

Mining and Quarrying. Geological Characterisation, Knapping Processes and Distribution Networks during Pre- and Protohistoric Times

7th International Conference in Mons and Spiennes (Belgium),
September 28th – October 1st 2016 (UISPP Commission on
Flint Mining in Pre- and Protohistoric Times)



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As it was pointed out in the conference announcement by the organisers, the creation of the Commission on Flint Mining in Pre- and Protohistoric Times in the International Union of Pre- and Protohistoric Sciences (UISPP) referred to the tradition of organising international symposia on flint, established by the Limburg Branch of the Dutch Geological Society in 1969 at Maastricht. The next meetings were organised in 1975 and 1979 in Maastricht, 1983 in Brighton, 1987 in Bordeaux, 1991 in Madrid, 1995 in Warsaw and Ostrowie c and 1999 in Bochum.

The aim of the commission is to foster cooperation in research of siliceous rock mining (flint, chert, hornstone, radiolarite, jasper, etc.) and to present and discuss methods of investigations and results. Foremost fields of interest include, among others, research on different stages of "cha nes op eratoires", specialisation of labour and circulation of raw materials, characterisation of raw material, as well as investigation of flint mining sites associated with Pre- and Protohistoric settlement networks. The objective of the commission will be to promote those lines of research on flint mining and its methods that will enable a better understanding of various phenomena and processes taking place in the Pre- and Protohistoric periods. The international conference will also draw attention to this outstanding heritage and its protection.

Since 2007 six conferences have been organised by the Commission in Paris, Madrid, Vienna, Florianopolis, Paris and Burgos. The proceedings of the Madrid conference were published in 2011, as those from the second Paris conference in 2014.

The Commission on Flint Mining in Pre- and Protohistoric Times is one of the most active and effective among UISPP Commissions. Its last conference took place in the town of Mons and the choice was not a coincidence. The Mons Basin region, thanks to its long tradition of geological and prehistoric research, is an ideal place for the organisation of international conference on Neolithic mining, since several Neolithic flint mines have been



Fig. 1. The conference venue at the Regional Museum of Natural Sciences in Mons (photo by Maria Gurova and Fabrice Dor)

Обр. 1. Мястото на провеждане на конференцията – Музей на природните науки в Монс (снимки Мария Гюрова и Фабрис Дор)

located in the Mons Basin, the most famous of which is the Spiennes mining site (in the list of Unesco World Heritage sites).

The conference venue was in the Regional Museum of Natural Sciences, which cosy ambiance and instructive exhibition offered a very convenient atmosphere for this event (fig. 1). The scientific program lasted for two full sessions' days and comprised 21 oral presentations, 12 posters, signed by *ca* 100 authors. The meeting involved participants from 14 countries (Austria, Australia, Belgium, Bulgaria, France, Germany, Great Britain, Hungary, Italy, The Netherlands, Poland, Spain, Switzerland and USA). The participation of young researchers was noticeable, a fact which brings optimism about the future research in this prominent scientific domain (fig. 2). Apart from the stimulating Museum exhibition, the organisers offered three glass-cases with materials related to the gunflint production, which was relevant to some of the poster presentations (fig. 3).

There was no formal division in thematic sessions, however, the contributions could be grouped as follows:

- prehistoric mines/quarries and mining/quarrying: case studies;
- raw material outcrops, procurement and network distribution;
- knapping techniques and raw material selection.



Fig. 2. General photo of the conference participants and organisers (photo by F. Dor)
 Обр. 2. Обща снимка на участниците и организаторите на конференцията
 (снимка Ф. Дор)

The research problems and their respective case studies will be briefly mentioned within each thematic group. Naturally the most numerous (n=10) were papers dealing with mining extraction of flints in prehistory (and the social proxy of this process). One of the discussed aspects of mining consisted of presentations of archaeological evidence for prehistoric mining/quarrying in Vaucluse, France (by P.-A. de Labriffe &); Morin valley, France (R. Martineau &); NE Iberia (by X. Terradas &); Poland (by J. Lech &). A case study from the Netherlands pointed out the methods and techniques (field surveys, geophysics, find processing) for reliable detecting of knapping, as well as for domestic and ritual activities in the surrounding of prehistoric mines (J.-W. De Kort &). A paper on mines in Southern England postulated a methodology for investigation of data coming from zones of production activity situated away from the shafts (J. Baczkowski). The conceptualisation of mines in a socio-spiritual context was presented by A. Theater and L. Sørensen that was inspired by published works on “complexities of structural deposition in the shaft fills” in Northern Europe. The authors put compelling arguments for mines being a social arena where creative actions and cultural behaviours took place. A peculiar case of mining study was demonstrated by the paper concerning reliable radiocarbon dating of human remains from the mine shafts of Spiennes and the opportunity for re-examination of the previously found isolated human bones (M. Toussaint &). The Mons Basin mining production presented a challenging aspect – the new data of the raw material characterization (petrography and electron probe microanalysis) have led some scholars to distinguish ‘facies’ within the main mining sites with projections on the distribution of mining products outside the region (J.-P. Collin &). Finally, a team from Poland presented an effective method of prehistoric mines detection using airborne laser scanning (ALS, LiDAR) (J. Budziszewski &)

The problems concerning raw material and outcrop identification were discussed in seven papers. Some of them dealt with a particular raw material from the point of view of their outcrops identification and prehistoric use: the case of the radiolarite from Pieniny Klippen Belt in Poland (K. Kernerder-Gubała &); the case of Gargano flints and its distribution and use in the Southern Dalmatian Palaeolithic and Neolithic sites (I.-M. Muntoni &); the case of a peculiar material – flint plaquettes, coming from Oligocene outcrops in South-



Fig. 3. Brandon gunflint debitage from UK (above), Masny-Saint-Jean gunflint debitage from Belgium and gunflint samples from Neugebäude Castle in Vienna (below) (photos by M. Gurova)
 Обр. 3. Производство на кремъци за пушки: от Brandon, Великобритания (горе), и Ману-Сент-Жан, Белгия и Neugebäude Castle, Австрия (долу) (снимки М. Гурова)

ern France and showing a regional distribution and household use (G. Landier). In the case of Upper Palaeolithic sites in the French Massif Central a noticeable diversity of raw materials has been attested. The petro-archaeological analyses led to a detailed facies definition (evolutionary chain) suggesting selective use of raw materials (V. Delvigne &). Similar approach to raw material sourcing was followed in a paper focusing on territory management and mobility among hunter-gatherer groups in Bergerac (P. Fernandes &). An interesting



Fig. 4. A moment from J. Pelegrin's lecture (photo by M. Gurova)
Обр. 4. Момент от лекцията на Ж. Пелегрин (снимка М. Гюрова)



Fig. 5. Discussion in the small field museum at the entrance of the Camp-à-Cayaux galleries (photo by M. Gurova)

Обр. 5. Беседа в малкия полеви музей на входа на галериите Сатр-à-Сауаих (снимка М. Гюрова)

case-study of a large chert quarry landscape was presented from Germany (L. Fisher &). Based on a sedimentary microfacies analysis and the subsequently inferred distribution of chert from the quarry among the settlements, the authors emphasized the diversity in local use of raw materials. A paper treating a peculiar raw material (the Balkan Flint), its sourc-



Fig. 6. One of accessible Neolithic galleries in Petit-Spiennes (photo by F. Dor)
 Обр. 6. В една от достъпните неолитни галерии на Petit-Spiennes (снимка Ф. Дор)

ing and distribution in Balkan prehistory was presented by M. Gurova.

The knapping techniques, maintenance and transmission of 'know-how', and the preferential use of particular raw materials have been pointed in two papers. One (by Solène Denis) presented particular flint productions carried out in two Early Neolithic communities (the Blicquy culture and the Linear Pottery culture). Circulation of various flints and knapping techniques is attested on intra- and inter-sites level. The other one, a case-study from an Early Neolithic community in Spain (Nuria Castañeda &), illustrated a complex set of six reduction sequences with different purposes. According to the authors, a key role in this complex technical system has seemingly been attributed to knapping apprenticeship.

Two lectures need a special mention:

- A keynote lecture has been presented by Peter Topping (Newcastle University, UK) focusing on the social context of prehistoric mining. Based on a solid ethnographical reference corpus and a dataset of more than 200 archaeological sites, Topping's arguments concerned the interpretation of 79 flint mines and 51 quarries from UK and Ireland. In conclusion, the extraction sites were viewed as units in a cultural landscape context where technical skills and apprenticeships were performed, as well as ritual practices and social



Fig. 7. Reconstruction of the mining process in Spiennes Neolithic galleries (original drawing by B. Clarys, photo by M. Gurova in the Petit-Spiennes Interpretation Centre – Silex'S)

Обр. 7. Възстановка на работата в неолитните кремъчни галерии на Спиен (рисуника в оригинал – В. Clarys, снимка на М. Гюрова в Интерпретационния център на Petit-Spiennes – Silex'S)

interactions.

- A guest lecturer Jacques Pelegrin (CNRS, France) presented a very instructive lecture on long flint blades in Europe from the Neolithic onwards. The lecture brought additional light on the production and distribution of long blades (in some cases superblades) in a broader chrono-cultural and spatial context: from VII to III mill. BC; from the Levant to the Iberian Peninsula and from Denmark to Algeria. Particular attention was given to the knapping/removal techniques (lever pressure *vs.* indirect percussion) and their experimental reproduction (fig. 4).

Among the poster themes it is noteworthy the 19th century gunflint production in Belgium and UK (Anne Hauzeur and &). The topic was visualized by a small exhibition at the conference venue (*vide supra*, fig. 3).

At the end of the second day of sessions, a meeting of the Commission took place targeting the forthcoming scientific and administrative agenda of the Commission. The acting, and very successful, President Jacek Lech announced his resignation and proposed Françoise Bostyn for consideration as a successor for the post. She was elected unanimously by the Commission members. Two new members were also elected for the Praesidium: Xavier Terradas and Hélène Collet.

The last two days of the conference were dedicated to perfectly organised guided excursions to Spiennes, giving opportunity to walk around the site, to visit flint outcrops in the chalk quarry in Harmignies, the mine galleries in Camp-à-Cayaux (16 m deep) and Petit-Spiennes (8 to 10 m deep), as well as the Interpretive Centre Silex'S (figs. 5 and 6). The conference participants were privileged to have some amazing experience at all mentioned places, including the participation of colleagues still excavating in one of the mine near the Interpretive Centre.

The Neolithic mines at Petit-Spiennes and Spiennes-Camp-à-Cayaux are among the

richest and most astonishing places in the (prehistoric) world, revealing the process of primary extraction of flint nodules from the chalk and limestone deposits. This process required striking abilities, persistence, physical resilience and brevity of the workers and a remarkable production and social organisation. A small and beautiful exhibition in the Interpretive Centre visualized the whole manufacture sequence with objects, pictures and sketches completing and conceptualizing the idea of these activities performed by the Neolithic inhabitants of the region (fig. 7).