

# The Data Bank: Data Files Generated by Excavations of LGM Sites from Central and Western Europe

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## *A Forum Making Data Sets Available to the Paleoanthropological Community*

Lithic data sets from the excavations at the Last Glacial Maximum sites of Grubgraben, Austria (1985–1990), Kadar, Bosnia (1976–1978), Solutré, France (1997–1998) and Zobište, Bosnia (1980).

The data files are the records of archaeological excavations conducted between 1967 and 1998 at Upper Paleolithic sites located in Central and Western Europe which were occupied during phases of the Last Glacial Maximum. The objective was to document innovations and transformation in technology, in settlement patterns and hunting practices that may have resulted from the changing environmental conditions of the LGM, and comparing and contrasting two major regions of mid-latitude Europe. The Le Malpas excavations (1967–1969) were the starting point of the research project which continued in Bosnia at Kadar (1976–1978) and Zobište (1980), at Grubgraben in Austria (1985–1990) and lastly at Solutré (1997–1998). The objective required the systematic recovery, recording, and detailed analyses of all items encountered during the excavations. The data were used to describe and characterize the recovered assemblages and then to present interpretations.

By 1968, excavation techniques followed the well established standards developed earlier by G. Laplace, F. Bordes, A. Leroi-Gourhan, H. Movius, and others. The most notable innovation introduced then was the careful observation of natural stratigraphy. All recovered specimens were identified by a unique field number and their location in the site noted by means of Cartesian coordinates related to an arbitrary datum point. Subsequent systematic analyses done to describe the recovered items became part of laboratory records. Whereas the range of field and laboratory observations made in the course of the excavations remained largely unchanged through the years, the recording methods underwent a series of drastic changes. The introduction of portable computers in the field and the common use of digital photography and total stations have completely transformed recording systems from paper notebooks to computer files. The field projects discussed here followed step by step the progressive transformation of excavation records. Now, the data files remain all that is left of these open-air sites; they, therefore, represent a considerable asset which could serve a wide range of interested individuals, a valuable resource that needs to be made accessible.

### LE MALPAS 1967–1969

This publication contains no files from Le Malpas. In the course of excavations, recovered items were assigned a field number, measured with meter tapes from the southwest corner of the excavation unit and identified on site. The information was recorded in field notebooks, one notebook for each one square meter excavation unit. As in the late 1960s computer programs were becoming available to generate maps of artifact distribution and statistical analyses of the recovered artifacts, the provenience data contained in the notebooks was transferred to punch cards; files were created and kept at the University of Kansas Computer Center. Le Malpas files were later transferred from computer disks to floppy disks and then to diskettes. In the course of these manipulations some of the files were lost. The remaining files were not sufficiently documented, so what is left is now of little use. However, the field notebooks and lab notes remain; they are kept at the Musée de Préhistoire at Les Eyzies along with the collections. The data is perhaps not easily accessible, nonetheless it is still there and computer files could be recreated. This example illustrates the lasting value of paper records and points to some of the difficulties inherent to the long term archiving and migrating of computer files, namely the detailed documentation of data.

### THE KADAR (1974, 1976) AND ZOBISŤE EXCAVATIONS (1980)

By the mid-seventies, computer use was becoming more common but computer access was not available in Bosnia. While in the field, provenience and attribute analysis of recovered artifacts were first recorded in notebooks. As was the case for Le Malpas, the data were later transferred manually into computer files at the University of Kansas. By then, the data entry process was greatly facilitated. Some errors and concurrent loss of information could not be completely avoided during the process of data entry but were kept to a minimum; observations collected in the lab were later integrated into the data files. The files migrated

from main frame tapes to floppy disks, to diskettes, and to CDs. Notebooks archived at the University of Kansas remain a secure if not so easily accessible source. The loss of information inherent to migrating the files has been limited and, what is more important perhaps, the data files can be verified by cross checking with the original field and lab notebooks.

### THE GRUBGRABEN PROJECT (1986–1987, 1989–1990)

By 1986, the use of laptop computers in the field lab was becoming common practice. By 1989, field notebooks became redundant and obsolete as laptops were brought to the excavation and provenience data was entered directly in the field to generate data files. The files were then reviewed and edited in the lab. The data were accessible, easy to manipulate, to use, and to disseminate. The efficient process made it possible to compare computer generated distribution maps to maps hand drawn in the field. The ability to analyze records in the field as field work was in progress transformed the dynamics of the excavations. In the lab, many of the photographs and slides were digitized, as well as the hand drawn maps and other paper records. The analysis of lithic, faunal, and shell assemblages were digitized as well. Paper records appeared to be unnecessary. They were largely abandoned by 1989, no longer providing the secure back up of field note books.

### EXCAVATIONS AT SOLUTRÉ 1997–1998

As was the case during the last two years at Grubgraben, the Solutré excavation records were entered directly into data files in the field. The 1997–1998 files were compatible with notebooks of Combiér's 1968/1985 excavations. The same grid system and datum points were used. The files and notes were left at the Solutré Museum. Copies are at the University of Kansas.

### SUMMARY

The maintenance of computer data files becomes therefore a prime necessity. Migrating from diskettes to CDs, and then to other more modern data storage media always present some difficulties. But, the greater threat to the data file is the updating and changes of the format in which they are stored. Spreadsheet and database software require continuous updating of the data file. The ever more rapid transformation of storage and data manipulation programs is the greater challenge to the maintenance of computer data files.

### THE SITE FILES

**Site Name:** GRUBGRABEN

**Type of Site:** Open-air, multi-components

**Geographical Location:** Kamern, Niederosterreich, Austria. The site occupied the floor of a ravine cut by the Grub, a tributary of the Kamp River. It overlooks the Danube Valley. Longitude 15°70", Latitude 48°47" (Figure 1).

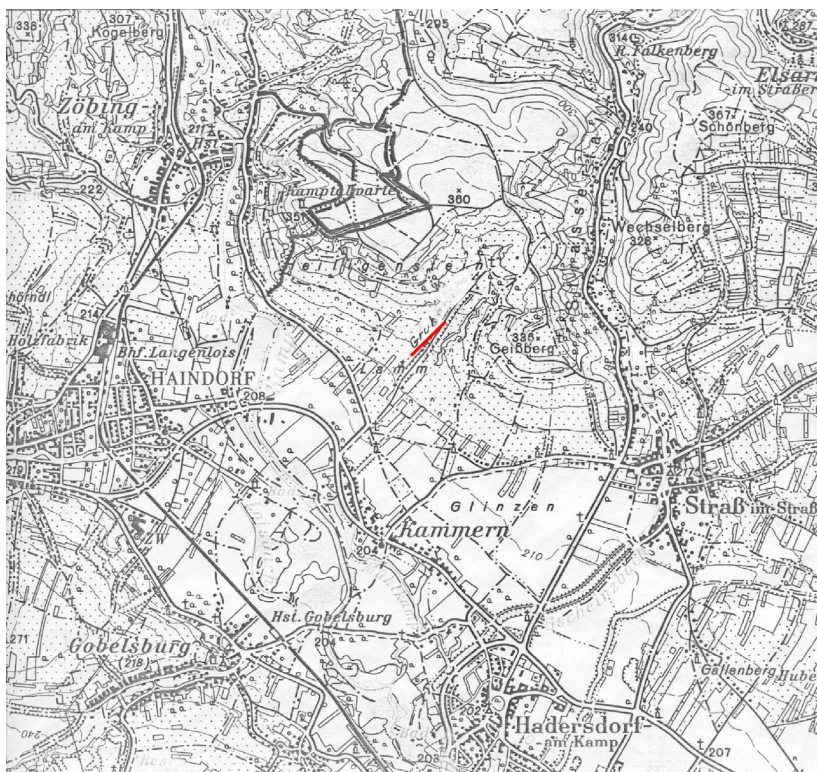


Figure 1. The location of Grubgraben in Austria (red underline).

**Excavations:**

Dates: 1986; 1987; 1989; 1990

Collaborators: Anta Montet-White, Friedrich Brandtner, Paul Haesaerts

Excavation Blocks: (Figure 2)

Financial Support: Grants from The National Geographic Society and The University of Kansas General Research Fund.

**Stratigraphic sequence:**

Geological Formations: Loess series

Archaeological Sequence: A sequence of four archaeological layers marked by "pavements" and hearth features were identified during the 1986–1990 excavations. First assigned to the Epigravettian or Sagvarian, the sequence appears now to belong to the Badegoulian (AL4) and the Magdalenian, type Magdalenien moyen du Jura (A12/A11).

**C14 dates:**

A14 : 18,960±290 (AA-1746); 18,400±330 (Ly1680)

**References:**

Montet-White, A. (ed.). 1990. *The Epigravettian Site of Grubgraben. The 1986/87 excavations*, ERAUL 40, Liège.

West, D.L. 1997. *Hunting Strategy in Central Europe during the Last Glacial Maximum*, British Archaeological Reports International Series S672, Oxford:.

**Other Information:**

Paper Archives: duplicates at the University of Kansas Archaeological Research Laboratory

Digital Archives: University of Kansas Biodiversity Research Center

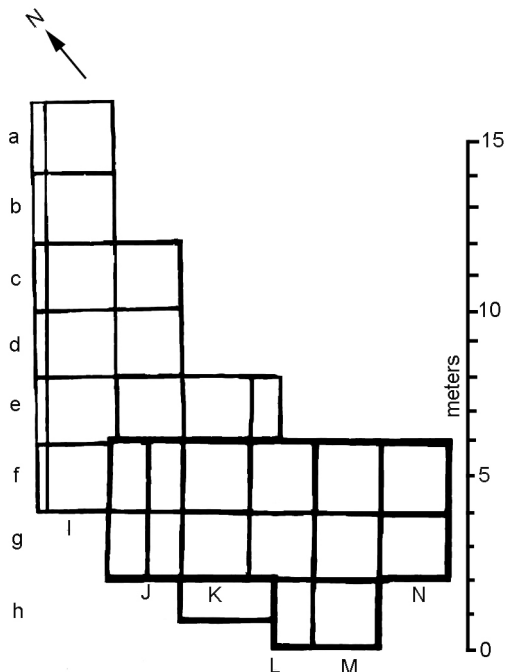


Figure 2. Plan view of the excavations at Grubgraben.

**Files:****Provenience or Field Catalogue Files:**

The files are digitized field catalogues. In 1986 and 1987, data was recorded in notebooks then transferred to computer files in the field lab. In 1989 and 1990, data was digitized in the field. The files are identical to field note books: they are organized in four folders, one per year of excavations. And within each folder, information is recorded by excavation units. Units which were excavated over two years will therefore appear in two folders, i.e., Unit Kf upper levels are in the 1989 folder and the lower levels in the 1990 folder.

The X and Y coordinates were measurements taken within each unit from the southwest corner, Z (vertical distance below datum) was taken with an alidade for each artifact.

- Column A: site name.
- Column B: 2m x 2m excavation unit.
- Column C: recovered piece field number.
- Column D: archaeological layer.
- Columns E, F: X and Y Cartesian coordinates recorded from the southwest corner of the unit.
- Column G: Z elevation measured as vertical distance below datum.
- H: labeled "artifact category" designating the artifact class: flint or lithics (chipped stone artifacts), stone (gneiss or arkose manuports which constituted elements of the "pavements"), bones (faunal material), shells (worked shells and ornaments).

**Grubgraben Lithics: Chipped Stone Artifact Files (A11, A12, A13, A14):**

The files were produced as a result of studies done in the lab at the University of Kansas. Studies were directed first at questions relating to the selection and use of raw materials and, secondly, at the spatial distribution of various artifact types. The data is organized in four files which correspond to the four archaeological layers (A11 is the top layer).

- Column A: Catalogue number or ID, it incorporates unit designation and field number to assign a unique designation to each artifact.
- Column B: archaeological layer.
- Column C: X2.
- Column D: Y2.

The X and Y coordinates were transformed in order to produce distribution maps covering the whole site. All are in centimeters.

- Column E: Z2 includes measures of elevation above an arbitrary datum plan. In centimeters.
- Column F: Raw materials (r for varieties of radiolarites from the Vah Valley and f for flint mostly from the Stranska Skala, Brno area).
- Column G: Type number; 1–92; type numbers of the D. de Sonneville-Bordes and J. Perrot type list; 93–97=cores; 99=chunks and shatter; 100=blades; 110=bladelets (<1.5cm wide); 122=burin spalls; 200=flakes; 225=crested blades or platform flakes; 300=chips (miniflakes with identifiable bulb of

percussion weighing less than 1 gram); 310= small (1gram or less) unidentifiable fragments.

- Column H: artifact category.
- Column I: Condition (complete, fragment, tip, base or mid fragments when identifiable).
- Column J: Weight in grams.

### Site Name: KADAR

**Type of Site:** open-air, hill top

**Geographical Location:** Detlak, Northern Bosnia. Hilltop at the confluence of the Bosna and Sava Rivers, overlooking the Sava. Longitude 18 ° 23", Latitude 45 ° 09", elevation 431masl (Figure 3).

### Excavations:

**Dates:** 1974, 1976

**Collaborators:** Anta Montet-White, Djuro Basler, Henri Laville

**Excavation Blocks:** IEast and IWest on either side of Basler 1960's excavation block, II to the west. Each block divided in 4m x 4m units separated by a one meter wide balk. (Figure 4).

**Financial Support:** Grants from The National Science Foundation, The National Geographic Society, and The University of Kansas General Research Fund.

### Stratigraphic Sequence:

Series of redeposited loess: the Upper bed (Bed 2) which contained the Epigravettian layers, was disturbed at the top by the plow zone (1). An erosion surface separated Bed 2 from Bed 3 where a few artifacts attributed to the Mousterian were found in place. Quantities of Mousterian artifacts were recovered downslope in neighboring fields (Figure 5).

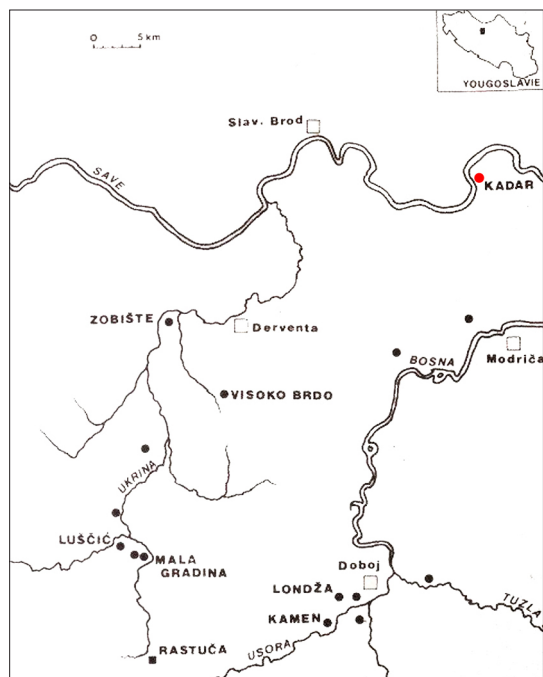


Figure 3. The location of Kadar in Bosnia.

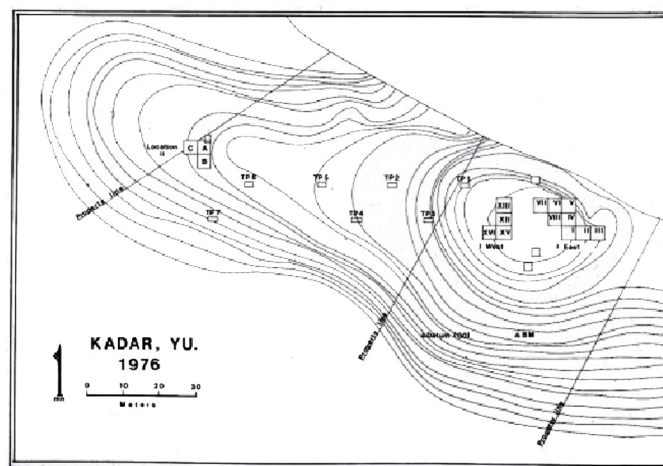


Figure 4. Plan view of the excavations at Kadar.

### References:

Montet-White A., H. Laville and A.-M. Lézine. 1986. Le Paléolithique en Bosnie du Nord. *L'Anthropologie* 90: 29-88.

### Other Information:

**Collection Location:** Zemalski Muzei, Sarajevo

**Paper Archives:** University of Kansas Archaeological Research Laboratory

**Digital Archives:** University of Kansas Biodiversity Research Center

### Files:

#### Provenience Files:

- Column A: site name.
- Column B: excavation block.
- Column C: excavation unit number. Units were numbered consecutively as excavations proceeded.
- Column D: artifact number assigned during excavations and recorded in field note books.
- Column E: ID number unique to recovered piece.
- Columns F, G, H: X and Y Cartesian Coordinates recorded from the southwest corner of the unit. Z is vertical distance below datum.
- Column I: artifact category.

### Kadar Chipped Stone Artifact Files:

These contain retouched tools, blades, and large flakes;

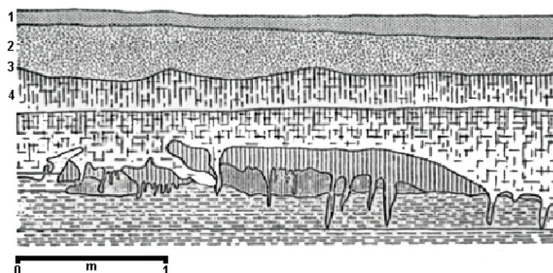


Figure 5. Stratigraphy at Kadar.

chips and small fragments are not included. The three files correspond to the three excavation blocs. The analysis was done in the field lab. Its objective was to characterize the blade technology used to extract blades from radiolarite river cobbles and the selection of blanks for making various categories of tools. Included are: artifact identifying number, Type number (Code) and type definition, condition (complete or broken), length and width (when the artifact is inscribed in a rectangle), thickness at mid length, platform width, platform thickness, platform angle, and platform orientation in relation to the long axis.

**Site Name:** SOLUTRÉ

**Type of Site:** open-air, series of archaeological layers stratified in slope deposits

**Geographic Location:** Solutré, Saône et Loire, France; Longitude 4°31", Latitude 46°39", elevation 400 masl (top of the Rock) (Figures 6 and 7).

**Excavations:**

Major excavations were conducted between 1968 and 1988 under the direction of Jean Combier. The documentation of the Combier excavations is archived at the Musée de Solutré (Saône et Loire, France). A major focus of the project was the 10m x 10m block designated as P16. An analysis of the lithic artifacts from P16 was conducted in 1997 by A. Montet-White.

**Dates:** 1997–1998

**Collaborators:** Jack Hofman, Anta Montet-White, Jean Combier



Figure 6. Overview of the Rock of Solutré. The site is above the village.

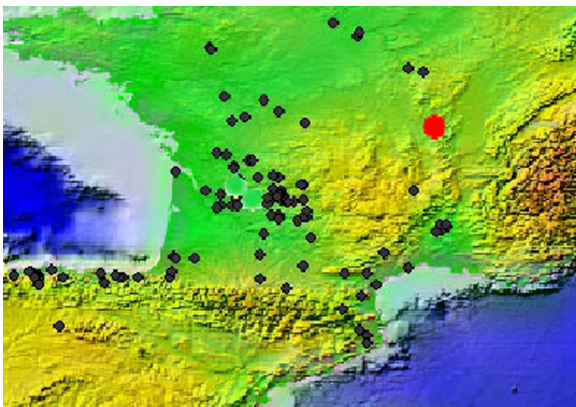


Figure 7. The location of Solutré (red dot) in France.

**Excavation Blocks:** limited excavation in Units I11 and M12 (Figure 8).

**Financial Support:** Direction régionale des Antiquités de Bourgogne and grants from National Geographic Society and the University of Kansas General Research Fund.

**Stratigraphic Sequence**

**Geological Formations:** series of slope deposits.

**Archaeological Layers, Cultural Attribution:** The topsoil and the upper bed contain remains of Magdalenian bone beds. A series of éboulis, without traces of human occupation separate the Magdalenian from the Solutrean layers. The Solutrean layer is marked by the presence of rocks with traces of burning.

**C14 Dates:**

Aurignacian, M12 Layer 3:  
29,020±170 (CAMS-36628)

Gravettian, L13:  
28,280±150 (CAMS-71703)

Solutrean, I11 Layer 3:  
19,720±70 (CAMS-36630)

Magdalenian, I11 Layer 1b:  
14,570±130 (OxA-6731)

Magdalenian, I11 Layer 1a:  
13,719±60 (CAMS-36629)

**Reference:**

Combier J and A. Montet-White (eds.). 2002. *Solutré 1968–1998*. Société Préhistorique Française, Mémoire XXX, Paris.

**Other Information:**

**Collection Location:** Collection and Paper Archives are kept at the Musée de Solutré (Saône et Loire, France).

**Digital Archives:** University of Kansas Biodiversity Institute.

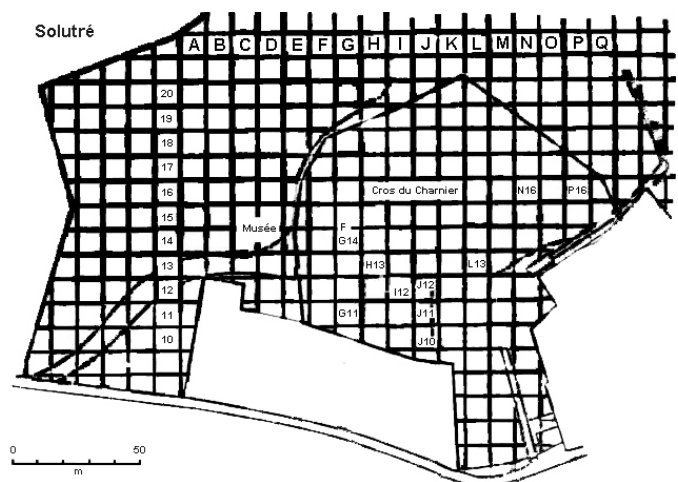


Figure 8. Plan view of the excavations at Solutré.

**Files:**

The I11 file is a field catalogue established on site by Jack Hofman. It combines provenience information (i.e., X,Y,Z orientation and dip) and a brief identification of faunal remains and chipped stone artifacts. The 50cm deep, 2m wide section was excavated along the wall of previous excavations. It cut through the Magdalenian and Solutrean bone beds and therefore gave a sample of the abundance of faunal remains and artifacts still present in some areas of the site of Solutré in 1998.

The P16 file concerns the lithic artifacts collected during the Comber excavations. It includes each artifact provenience, and category, as well as length, width, thickness, and weight.

**Site Name: ZOBISŤE**

**Type of Site:** open-air, hill top

**Geographical Location:** Zobište, Derventa, Northern Bosnia. Ukrina River, Sava River tributary, Northern Balkans. Longitude 18°11", Latitude 44°89", elevation 239 masl (Figure 9).

**Excavations:**

**Dates:** 1980

**Collaborators:** Anta Montet-White, Djuro Basler, Henri Laville

**Excavation Units:** I, II, III, IV, test pits (Figures 10 and 11)

**Financial Support:** National Geographic Society Grant, University of Kansas General Research Fund.

**Stratigraphic sequence:**

**Geological Formation:** Series of loess deposits. Upper bed, corresponding to Kadar Level 2, was cut and largely destroyed by the plow zone.

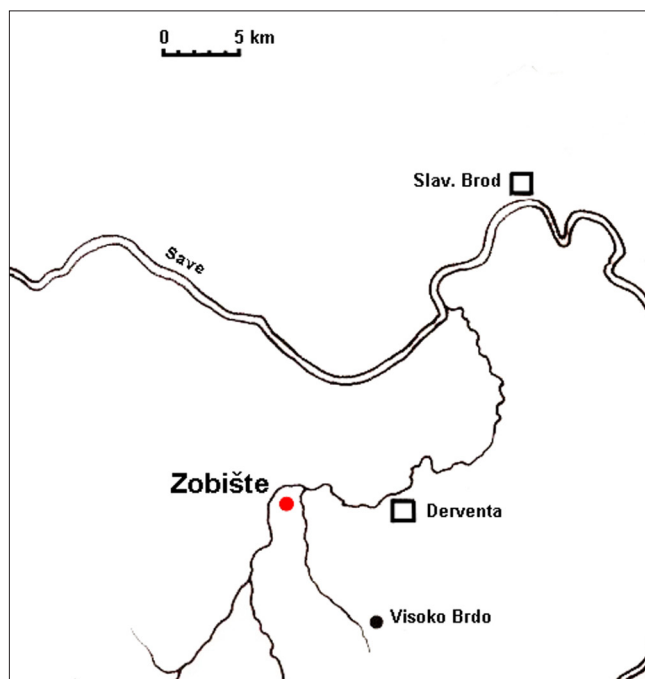


Figure 9. The location of Zobište in Bosnia.

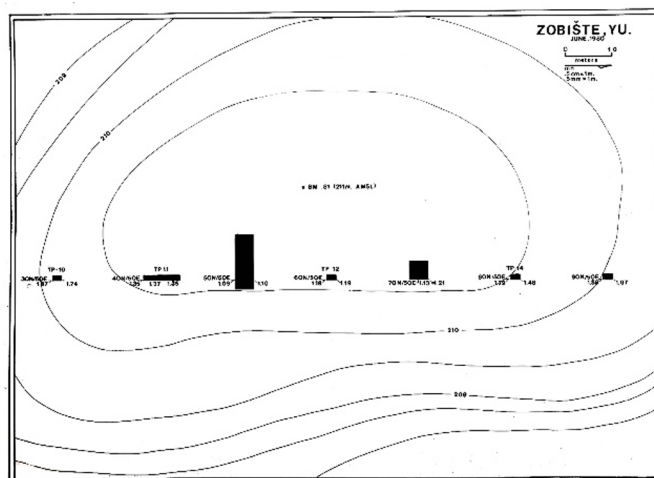


Figure 10. Plan view of excavations at Zobište.



Figure 11: Overview of excavations at Zobište.

**Reference:**

Montet-White A., H. Laville, and A.-M. Lézine. 1986. Le Paléolithique en Bosnie du Nord, *L'Anthropologie* 90: 29–88.

**Other Information:**

**Collections Location:** Zemalski Muzei, Sarajevo.

**Paper Archives:** University of Kansas Laboratory of Archaeology.

**Digital Archives:** University of Kansas Biodiversity Center.

**Files:**

Give provenience information and artifact description— one file per excavation unit.

Rows: single artifact identified by a field catalogue number— one row per artifact.

Columns:

- Column A: site name.
- Column B: excavation unit.
- Column C: field number (unique within the excavation unit for each artifact).
- Column D: catalogue number or id number combine B and C.
- Column E and F: X and Y Cartesian coordinates recorded from the southwest corner of the unit.

- Column G: Z measurements taken from an arbitrary datum point.
- Column H: level.
- Column I: artifact category code. 300=flakes (301 is the code for flakes with irregular and discontinuous edge retouch); 400=numbers are assigned to pieces 1.5cm in length or smaller. 401-405=pieces with recognizable bulb of percussion with converging (401), parallel (402), expanding edges (403), globular (404), broken (405); 420=unidentified flake fragments; 450=pieces of shatter.
- Column J: artifact description.
- Column K: position of artifact in the ground.