A la recherche de l'Homme préhistorique, E.R.A.U.L. 95, Liège, 2000

LITHIC PROVENANCE ANALYSIS IN HUNGARY : MULTICULTURAL APPROACH TO A MULTICULTURAL PROBLEM

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Introduction

This contribution to the memory of the Gábori couple turned out to be different from the original intentions of the author. Being a student of both Gábori's, the original intention of the author was to comment on the stone tools as elements of household, a more female-related topic than the current, more philosophical - more masculine? - treatment of the subjects. However, the former intentions are not totally given up but due to personal matters of scientific collaboration, the "household-paper" has to wait some more time. The present paper aims at finding a firm place for lithic provenance studies in the texture of archaeological - historical - cultural studies[1].

Lithic provenance analysis, as a system is operating on a very simple model. A piece of rock, worked or not to some extent is found on an archaeological site in a given context (location, chronology, function). The object is (?) seemingly coming from a geographical environment not identical with the site region itself which can be de-termined, more or less, with SOME technique: macroscopical, microscopical inspection, chemical fingerprinting, dating etc. Archaeometry - the science of s.l. "metric" analysis of s.l. "finds" deals with this process, i.e., unfolding and analysing prove-nance. In this paper, this is regarded as the hard core of information subjected to a much wider and less scientific process, i.e., historical interpretation.

First, we shall look into the elemental parts of the system and their actual realisation in Hungary. Case studies and examples will be raised without aiming at being comprehensive. Later on, all these pieces of information will be inserted into the uncertain scheme of "culture" - in an archaeological as well as a conceptual framework.

1. Provenance studies - results, tendencies, gaps and holes

The idea of tracing the movement of prehistoric people by the movement of goods found on archaeological sites is not new. Similar efforts were reported by Renfrew et al. (RENFREW 1970) from the 18th century (raising the Stonehenge blue stones as example). In Hungary, the first apostles of such an approach to archaeological evidence were "pioneers" of Hungarian archaeology and geology, Flóris Rómer and József Szabó, respectively (RÓMER 1866, 1867, 1878; SZABÓ 1867, 1876). The range of items to be followed, the efficiency of allocating the correct source and the accuracy of archaeological (historical) interpretation has been growing ever since. The advance of scientific techniques and computer assisted analyses on archaeological material contributed lately to the success and relevance of this approach to archaeological material.

[1] Lecture presented on 16th of November 1997 at the Prehistorical Archaeology Department of the Heidelberg University.

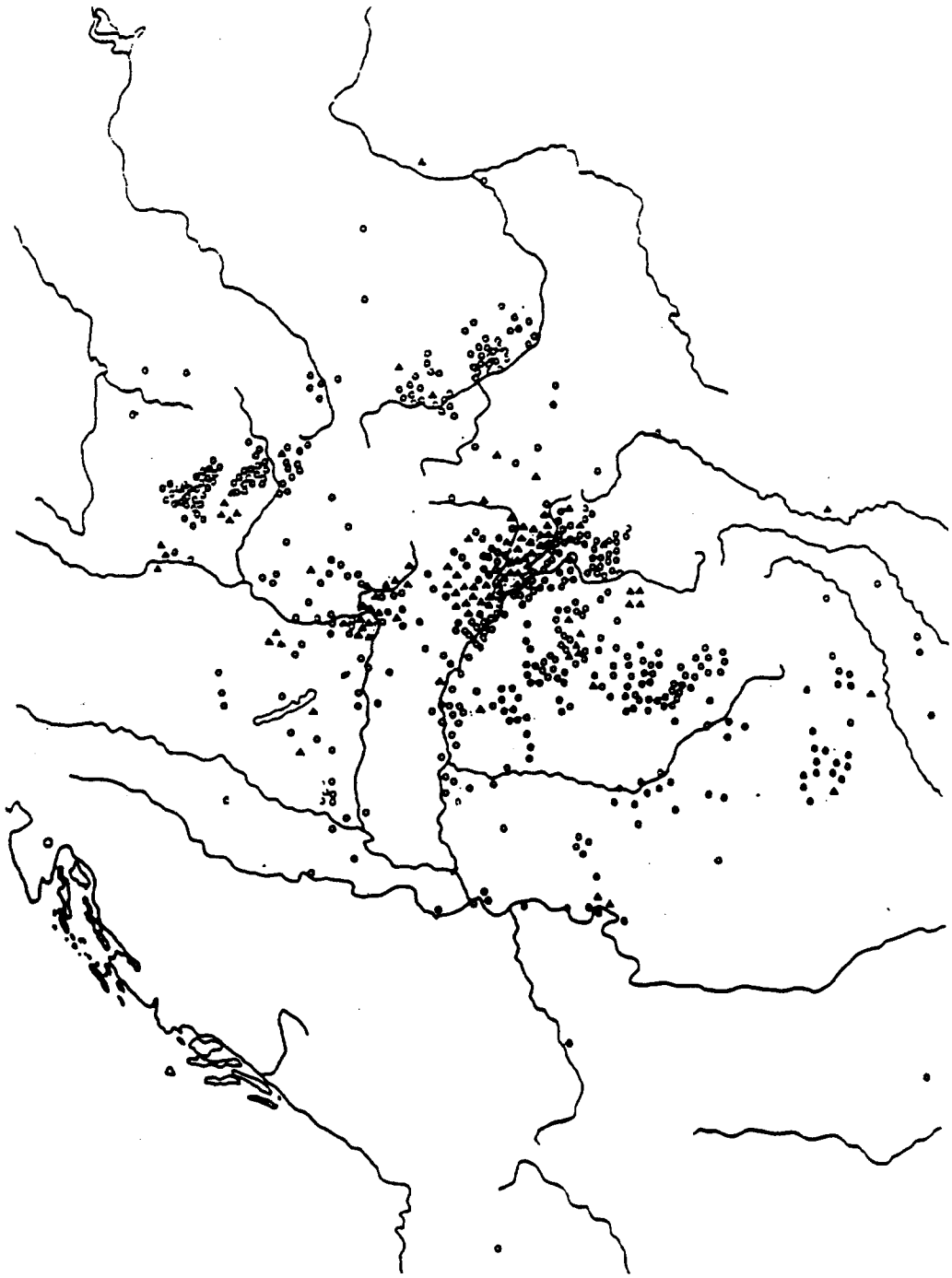


Fig. 1. Dotmaps on the distribution of Carpathian obsidian (after Biró 1981 revised).

1.1. Provenance pets and the dotted map

The utilisation of organic and inorganic materials by humans is not randomly selected. Physical, chemical properties favourable for certain purposes are almost inherent parts of human knowledge - e.g., edible or medical plants, minerals. Utilisation of tools is a much later development, and with the chemical transformation of our environment, the range of materials used and exploited are still growing. The

selection for the special or the more fit is clearly reflected in the tool kit of prehistoric people. Some materials were better suited or simply more attractive, or were attributed special prestige value. As a result, a small number of goods, restricted by formation or geological-ecological distribution to limited areas are being "spread" by human interaction over very large areas. Some elements of this chain are rarely recognised as such, but in fact, domestic animals, plants are also indicators of movement at least at a given time.

The inorganic or fossil, however, do not propagate and to get new supplies they have to be exploited, transported or traded on a regular basis.

Such items recognised by prehistoric archaeology from very early dates are special rocks and minerals (obsidian, lazurite, nephrite, amber) or fossil or subfossil remains detached from the contemporary biotope (e.g., molluscs like Spondylus and cowry or valuable special bone-like materials, e.g., ivory). The range of prestige items transported was obviously much wider but fossilisation and excavation technique do not favour the recovery for most (e.g., special textiles, narcotics, salt etc.). Also, for a wide range of goods the distant origin cannot be proved easily, for example livestock or food remains.

To get good markers of movement (for us) is to find rare and specific markers (for them). An eminent example for this is obsidian, a favourite item of prehistoric trade and also of modern provenancing studies. (Fig. 1). Among many other students of the subject, we can also mention the contribution of M. Gábori to this problem (GÁBORI 1950).

1.2. A collection and database approach

As we would rather study the system of raw material use and acquisition - at least the portion we can analyse, given the circumstances of fossilisation, excavation methodology and palaeo-ecology, students of prehistory cannot be content with pin-pointing the very apparent trade items. Also, the correct identification of these special items need special techniques with the growing number of sources and a growing distance from the sources. Sources may be known or not yet discovered: quite a few sources get exploited (by prehistoric and/or modern collectors) and even destroyed, same as archaeological sites.

From a theoretical approach it is clear that the assignation of the archaeological item to a geological source region - let's call them A-item and G-item, respectively - can only be based on the knowledge of all possible G-items and their variations. In practice, however, it is not so hopeless, as local geography, distances and even distribution patterns of A-items can help a lot. It is imperative, however, to know all potential sources in a given region - at least as much as our prehistoric predecessors knew them...

The other big problem is COMPETENCE and COMMUNICATION. People with very different backgrounds are involved in this game: their education, knowledge and field experience varies to a great extent. The "veterinary horse" for us, in this case, is Szeletian felsitic porphyry (alternatively called: flint, ash-grey chalcedony, Quartz-porphyr, metarhyolite and many other names). To all specialists who know the region and the material, it is clear that these - sometimes clearly wrong - names all denote one specific rock type preferred and widely traded by the people of the EUP Szeletian culture, being especially fit for the production of bifacial leaf-shaped tools. The terminology used for certain rocks varies even within branches of earth sciences depending on schools, approaches and many other things. So we tried to base our "Church" on solid rock: the hand specimens themselves. Founded in 1986 on the occasion of the Sümeg Conference (BIRÓ

ed. 1986, 1987), a comparative raw material collection was founded in the Hungarian National Museum with an aim to collect and register all raw material varieties used in the prehistory of our region. The collection is extended over primary source materials, secondary deposits and archaeological materials as well. An especially valuable part of the collection deals with control samples and evidences of petrographical, chemical etc. analytical series performed on archaeological material. This way the individual statements can be controlled and revised with the accumulation of evidence, and what is more important: everybody may know what you are talking about.

The pieces of information about the collection items are organised in a relational database.

In the first phase of our project (BIRÓ & DOBOSI 1991), mainly obsidian and siliceous raw materials used for the production of chipped stone tools were collected. Currently we are expanding the scope to polished stone tool raw materials as well, in collaboration with the Petrological and Geochemical Department of the ELTE University (Fig. 2).

1.3. Limitations - the human factor on individual and "cultural" level

As the collection is growing, we are more and more aware of certain limitations of our approach. First is, relevance. We are really trying to integrate potential source materials into the collection, but, especially with widening the scope, there is more chance to leave out important source regions. Also, by the accumulation of the material, the limitations of a merely macroscopic approach become more evident. As for the possibilities of large-scale analysis of archaeological material, there are serious obstacles - both financial and custodial. Analyses of polished stone axes cannot guarantee success immediately as very wide areas are "blank" and the exchange of information is poor. The problem is extremely serious across modern political boundaries - "the border fault-line".

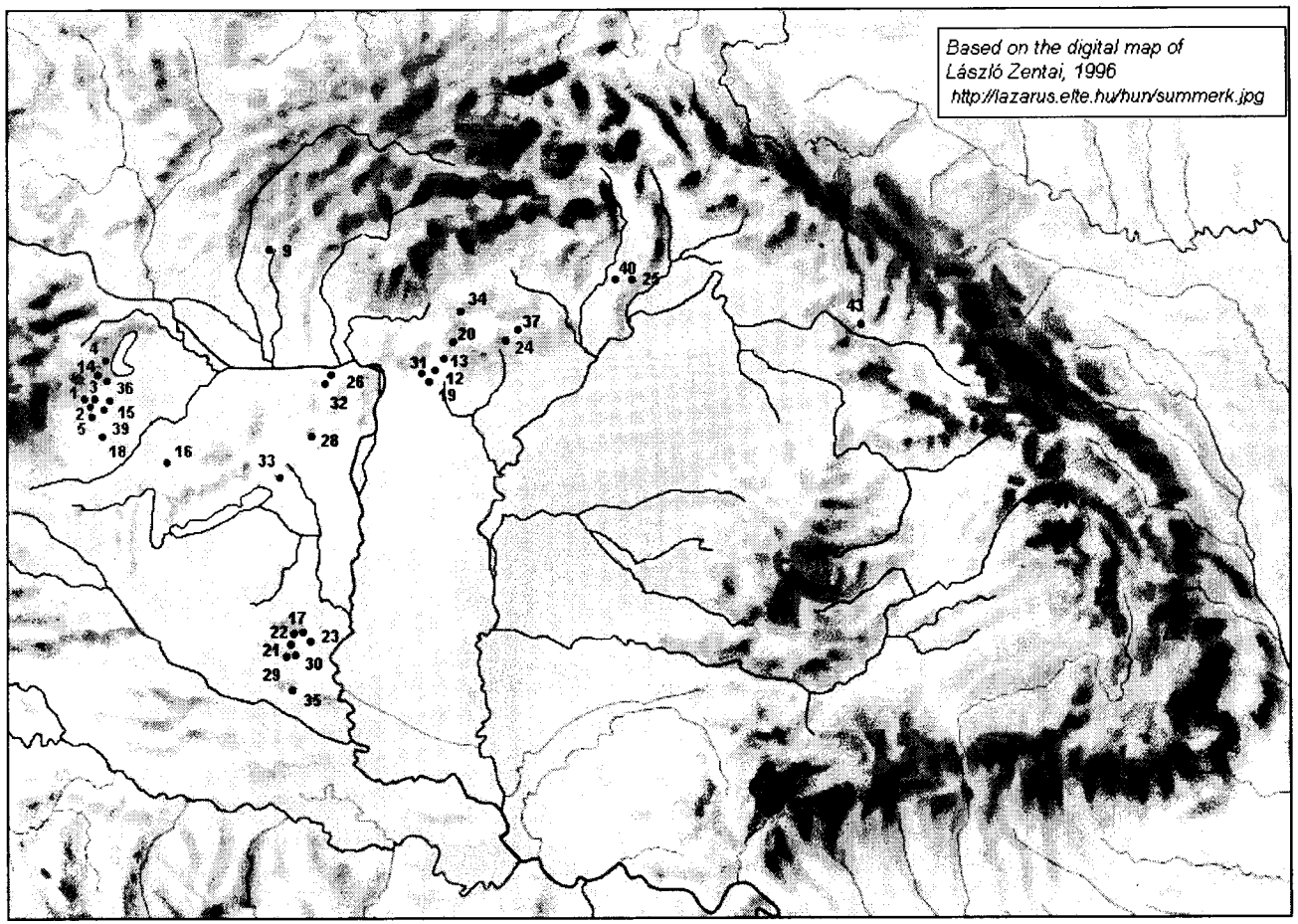
Trying to overcome these problems, we have adopted the following strategy:

- we are concentrating analyses on "workshop sites" planted along important sources or routes.
- on the basis of the study of archaeological material, we are trying to get a "best guess" for potential sources in Hungary
- we are trying to gather the scientific community, using occasions like the 31st Archaeometry Symposium to enhance knowledge on polished stone tool raw materials. Similar to the 1986 Sümeg symposium, when a collecting trip was organised to chipped stone tool raw material sources, a visit to the most important Hungarian polished stone raw material sources was organised for specialists participating the Conference (SZAKMÁNY & BIRÓ 1998).

Altogether it can be said that the efficiency of finding the sources of chipped stone artefacts in Hungary is reasonably good while for polished stone tools, a lot of efforts are currently made.

2. Archaeological interpretation of provenance data

The point-to-point (point to region(s)) connection of G-item and A-item, achieved by petroarchaeological analysis is, however, only a starting point for our problem. Archaeologist should ask, after knowing (guessing? believing?) where their artefact comes from, a number of questions: ***When? Who? Why? How?***



Key:
AUT 1 Bernstein, 2 Glashütten bei Schlaning, 3 Glashütten bei Langeck, 4 Kismarton, 5 Rumpersdorf, 6 Solnhofen,
CS 7 Kostolany, 8 Lubisa, 9 Skycov, 10 Zelesice,
SLK 42 Sátoros,
HUN 11 Óbánya, 12 Acsa, 13 Bercel, 14 Brennbergbánya, 15 Cák, 16 Celldömölk, 17 Erdősmecske, 18 Felsőcsatár, 19 Galgaguta, 20 Hollókő, 21 Hosszúhetény, 22 Kisújbánya, 23 Kismórágy, 24 Kisnána, 25 Komlóska, 26 Lábatlan, 27 Magyaregregy, 28 Nadap, 29 Pécs, 30 Pécsbánya, 31 Püspökhatvan, 32 Piszke, 33 Polgárdi, 34 Salgótarján, 35 Siklós, 36 Sopron, 37 Szarvaskő, 38 Vadna, 39 Velem, 40 Boldogkőváralja,
ROM41 Ditró,
UKR 43 Rahó

Fig. 2. Polished tool raw material sources in the Lithotheca collection, 1998

On this level of analysis, we have to rely on archaeological methods mainly. Our artefact is no longer a mere piece of stone. In the minute it is located in a context of site and workmanship, the human interference to the phenomena of rock formation and natural decay processes bears a historical meaning.

2.1. Technological model

Even the most desolate flake in the Puszta has its tale. Stone artefacts are produced in a strict technological chain, from exploitation to flaking, use and discard, undergoing various stages of transportation and processing. This scheme was very brightly modelled by M. de Grooth in the study of LBC sites in the Netherlands and Northern Germany. (DE GROOTH 1988). The place of the individual artefact in this chain can be most variable, however, the bulk distribution has strict rules, depending on:

- chronology, implying lithic traditions and habitation patterns
- function of site and context
- character of the raw material

On the basis of the technological analysis of the lithic finds we can separate exploitation and workshop sites, distribution centres, habitation sites with more or less local stone working or individual contexts - graves, depots, special activity places. Interpretation can be most variable even within one site, depending on intra-site topology or chronological levels.

2.2. Function

In the formative periods of prehistoric archaeology, stone tools were primarily treated as objects for typological classification. In this process, a certain function was implied, derived basically from the morphology of the (finished and typeable) tools. Stone artefact typology is still a valuable chronological help, especially in the Palaeolithic period. As for the function, microwear studies on stone tools seem to support a more flexible approach on the actual use of the artefact. Putting together data on provenance, technology and use-wear, sometimes we can observe very interesting details of prehistoric everyday life. A very interesting example for this can be seen in the small depot of blades made of Transdanubian radiolarite (Úrkút-Eplény type), found at Szegvár-Tűzköves. The depot is currently under investigation and will be published in detail by the author and P. Raczky. The story to tell here is refitting and edge wear combined with sourcing. Namely, the little depot find can be refitted to a small number of cores - demonstrating its common origin. The small set of blades - "household cutlery" was definitely used according to traces of utilisation along the cutting edges, and kept like family silver on a safe place in one pot (BIRÓ & REGENYE 1995).

2.3. Regionality

The real field for the interpretation of provenance data, however, is the spatial approach. The physical distance between A-item and G-item must be interpreted in a way fitting other archaeological observations. For this, several approaches can be taken. In the following, instances for this will be raised.

"action radius"

This interpretation is based on the study of the archaeological entity, typically, the site. Raw material composition of the artefacts is analysed and plotted in a space with the site (or culture) in focus. This interpretation is indicating the region(s) the inhabitants of the site had - direct, indirect - contacts with. No clue is given as to the nature of this contact or the exact routes of communication. Also, some other existing contacts are lost because source regions are over-represented. It is therefore a serious mistake to automatically substitute such representations with the actual contacts of

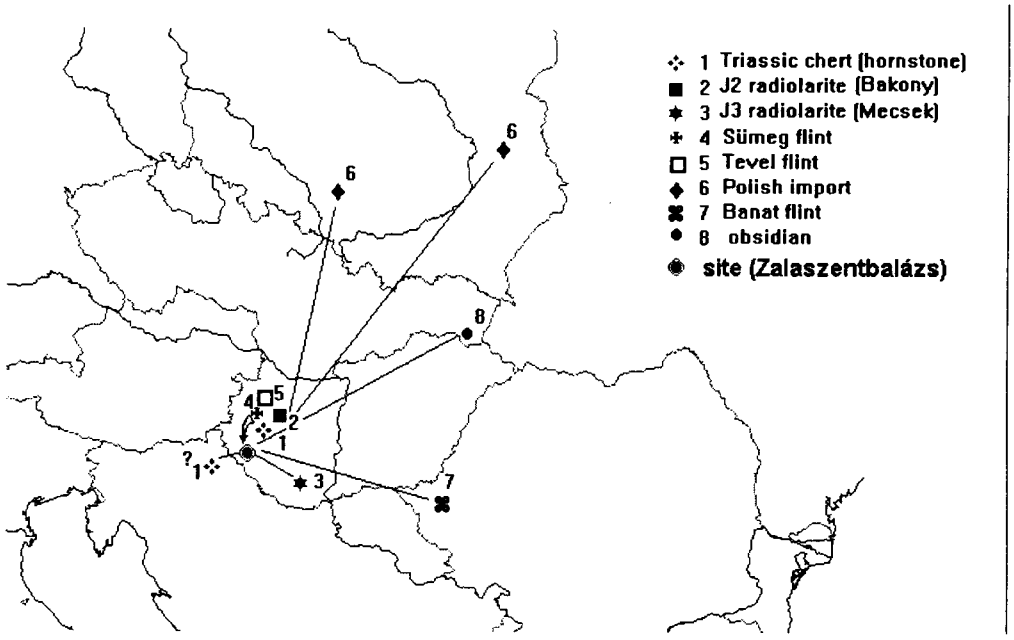


Fig. 3. Representation of the action radius of a site (Zalaszentbalázs, after BIRÓ 1996)

the site. (Fig. 3). A quantitative and technological interpretation of the results can help much in this case to estimate the real nature of this contact.

"supply zone"

This approach is focusing on the raw material distribution pattern. At the "dotted map" extremes, the maximal extent of distribution is interpreted as area of contact. However, a quantitative approach will very nicely indicate that the regular supply zone of a site is much smaller (Fig. 4). In fact, steep "steps" can be observed in the quantitative distribution of raw material supply zones, depending on:

- competing raw material source location
- geographical factors
- CULTURAL boundaries

By the quantitative analysis of the supply zones of special raw material group types a strong relation to contemporary cultural entities was found reflecting historical, political changes, especially on the areas poor in good quality raw materials. Supply zones can be used as a very powerful alternative tool to archaeological typology for the study of former cultural entities and changes of contacts.

"import finds"

In the light of the above considerations, "import finds" may have a double meaning. On a first approach, it can be an item coming from a source (region) located on the territory of another tribe - culture, group - separated by independent (not petroarchaeological) methods. Import in this case means surpassing a cultural boundary, even within the supply zone. A classical example for this was published by Kalicz and Makkay (KALICZ & MAKKAY 1977: Abb. 1) on the distribution of Bükk culture and Zseliz culture pottery outside the territories occupied by these cultures. In the other sense, it can be an alien find from an other supply zone, even from the same cultural entity. In this sense, we have Lengyel import finds on Lengyel culture sites (e.g., Transdanubian radiolarites at Aszód or Zengővárkony, belonging to other supply areas). In all cases, "import finds" always

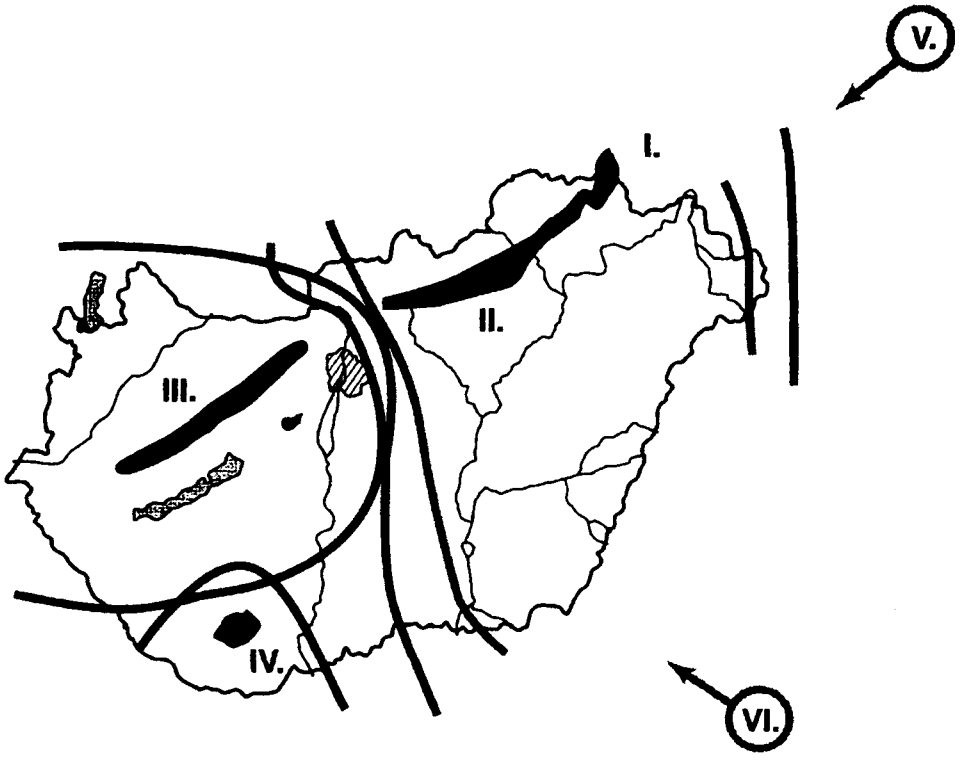


Fig. 4. Supply zone model for the main raw material types in Hungary
Key: I. obsidian, II. limnoquartzite, III. Transdanubian radiolarite, IV. Mecsek radiolarite, V. Northern flint, VI. Southern flint

imply an agent - a foreign bride, a merchant or some warfare.

3. The multicultural approach

In this paper, a multicultural approach is strongly recommended. It is acknowledged that all of our hard-core evidence is planted in a soft jelly of cultural interpretation. In the followings, these factors will be considered.

3.1. Culture - in provenance efficiency

Even the most scientific part of our evidence is influenced by cultural factors. By this, I mean a number of things - current state boundaries, research policy, scientific publication practice, even national pride. To raise an old example "our obsidian" is a claim for Hungary, Austria, Romania, Ukraine for all I know of - and basically, the source area belongs to the Slovaques... Collection keepers can tell that the actual political changes of the last years - not to speak about the hundred years since the foundation of the collections - messed up all their inventory data. Also, access to sources can be restricted not only in prehistorical times. Thus it is imperative to unite efforts, evidence, results for getting a reliable background for, (among others) petroarchaeological evidence.

3.2. Culture - in navigating time and space

We are living in a culturally (politically) dissected area. And so did our ancestors. In fact, one of the main purposes of prehistorical research is to document these cultural entities in their dynamism in time and space. Petroarchaeology, especially on a quantitative basis, is an excellent tool for this.

3.3. Culture - in the interpretation of data

The evidence we are working on do not operate in a vacuum. Each element is interrelated with all the rest. Unfortunately, this strong cohesion of the individual items studied are often lost during the analysis. As much as lithic evidence is contributing to the reconstruction of the past, it cannot be interpreted without other data. This is most intensively felt when one is working on a diachronic study of a region.

Also, the interpretation is not independent of the analyst, however objective we claim to be. We are operating with modern concepts which may or may not be relevant in the remote past. All this should teach us modesty and a more open mind.

Conclusion

Lithic provenance analysis is not only a multidisciplinary, but also a multicultural problem. It is performed across and within several cultures - modern and historical, as well as prehistorical. The aim of this presentation was to point out these factors beyond the disciplinary limits.

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