologists.

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References

BLASER, F., KURTANJEK, D. & PAUNOVIĆ, M. 2002. The industry from Neandertal site of the cave Vindija (Croatia): revision of the lithic raw materials. *L'Anthropologie* **106**. 387−398.

CRNJAKOVIĆ, M. 2009. *Petrographic characteristics of artifacts.* In: (Marijanović, B. ed.) Crno Vrilo. Zadar. 125-143.

FORENBAHER, S. 2003. Chert and prehistory of Samborsko gorje. *Opuscula Archaeologica* **27**. 27-36.

GORJANOVIĆ-KRAMBERGER (1908): Geologijska prijegledna karta i tumač geologijskoj karti Zagreb (Zona 22, COL. XIV).- *Naklada kr. zemaljske vlade*. Zagreb, 1-75. (In Croatian).

HALAMIĆ et al. (2001): Halamić, J., Marchig, V. & Goričan, Š. Geochemistry of Triassic Radiolarian Cherts in North-Western Croatia.- *Geol. Carpath.* **52/6**:327-342.

HALAMIĆ et al. (2005): Halamić, J., Marchig, V. & Goričan, Š., Jurassic radiolarian cherts in north-western Croatia: geochemistry, material provenance and depositional environment.- *Geol. Carpath.* **56/2**:123-136.

JOVIĆ, V. 1997 Kremen. In (Srejović, D.). *Arheološki leksikon*. Savremena administracija. Beograd. 524. (In Serbian)

KARAVANIĆ et al. 2008. Lithic analysis of materials from Mujina Pećina. *Vjesnik za arheologiju i povijest dalmatinsku* **101**. 29-58.

KURTANJEK, D., MARCI, V. 1990.Petrografska israživanja paleolitskih artefakata spilje Vindije. *Rad Jugoslavenske akademije znanosti i umjetnosti* **449 (24)**. 227-238.

LJUBIĆ, Š. 1876. Kamenita doba. *Vjesnik Arheološkog muzeja u Zagrebu* **2**. 1-9.

RUITZ-ORTIZ et al. (1989): Ruitz-Ortiz, P.A., Bustillo, M.A. & Molina, J.M. Radiolarite sequences of the Subbetic, Betic Cordillera, Southern Spain.- *In: HEIN, J.R. & OBRADOVIĆ, J. (eds): Siliceous deposits of the Tethys and Pacific regions*. Springer Verlag, New York, 107-127.

TIŠLJAR, J. 1994. Sedimentne stijene. Školska knjiga. Zagreb (In Croatian).

http://hjp.srce.hr/index.php?show=search Croatian language portal. accessed 22.06.2011.

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