

**ESF/SCH Exploratory Workshop
European Science Foundation**

LOWER PALAEOOLITHIC SMALL TOOLS IN EUROPE AND THE LEVANT

Liège 3-7 September 2001

EXECUTIVE SUMMARY

The workshop held from 3-7 September in Liège (Belgium) in cooperation with XIVth Congress of the U.I.S.P.P. (International Union of Prehistoric and Protohistoric Sciences). Full programme of the workshop had been executed, however there were some small changes. In the workshop participated almost all invited archaeologists, except Prof. D. Mania and Dr. L. Longo and Prof. M. Otte. Prof. Mania was not able to come because of his illness, but he had sent his paper that was read by J.M. Burdukiewicz. Dr. Longo had car accident just before workshop and she was taken to hospital. Prof. Peretto read her lecture. Prof. M. Otte, as general secretary of the U.I.S.P.P. Congress, was so busy, that he was not able to come. Prof. A. Ronen, coordinator of the workshop, was taken ill suddenly, just before the opening of the workshop and was not able to attend the lectures during first day.

During first session much larger audience of archaeologists from different countries of the world attended the workshop. Chinese researchers Dr. Ya-Mei Hou and Prof. Weiwen Huang asked to join the workshop because they work recently on similar issue. They attended the workshop on their own expenses.

Every talk lasted for ca 20 minutes and was followed by 10 minutes discussion, which had been recorded. At the beginning Prof. P. Lopez, representative of the ESF/SCH, presented structure and activity of the European Science Foundation and the ESF Standing Committee for Humanities (SCH). Later started scientific programme chaired by Dr. K. Valoch, senior of the workshop. Lectures followed preliminary programme except for lecture of Prof. A. Ronen who was just in hospital. It was well visible that main aim of the exploratory workshop, the comparative technological and stylistic analysis of the small tool assemblages in Europe and Asia, become very attractive for the participants. The contributors had not expected that human groups produced small lithic tools settled so extensive area of Asia and Europe. The sites have been recently known in Asia from Israel through Tajikistan to Eastern China and in Europe from Italy in the south to Poland and Germany in the north. They discussed briskly environmental setting of the small tool assemblages as well as their chronological framework. It starts to be clear that the oldest sites with small tools are known from Chinese sites in Eastern Asia. The most surprising was presentation of discovery of wooden spears and other wooden tools found recently by Dr. H. Thieme in Schöningen near Hanover (Germany) It starts to be clear that small lithic tools had been parts of much larger composite tools made from wood or other organic material and hard stone inserts. The discussion prolonged after the scientific session.

On Wednesday of 5 September 2001 the participants took part in the excursions organised by U.I.S.P.P. to the Middle Palaeolithic sites in Belgium: Veldwezelt-Hezerwater in Wandersanden, Spy Cave, Goyet Cave, caves of Mehaigne Valley and Sclayn Cave. Several caves had been excavated in XIX century and their archaeological finds are widely dispersed in various museums. The most interesting were results of recently excavated sites Veldwezelt-Hezerwater and Sclayn Cave. There had been shown original archaeological material and participants discussed methods of archaeological and paleoecological research.

Third day of the workshop held in the Hotel Campanile, where was organised morning session and exhibition of microlithic artefacts. Prof. C. Peretto from University of Ferrara, chaired the session, which arrangement was somewhat changed due damage of slide projector and additional lecture of Chinese archaeologists. Before coffee break the main topic was usage of microlithic technology Middle Palaeolithic human populations of Central Europe. Did they continue tradition developed already in the Lower Palaeolithic or did they create own concept of small tool production? A new resin handle for flint tool was recently found in the site Neumark-Nord in South-Eastern Germany by Prof. Mania team. Such handle shows how had been used microlithic inserts for the period of the Middle Palaeolithic. Participants were pleased to meet Prof. A. Ronen, who just went back from hospital in Liège to take part in the workshop.

During second part of the session had been presented western and eastern farthest sites with small tools. The site Menez-Dregan in Plouhinec is located in western end of Brittany (France), just on the Atlantic shoreline. Much richer and numerous are small tool sites in Central and Eastern Asia. They are also much older than European ones. Dr. Ya-mai Hou had presented additional lecture about Chinese sites with small tools in Donggutuo, one of the eastwards and the oldest.

The session finished discussion on definition of small tools. Another important question raised during the workshop is lack of comparable analysis of lithic assemblages in various countries. The opportunity given by European Science Foundation to meet each other enabled to see how big are differences in local approaches to archaeological data. Several participants postulated continuation of subject during future international cooperation and additional meetings. Prof. P. Lopez, the representative of ESF/SCH supported such proposal.

After lunch break an exhibition of the lithic artefacts series as well as distinctive examples of raw material from the sites with small tools brought by the participants from their countries was prepared in the conference room of Hotel Campanile. Outdoors Dr S. Keates and some participants demonstrated knapping experiments and flaking technique used in the Lower Palaeolithic of Asia and Europe.

The exhibition enabled direct comparison of the small artefacts from different countries. Such opportunity was a result of the exploratory workshop. During one-hour participants in small groups examined artefacts from different countries. They observed unbelievable similarity of very remote collections from Germany, Poland, Israel, Tajikistan and China. Shape and size of many artefacts was more or less the same. How to explain such phenomenon?

After cafe break participants continued general discussion on definition of "small tools" called also "microlithic artefacts", "microflake assemblages" or "archaic industries". What caused of such high similarity of the artefacts. Preliminary ideas varied for just accidental "opportunistic" approach to raw material of early humans to well developed technology and cultural tradition. Some researchers favoured concept of raw material dependence. Other possibility of explanation is an influence of ecological adaptation of various groups to similar environmental circumstances.

For further research and international cooperation was proposed common analytical approach in description of artefacts according widely accepted of morphometric attribute analysis and building of widespread computer database. Participants of the exploratory workshop supported strongly idea of publication in English of the presented papers. Organisers asked to send for "Proceedings Publication" a paper up to 21 pages together with relevant illustrations up to 30th September 2001.

Absence of three participants and cheaper costs of travel (more participants took trip together in private cars) reduced costs of the workshop up to 12096,73 EUR.

SCIENTIFIC CONTENT OF THE EVENT

This ESF/SCH Exploratory Workshop enabled first scientific meeting of researchers working on Lower and Middle Palaeolithic sites with small tools. Since longer time is discussed a possibility of existence of new non-Acheulian taxonomic units in Europe and Asia. Presented lectures showed wide variety of archaeological sites with small tools in Israel, Italy, Hungary, Czech Republic, Germany, France, Poland, Tajikistan and China. S. Keates and Y. Hou presented the oldest sites, which are known from China. They are Donggutuo and Xiaochangliang sites aged over 1 mln years ago. They show presence of microlithic technology in knapping of lithic raw material as well as in tool shaping.

V. Ranov excavated in Central Asia (Tajikistan) next site with small tools from Kuldara in very complex stratigraphic position, which is dated 0,9 mln years ago. There are more sites with small tools in Central Asia, however they are younger. A. Ronen and J.M. Burdukiewicz excavated a new site with small tools in Ruhama in Northern Negev desert (Israel). Stratigraphy, palaeomagnetic and isotopic methods permit to establish age of the settlement about 800 000 years ago. There has been found microlithic artefact concentration with faunal remains of horses, bovinds and possibly hippopotamus. Usage of fire suggests scant charcoal remains and badly preserved bones, perhaps burnt. The find of large piece of yellow ochre may be the oldest or at least one of the oldest, occurrences of colorants in human habitation. Y. Zaidner presented the results of site analysis.

In eighties very small artefacts were found during road construction in Isernia (Central Italy). C. Peretto with his team excavated thousands of small flint artefacts and bigger chalk choppers associated with numerous faunal remains. The site was dated by K/Ar method ca. 730 000 years ago. Earlier similar artefacts had been found in lower horizon of site Loreto at Venosa (Southern Italy). Recently some new non-Acheulian sites, dated 300 000 - 500 000 years ago, have been recognised in Central Italy.

One of the first sites with small tools was recognised and excavated in sixties by L. Vértés in Vértesszölös (Hungary). As first he recognised very small lithic tools, called "Buda Industry", which are dated ca. 350 000 years ago. Results of his research presented V. Dobosi. D. Mania in late sixties recognised similar artefacts in Bilzingsleben, (Germany) – one of the richest Lower Palaeolithic sites in Europe – with over 500 thousands small stone artefacts, larger pebble tools, several thousands of animal bones and various activity areas, not often preserved in Lower Palaeolithic sites. Bilzingsleben is dated by biostratigraphic and various physical methods about 350 000 years ago. Both sites, Vértesszölös and Bilzingsleben, are very important for early European prehistory, because there have been found human bones associated with non-Acheulian artefacts and numerous animal bones as well as plant remains exceptionally preserved in travertine sediments.

In eighties, a new non-Acheulian site la Pointe de Saint-Colomban was found and excavated in marine deposits of Brittany at Carnac (France). This is first such a site, located so far to the west from Central Europe. An another assemblage similar to la Pointe de Saint-Colomban was excavated by J.L. Monnier in nineties in nearby located site Menez-Drégan in Plouhinec, with traces of foyér usage, dated about 460 000 years ago. These sites presented N. Molines.

Further sites with small tools were also found in late eighties and nineties in deep Middle Pleistocene deposits of open-cast mine of Trzebnica and Rusko in Silesia (Poland) by J.M. Burdukiewicz. They were covered by glacial deposits of Elsterian and Saalian and their age should be estimated about 500 000 and 350 000 years ago.

Long archaeological supervision of the Schöningen brown-coal open-cast mine (Lower Saxony, Germany) enabled H. Thieme an outstanding discovery in 1995 of small flake tools and the wooden spears in organogenic sediments, covered by Saalian glacial deposits. Further researches of the Schöningen Quaternary deposits have brought finds of impressive wooden tools associated with small flint tools and numerous faunal and floristic remains. The spears from Schöningen are recently the oldest known wooden hunting weapons in the world. They were found together with remains of butchered horses and small flint tools. Exceptional preserving of wooden equipment enables detail study of used stone tool for their production and technological sequences.

K. Valoch, M.H. Moncel and A. Wisniewski described presence of microlithic artefacts of the Middle Palaeolithic age, called "Taubachian" in Czech Republic and South Western Poland and Germany. Recently is difficult to establish if they are a convergent Middle Palaeolithic occurrence or continuation of the small tools from Lower Palaeolithic.

Occurrence of well-excavated assemblages with small tools in Asia and Europe is a new event in Lower Palaeolithic. New taxonomic units, lastly separated, should be compared to establish their similarities and differences and relation with other taxonomic units like pebble tool and Acheulian traditions. Chronological framework of small tool sites includes period from 1000 000 to 120 000 years ago. Recently the oldest sites are known from Eastern Asia and the youngest sites come from Central and Western Europe. If technological similarity between microlithic technologies is something more than simple adaptation to local raw material resources, it is necessary to precise chronology of the sites and possible directions of migrations. International workshop will be the first meeting of specialists working on taxonomic significance, chronology and culture of microlithic assemblages.

Development in evaluation of existence of small tools and their relations with early human groups should enable to present new concepts of the oldest colonisation of Asia and Europe. Usage of ochre as painting material can be seen as indication of high-level aesthetic and symbolic culture. Fragmented human skulls from Vértesszölös and Bilzingsleben articulate some post mortal practises that should be discussed as very early "religious behaviour".

Microlithic artefacts, well-balanced wooden spears, made with such small-notched tools indicate usage of composite raw material in tool production. During warmer periods, when abundant was wood and other organic raw material flint and other lithics were used for production of hard and sharp small inserts to bigger composite tools. Such option is widely known from Mesolithic Period and has never been observed in much older periods. Is it possible that such developed technology started already 1 mln years ago? New finds of handling from Schöningen and Neumark-Nord in Germany give us an idea about such possibility. The spears and remains of other wooden tools discovered in Schöningen show unknown till now improvements in early human behaviour.

FINAL PROGRAMME

The Workshop was organised in cooperation with XIVth Congress of the U.I.S.P.P. (International Union of Prehistoric and Protohistoric Sciences).

The main aim of the exploratory workshop was comparative technological and stylistic analysis of the small-tool assemblages in Europe and Asia. Participants discussed also their chronological framework as well as their environmental setting.

Scientific presentations were limited up to 20 minutes and followed by ca 10 minutes discussion. The workshop finished general discussion and participants concluded continuation of the subject in future scientific meetings.

During the workshop was organised the exhibition of the lithic artefacts series as well as distinctive examples of raw material from the sites with small tools from the countries of the participants. Some participants demonstrated knapping experiments and flaking technique used in the Lower Palaeolithic of Asia and Europe.

FINAL PROGRAMME

Monday, 3 September 2001

Arrival of the participants

Tuesday, 4 September 2001

*University of Liège
7 place du XX Août,
Building A4, room O*

10h00- 12h00 **Visit of the Prehistoric Service of the University of Liège**

12h00-14h00 *Lunch break*

14h00 - 19h00: **Presentation of the European Science Foundation and ESF Standing Committee for the Humanities (SCH)**

Pilar Lopez, ESF/SCH representative

LOWER PALAEOLITHIC MICROLITHIC ASSEMBLAGES IN THE LEVANT AND EUROPE

Introduction

Jan M. Burdukiewicz and Avraham Ronen

Bizat Ruhama, a Lower Palaeolithic small-tool site in the southern Coastal Plain, Israel

Yossi Zaidner

Middle Pleistocene flake industries: a typological dilemma or a behavioral strategy? The case of Italy

Laura Longo, Carlo Peretto and Antonella Minelli

Changing environment and unchanging tool-kit during the life-span of the Vértesszölös early man settlement

Viola Dobosi

Lower Palaeolithic small artefacts in Poland

Jan M. Burdukiewicz

The Lower Palaeolithic site Schöningen, Lower Saxony

Hartmut Thieme

Lower Palaeolithic site Bilzingsleben (Germany) - the most important results of research since 1969

Dietrich Mania (presented by Jan M. Burdukiewicz)

The small flint tool industry from Bilzingsleben – Steinrinne

Enrico Brühl

New Lower Palaeolithic site with small tools at Račíněves (Central Bohemia)

Jan Fridrich, Ivana Sýkorová,

Wednesday, 5 September 2001

9h00 – 18h00 **Excursion: Lower and Middle Palaeolithic sites in Belgium – results of recent research and methods of excavations** (*travel costs covered by U.I.S.P.P.*)

Thursday, 6 September 2001

*Hotel Campanile
Rue Jules de Laminne
Conference Room*

9h00- 12h00 **LOWER AND MIDDLE PALAEOLITHIC ASSEMBLAGES WITH SMALL TOOLS IN NORTHERN EUROPE AND ASIA**

Les types d'exploitation de petits galets de sites à industrie microlithiques du Paléolithique inférieur et moyen d'Europe Centrale : les exemples de Predmosti et Külna en République Tchèque et Vertesszölös et Tata en Hongrie

Marie-Helene Moncel

Middle Palaeolithic Small Tool Industries in the Czech Republic

Karel Valoch

The Middle Palaeolithic Microlithic Assemblage from Wrocław, SW Poland

Andrzej Wisniewski

The pebble-tool industries from the site of Menez-Dregan (Plouhinec, Finistère, France): cultural and palaeoenvironmental approach

Nathalie Molines

The small tools in Lower Palaeolithic industries of the Loessic Palaeolithic (Tajikistan)

Vadim Ranov

Small tool assemblages in China

Susan G. Keates

Small tool industry of the Lower Palaeolithic site Donggutuo in the Nihe-wan Basin, North China

Ya-Mei Hou and Weiwen Huang

Concluding remarks and general discussion

Jan M. Burdukiewicz and Avraham Ronen

12h00 - 14h00 *Lunch break*

14h00 - 18h00: *Exhibition of microlithic artefacts*

Knapping experiments

Comparative analysis and discussion on Lower and Middle Palaeolithic raw material, technologies, subsistence and cultural equipment

Future international cooperation and research projects

Official closing of the ESF Workshop

Friday, 7 September 2001

Departure of the participants

ASSESSMENT OF THE RESULTS,
CONTRIBUTION TO THE FUTURE DIRECTION
OF THE FIELD

This Exploratory Workshop enabled first meeting of archaeologists working on Lower and Middle Palaeolithic assemblages with small tools, known already from longer time. Archaeologist named such assemblages very differently in various regions of Europe: like "Buda Industry", "Colombanian", "Archaic Industries" or "Lower Palaeolithic Microlithic Tradition", "Taubachian", "Nagilain" in the Levant or "Lower Palaeolithic Small Tool Tradition" in China. It is necessary to mention that small tools are present also in other Palaeolithic sites, like Acheulian, but they are always associated with much bigger lithic artefacts.

Lectures, discussions and specially organised exhibition of the microlithic artefacts during the Exploratory Workshop enabled participants to recognise high similarity of the assemblages from so wide area of Asia and Europe. The main feature of these assemblages is abundant presence of small tools without bigger lithic artefacts or very small amount of pebble tools.

Researchers offered various ad hoc explanations of presence of such assemblages. The most frequent is explaining of small tool size by limits of raw material nodules. Other explanation offered by Prof. Peretto and his team is so called "opportunistic" approach of early humans with produced simple flakes for cutting, etc. "Retouched tools" were only accidental products showing no usage traces. Several participants preferred idea of search on technological attributes or cultural tradition.

The most complex assumption joins technological abilities with an influence of ecological adaptation of various groups to similar environmental circumstances. During warm periods, when abundant was organic raw material like wood, etc. early human used flint for manufacture from hard stone with sharp edges small inserts to bigger organic tools. Such option is usually known from Mesolithic. There should be stressed surprising similarity of numerous microlithic artefacts from the Lower and Middle Palaeolithic to Mesolithic ones. In addition new finds from Schöningen and Neumark-Nord in Germany indicate clearly such option of explanation.

The main results of the workshop are:

1. Creation of new ideas about early humans evolution and their adaptation abilities to changeable environmental conditions.
2. New data indicate that early humans got already high-level of aesthetic and symbolic culture (usage of ochre as painting material in Ruhama) early "religious behaviour" (fragmentation of human skulls in Vértesszölös and Bilzingsleben should be explained as some post mortal practises).
3. The participants established that further direction of research on small tool assemblages should be realised an international cooperation based on common analytical approach (computer database oriented to morphometric attribute analysis).
4. Search on sites with abundant organic remains what enables more detail reconstruction of ecological context of the lithic artefacts and evaluation of current theories on early human behaviour.
5. Continuation of the subject in future scientific meetings.

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STATISTICAL INFORMATION ON PARTICIPANTS

Countries of origin of the participants

<i>Country</i>	N	%
China	2	10,0
Czech Republic	3	15,0
France	2	10,0
Germany	3	15,0
Great Britain	1	5,0
Hungary	1	5,0
Israel	2	10,0
Italy	3	15,0
Poland	2	10,0
Tajikistan	1	5,0
<i>total</i>	20	100,0

Age structure of the participants

<i>Age group</i>	N	%
20-30	2	10,0
30-40	5	25,0
40-50	2	10,0
50-60	4	20,0
60-70	5	25,0
70-80	2	10,0
<i>total</i>	20	100,0