This collection of papers was published in the BAR International Series two years after the UISPP 14th congress was held in Liège. The conference was attended by leading European authorities, whose scientific interests are directed towards the production and distribution of lithic material, and at this time the emphasis was placed on the European Linearbandkeramik culture (LBK). Ten papers were published in the collection, where 13 authors presented their results.

**Distribution of raw materials used in the chipped stone industry of the western Linear Band Pottery Culture and the eastern Linear Pottery Culture in the Circum-Carpathian area.**

The first author discussed here is M. Kaczanowska, who had already offered significant conclusions related to the distribution of raw material not only in the Central and Western Europe, but in the Balkans as well, in her many papers published to date. This time the author dealt with the distribution of raw materials used for producing chipped artefacts in the so-called LBK culture in eastern and western peripheral areas of Carpathian areas. In these two geographically opposed areas, the raw material distribution shows not only similarities, but differences as well. The common characteristic of all communities was procurement of unworked nodules in order to enable completing production of artefacts in the settlement. Despite this dominant fact, sites are present in both complexes where the semi-fabricated items were delivered already prepared for further processing, which is mostly the case with the settlements located outside the areas of primary sources of raw materials. The most significant difference between the eastern and the western complex is the distance of the settlement from the zone with raw material sources. While raw material brought from the distances of 30 to 40 km is present in the eastern complex sites, raw material from farther sources is prevalent in the settlements of the western complex.

**Tevel flint: a special constituent of the central European LBK lithic inventories.**

K. T. Biro analyzed the phenomenon of the so-called Tevel flint, beginning her paper with the general definition of the term flint, which is, in broadest sense of the word, siliceous rocks developing through sedimentation of mostly siliceous sponges during the Late Cretaceous and Early Tertiary periods in shallow water areas. Primary source for finding Tevel flint is mostly known from the sites of LBK and Lengyel cultures from northwest parts of Transylvania, although individual findings were present also in the material from Aszöd and Zengóvárkony, at the distance of about 300 km from the primary source. The quality of nodules is confirmed by findings from Kap-Egyes, where Tevel flint was chipped in a workshop, and where some of the most beautiful large nodules in Hungary were found.

**Mining and siliceous rock supply to the Danubian early farming communities (LBK) in eastern central Europe: a second approach.**

J. Lech in his paper also focused on mining and procurement of siliceous rocks within the Danubian area early land farming cultures (LBK) in the eastern part of Central Europe. Clearly differentiated types of siliceous rocks used as raw material for making chipped artefacts provide exceptionally advantageous conditions for research work. Results to date indicate the possibility that the simple mining methods were a common characteristic among the LBK communities. The comparison of raw material and morphological structure of chipped artefacts from a range of sites at various distances from primary quarries of siliceous rocks enables the reconstruction of the organization of raw material procurement. The ways of obtaining various types of flint differed among the settlement regions, but, most probably, among individual communities as well. The flint mines, settlements directly exploiting the deposits (the so-called production settlements), which had a special role in supplying other communities and settlements of users and through exchange network were connected with the producers across great distances, can be identified from archaeological sites. At this time there are immediate analogies neither in Mesolithic cultures nor in later Neolithic periods for such a developed network of siliceous materials exploitation.

**Exchange systems of stone artefacts in the European Neolithic.**

N. Kegler-Graiewski and A. Zimmermann focused their research on the system of exchange of stone artefacts in the European Neolithic, primarily concentrating their research on the material from the LBK site in the area between Aachen and Frankfurt. Two aspects are of importance for the distribution of
chipped artefacts. Certain «central points», which were much more involved with supplying raw material and production of artefacts than other settlements, seem to have existed locally. In a wider area, such a system of supply and production is more difficult to identify. It was noted that in the area of primary sources for raw materials, unworked nodules and cores were most important items to be exchanged, at larger distances simple blades were dominant in the exchange, and at the farthest points the most dominant characteristic were fully defined artefacts. It seems also that in many cases the end user was engaged in the final shaping of the product. The distribution of hand grindstones was differently organized. The members of the community visited the sources of raw material or contacted exchange partners in their vicinity in order to procure pieces of raw material which were ready for use. Depending on their size and weight, it is probable that there were more direct ways of transporting heavy grindstones from the raw material site itself to the final point of their use.

**Dealing with Bandkeramik cherts. Procurement strategies in south-eastern Bavaria.** M. E. Th. de Grooth compares the strategy of procuring flint applied at two LBK sites in southeast Bavaria – Hienehem am Weinberg and Meidling. Observing the material culture through products and consequences between the actions and ideas shows that the two LBK groups have significant similarities between their material cultures, that there was even communication through exchanging flint artefacts, despite their developed different approaches in the process of procuring raw materials. Such findings work towards disputing the frequently voiced idea of «almost pathological conventionality» of LBK farmers and favour the notion of Bandkeramik lifestyle as characterized by «diversity within uniformity».

**Lithic raw material distribution networks and the neolithization of central Europe.** D. Groneborg’s paper deals with the distribution network of lithic raw material and neolithization of central Europe. The author analyzes the percentage of the presence of specific raw materials like Mass flint, obsidian, Wittlingen chert and Szentgál radiolarite in the area of LBK and Starčevo-Körös complexes. It is of importance to notice the concurrent use of the term flint (which is a common name for all siliceous rocks), chert and radiolarite, which shows the old problem of adequate use of certain terms, which the author did not dwell on in this paper. Rather obvious, and of significance with regard to the conclusions of the author, is the lack of recent bibliography on certain raw materials for producing chipped artefacts in the area of Starčevo culture. Anyway, locations of the primary sources of the rocks studied by the author, as well as the locations of the sites where the artefacts made of them were discovered (although certain sites were not subject to specialized identification) are illustrative indications of trade routes, and therefore cultural contacts as well. Summarizing all the observations related to lithic technology, typology and distribution system of raw material, the author concludes that the earliest LBK lithic industries were composed of supra-regional and local traditions in all three segments. Supra-regional traditions originated from Mesolithic heritage in all early Neolithic lithic industries in Europe, while in case of Szentgál radiolarites, certain supra-regional phenomena may be attributed to rapid penetration of Neolithic Danubian traditions from the central zone westward into the Trans-Danubian. Judging by the rapidity of penetration, the author concludes that most probably those were population migrations.

**Gestion des matériaux siliceux dans les premières communautés danoibiennes (culture à Céramique Linéaire et Groupe de Blิック–Villeneuve–Saint–Germain) à Vaux-et-Borset (Hesbaye, Belgique).** J. P. Caspar and L. Burnez-Lanotte paid special attention to the material from the site of Vaux et Barset, where there are two close settlements, one belonging to LBK, and the other to the group of Blięcik–Villeneuve–Saint–Germain. The research of this site is from utmost importance for understanding chronological and cultural ties between the two cultures in the area of Hesbaye in Belgium. This paper summarizes the results of comprehensive typological and traceological analyses of lithic industry of both settlements. The research results, contrary to accepted ideas, clearly point to the division in commercial activities concerning raw material, at all the stages in artefact production process, as well as in the very process of original use and specific methods of inserting certain types of tools into the holders. Analyses show clear differences in procedures within these two cultural groups.

**Surplus production in the Belgian Linearbandkeramik: blade debitage at Verlaine «Petit Paradis» (Hesbaye, Belgium).** L. Burnez-Lanotte and P. Allard’s paper concentrates on studying surplus products, or by-products of chipped artefacts in Belgian LBK at the site of «Petit Paradis» in Verlaine, Hesbaye. The worked material originates from the excavations started in 1996 on the site dated to the beginning of late LBK. This settlement produced an enormously large quantity of blades that cannot be compared to the previous period. Probe 01 contained almost half a tonne of flint, including 770 cores and between 25,000 and 30,000 other chipped artefacts, out of which number more than 2,500 blades. Such a large concentration of material, along with other pits containing identical contents (including pieces disposed of in various manners), gives rise to two questions – one is related to the possible existence of production surplus of blades, and the other concerns the nature of the distribution system, which in cultural and chronological context provides clear evidence on circulation of Hesbaye flint significantly farther from the primary region.

**Modalité d’approvisionnement et réseaux de circulation des produits siliceux dans la Céramique Linéaire du Nord-est de la France et de la Belgique.** P. Allard, in this independent paper, shows preliminary syntheses on procurement and distribution of siliceous rocks during the late LBK in northern France and Belgium. The results of the research of the circulation of raw material at this level of study show close interaction between all the regions with the LBK settlements.

**Early Neolithic settlements of the south-east of the Paris basin (Seine/Yonne sector) and their flintworking industries: characterization, specialization and function of knapping activities.** A. Augerau analyzed the industry of chipped stone in early Neolithic settlements in the area of the confluence of the Seine and the Yonne. The settlements where the worked material originated from are dated to the period from the final phase of the Rubané period until the end of the phase of Villeneuve-Saint-Germain. The author noticed that the industries of chipped stone of all these settlements developed from the same basic technologies characterizing that period – flaking of the blade by indirect percussion, collecting rare or imported raw materials, producing flakes by hard percussion tools, numerous scrapers on the flakes, serrated tools and the presence of flint sickles. Certain settlements are distinguished by their characteristic
technological and typological traits, like enormous presence of production waste, or enormous presence of certain types of artefacts, especially sickles or awls. From the standpoint of the dynamics of early Neolithic settlements in the region, these differing characteristics provide for the possibility of suggesting a hierarchical system of the source sites, based on their technical and economic degree of development.

The papers presented at XIV congress of the UISSP in Liège once again show that modern research involves interdisciplinary approach. The specificity of findings like artefacts of chipped or polished stone only serve to emphasise this necessity. The authors of the published papers, fully aware of that fact, presented numerous and highly interesting conclusions arrived at through cooperation of archaeologists and geologists/petrologists, without whose laboratory findings most of the materials would fail in providing relevant data. Another confirmation that the new approach is necessary is XIV congress of the CBGA (Carpathian-Balkan Geology Association), held in September 2002 in Bratislava, where a special conference was held by the IGCP/UNESCO Project no. 442, focusing on raw material of Neolithic/Eneolithic stone artefacts and their migration routes in Europe. Regardless of whether the term petro-archaeology will be used, as is common in central Europe, or archeometry, used mostly in the USA, for this type of research, the times of treating chipped and polished artefacts with typology as alpha and omega of research work, have definitely passed.

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THE PROBLEM OF EARLY TIN. Edited by Alessandra Giumlia-Mair, Fulvia Lo Schiavo.
Actes of the XIVth UISSP Congress, University of Liège, Belgium, 2–8 September 2001.
Oxford 2003. 170 pages, illustrations

In September 2001, at XIV UISPP Congress in Liège in Belgium, one of the most interesting Symposia of the Congress was held, according to the opinion of the author. The Symposium dealt with archaeometallurgy of tin – a metal so important for the development of civilization in the old part of world, and at the same time so rare in nature, that it is rightfully considered to be, in addition to gold and silver, the third precious metal. As a result of this conference, this book was published with the papers from the above mentioned Symposium. The book is divided into four basic parts, leading the reader gradually through archaeometallurgy issues related to tin in the prehistory of the Mediterranean Basin.

Part one, «Geology and Sedimentology», treats the problem of the deposits of tin ore in the Mediterranean Basin in Bronze Age. An exceptional article, »Tin in the Mediterranean Area: History and Geology«, by authors R. Valera & P. Valera, in a straightforward manner explains the basic issues related to the study of this metal: its characteristics, deposits, behaviour in archaeological layers, etc. The authors point out the already well accepted view that the Mediterranean Basin is not rich in tin, and that if there happened to be any exploitation of tin in this part of the world, it would have been recorded in some manner. Therefore, in addition to the already known deposits and potential suppliers of tin like western Iberian Peninsula, Brittany, Cornwall, Erzgebirge, they raise the possibility of tin being procured from the mines in Afghanistan, then from a somewhat closer Turkey, and from an unknown deposit in Macedonia.1

The next text, «Natural Tin-Bronze Alloy in Iberian Peninsula Metallurgy: Potentiality and Reality» by S. Rovira and I. Montero, deals with the problem of production of bronze with low content of tin, which may be, on the one hand, the result of remelting (multiple remelting significantly reduces the content of tin), or, on the other hand, due to the exploitation of copper ore which already contains the said metal in a certain percentage. Such ore was exploited in prehistory in the Iberian Peninsula, and the result of experimental melting was bronze with a low tin content (up to 2%). The authors conclude that a presence of this type of ore in the Iberian Peninsula is frequent, and that the ore was readily used in prehistory. The sites with metallurgy activities were recorded in the vicinity of the mine, which indicates that bronze was produced from the ore found in the vicinity.

J. Cierny & G. Weisgerber in the article »Bronze Age Tin Mines in Central Asia« present a theory that it was quite possible that tin was brought all the way from Central Asia, and that it travelled across the entire Mediterranean by trade routes. The paper mostly deals with deposits and prehistoric tin mines in Tajikistan and Uzbekistan. A mine which was fully exploited could approximately supply, according to the assessment of the authors, about 1 tonne of tin. The paper provides detailed descriptions of mines and technique of exploitation of tin ore applied by the members of Andronovo culture.

Part two of the book, entitled »Metallurgy and Metallography – Archaeometallurgy in Europe« deals with metallurgy and metallography of Bronze Age in the Mediterranean Basin. Six papers provide results of various exact analyses of bronze, undertaken with the aim of reconstructing the complete process of obtaining bronze, discovering all possible variations present in that process, which resulted in metallographic differences in final products.

Q. Wang and B. Ottaway, in the text »Casting and metallography of tin bronzes in clay moulds«, present the results of experimental casting of bronze with the aim of explaining metallographic differences in prehistoric bronze finds. The experiment involved the entire process, from making moulds to the final casting of a bronze axe. The total of 36 samples were cast out of 12 types of alloy and at three degrees of cooling, and the entire process was carried out in moulds with several degrees of prior heating. All this resulted in difference in