

Editorial

Investigation of early flint mining has been part of European archaeology from its beginnings as an independent discipline in the middle of the 19th century. Flint artefacts from prehistoric mine fields were used in the creation of developmental sequences of implements and weapons. At first methods of flint exploitation were also treated in terms of evolutionism. Later, in the period of domination of diffusionist and migrationist explanations, flint mines were seen as the work of wandering prospector-miners, connected with megalithic religion. Publication of the excellent work of J.G.D. Clark "*Prehistoric Europe. The economic basis*" (London 1952) demonstrated new investigative and interpretative possibilities for prehistoric flint mining against the background of a primitive economy and natural environment. The period of domination of processual archaeology in addition increased interest in the social aspects of prehistoric flint mining (including studies of their association with settlement patterns and mechanisms for the distribution of exploited raw materials). Post-processual archaeology turned attention to the necessity of considering both the symbolic meaning and hidden structures among artefacts and features.

In Poland it was Stefan Krukowski (1890–1982) who in 1919 began the study of the differentiation of siliceous materials used in prehistory, their extraction, utilisation and distribution. The research programme which he formulated then is still to a large degree valid. The investigations dynamically initiated quickly produced spectacular results with the discovery of many flint mines, including the famous site at Krzemionki Opatowskie and the mines at Krasnoye Selo in western White Russia (now Krasnaselsky in Belarus). The results of Krukowski's work between 1919 and 1939 were published on the eve of the Second World War in two excellent books "*Krzemionki Opatowskie*" (Warszawa 1939) and "*Paleolit*" (Kraków 1939). They greatly influenced the direction which research was to take after the War.

Particularly favourable conditions existed in the Vistula River basin for the investigation of flint mining. There are several varieties of easily recognisable flint of interregional significance, as well as settlement associated with the mining.

In the period of dynamic growth of Polish archaeology since the War, prehistoric flint mining became one of the leading fields of study. Flint mines are now treated as the first stage in the process of the working and distribution of raw material. No less attention is paid to the analysis of workshops/chipping floors in the mine fields, their surroundings and association with settlements, refitting of waste material, the

differentiation between flintwork in camps and settlements, the preparation of flint tools and weapons, the spatial relationship between settlements and mines, and the distribution of raw materials. Questions concerning prehistoric methods and techniques of exploitation, and organisation of work, supply of flint, degree of specialisation, settlement/mine relationships, and primitive economies, are considered as basic. The direction of investigations conducted in Poland and their dynamics are presented in the bibliography at the end of this volume.

The present volume of *Archaeologia Polona* shows the great variety of orientations and methods, appearing alongside and influencing each other in modern studies of flint mining in European archaeology. From a wider perspective, it is noticeable that processual archaeology has not been able in full to utilise, in the sphere of behavioural archaeology, the great possibilities created by the investigations of flint mining. For post-processual archaeology this aspect in the life of the prehistoric communities has so far failed to gain attention. This situation is unlikely to change without the active participation of excavators of prehistoric mining themselves, because of the high degree of specialisation required for competent investigation of shafts and chipping floors. The results of flint mine research cannot be synthesised in isolation from modern theoretical discussions. This is a question both of how we think as well as how we express those thoughts in prehistoric studies.

Whatever ideas and concepts regarding the interpretation of flint mining in prehistoric Europe we may adopt, the need for reporting and discussing new discoveries and ways of improving methods of investigation of these technically and cognitively difficult sites remains. A particularly important role is played in this development by co-operation with the natural and technical sciences. This was the thought behind the organisation of the international flint symposia by the Limburg branch of the Dutch Geological Society. For 25 years these meetings have played an important role in exchange of information and experiences, as well as in integrating archaeologists, geologists and other researchers working in the field of flint and flint mining. The first three symposia took place in 1969, 1975 and 1979 in Maastricht. The next ones took place in Brighton (1983), Bordeaux (1987) and in Madrid (1991). The Seventh International Flint Symposium will be held this year (September 4th – 8th) in Poland based in Warsaw and Ostrowiec Świętokrzyski. The present volume of *Archaeologia Polona* is dedicated to this meeting.

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The dynamic development of the investigation of mining and the use of flint in prehistory has led to the organisation of other international meetings of similar nature which have resulted in important publications. Among them were conferences in Budapest — Sümeg (1986) and in Vesoul (1991). The most important however was the conference and exhibition “*Prähistorischer Feuersteinbergbau in Europa*” in Bochum

(1980) to commemorate the 50th anniversary of the Deutsches Bergbau-Museum. The splendid book “*5000 Jahre Feuersteinbergbau*” accompanying this event, summarised the existing state of knowledge about prehistoric flint mining in Europe. The last 15 years have been a period of significant progress in the study of this subject. Together with Dr. Zbigniew Kobylński, the editor of *Archaeologia Polona*, we have decided to devote this volume to summarising this progress following the concept of the above mentioned book, edited by our German colleagues Gerd Weisgerber, Reiner Slotta and Jürgen Weiner. Therefore in the first part of our volume we present articles on different themes related to flint mining. The second part consists of a catalogue which we regard as a supplement to the Bochum catalogue. Other sections of this volume also have flint mining as a theme. Although *Archaeologia Polona* now appears only in English, to emphasise the links between these two volumes, we decided to make an exception and publish in German a paper by two authors who were contributors to “*5000 Jahre Feuersteinbergbau*”.

Unfortunately it was impossible to collect articles from everyone involved in flint mining studies. Since 1993 we have published calls for papers and attempted to invite colleagues individually to write about their work. Not all responded to our proposition, or were able to send their contributions in time. Their absence is regrettable, but we hope however that these studies will be presented at the Seventh International Flint Symposium and published in the post-conference proceedings.

We would like to thank those authors who did send their manuscripts on time and so make this volume a work of international interest. We would also like to express our gratitude to Dr Robin Holgate, Dr Richard J. Harrison, Dr Ian H. Longworth and Mr Alan Saville who were kind enough to undertake the stylistic revision of some texts in this volume.

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The field of studies on flint mining is a rapidly-developing one. Exactly 25 years ago, in April 1970, when I was just finishing my master’s thesis the general opinion held was that which the eminent Polish archaeologist Konrad Jażdżewski (1908–1985) expressed in his book “*Poland*” (published in 1965 in the British series “*Ancient Peoples and Places*”), when he wrote: “In noticeable contrast to the Danubian people but in common with the older local and South Scandinavian Mesolithic traditions, the Funnel Beaker folk took a lively interest in the exploration of various flint deposits” (p. 86). Just three months later I carried out a rescue excavation on the large site at Saspów near Cracow, which demonstrated the fallacy of this statement. The site turned out to be a flint mine of the Danubian communities, and the first to be discovered in the flint-rich Polish Jura. Today we know of others from this area.

In the mid 1970s I published the view that prehistoric flint mining ended in the Vistula basin about 1600 BC, which appeared to many at that time to be a very late dating. A few years later, due to the wider use of radiocarbon dating, to everybody's surprise, it was shown that it continued at least to the end of the Bronze Age.

In 1975 I expressed the view that there was no possibility of discovering in Poland a flint mine with original surface relief preserved. The recent discovery of the mine at Rybniki, published in our catalogue, proved this also to be wrong.

Similar changes of opinion have accompanied the development of the archaeology of flint mining in other countries. In this volume are presented the results of work on the Gargano Promontory in Italy, which are the most spectacular example of what still may remain to be discovered in Europe. The first paper in this volume on Palaeolithic chert mining in Egypt, by our Belgian colleagues, demonstrates that even more remains to be done outside Europe.

On behalf of Dr. Zbigniew Kobylński and myself, I would like to wish the participants in the Seventh International Flint Symposium similarly spectacular discoveries and creative ideas in the immediate future and on into the 21st century.

Jacek Lech

Convention used in citing radiocarbon dates

In citing radiocarbon dates the following abbreviations have been used:

BP — uncalibrated radiocarbon years before present (1950)

bc — uncalibrated radiocarbon years minus 1950

BC — measurements calibrated into calendar (solar) years.