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# Schötz 1-Fischerhäusern and Wauwil-Obermoos: two Late Paleolithic sites in Wauwilermoos (canton Lucerne, Switzerland)

Ebbe Nielsen

**Schötz 1-Fischerhäusern et Wauwil-Obermoos: deux sites épipaléolithiques dans le marais de Wauwil (LU, Suisse) – Résumé**

*Dans le marais de Wauwil, de nombreux sites préneolithiques sont connus: seuls quelques-uns ont été explorés.*

*Le site de Schötz-Fischerhäusern a été fouillé en 1933. La répartition des artefacts indique plusieurs occupations au cours de l'Épipaléolithique.*

*Un second site, Wauwil-Obermoos, a été partiellement fouillé en 1996. Des artefacts de l'Épipaléolithique et du Mésolithique ancien ont été découverts redéposés dans des couches de sables et de gravier.*

*Le silex utilisé pour la production lithique provient essentiellement de Lägern, une petite proportion d'Olten ou d'autres sources d'approvisionnement.*

*L'Épipaléolithique du Plateau suisse jusqu'au lac de Neuchâtel constitue un groupe culturel particulier, caractérisé, d'une part, par une forte proportion de burins et, d'autre part, par un faible pourcentage de pièces à dos.*

## Abstract

*From the bog of Wauwilermoos a large number of Preneolithic sites, of which only a few has been investigated, are known.*

*The site of Schötz-Fischerhäusern was excavated 1933. The arti-*



Fig. 1. Wauwilermoos.

*fact distribution indicates several occupations during the Late Paleolithic.*

*A second site, Wauwil-Obermoos, was 1996 partly excavated. Artifacts from the Late Paleolithic and Early Mesolithic were found redeposited in sand and gravel layers.*

*The chert used for tool production comes mainly from Lägern, a minor part from Olten or other sources.*

*The Late Paleolithic of the Swiss Plain east to the Lake Neuchâtel constitutes a special cultural group. Typical is an high percentage of burins and low percentage of backed tools.*

A research programme conducted by the Institute of Prehistory and Early History of the University of Berne in cooperation with other Institutes and the local authorities, deals with the Preneolithic settlement of Central Switzerland, i.e. the cantons of Lucerne and Zug<sup>1</sup> (fig. 1).

The area of research is situated in the central part of the Swiss Plateau. Characteristic are sandstone hills, moraines, lakes, bogs and river valleys. A larger part was covered by the glacier during the last Ice Age. According to botanical results and radiocarbon datings the Plateau was before 18000 BCcal free of ice (Winter 1993).

About a 100, and thus almost half of the presently known preneolithic sites of central Switzerland, are situated in the Wauwilermoos area, which consists of one lake and two former lakes separated by moraines (Nielsen 1992). The moraines represent the maximum extension of the würmian glacier and reaches a height of up to 37 meters above the present bog surface which is located 500 meters above sea level (Küttel 1996, 189ff).

The Paleolithic and Mesolithic sites are mainly situated on the edge between the moraines and the wet areas and on low sandy elevations in the bog, which we presume to be former beaches (fig. 2).

1. The program is supported by the cantonal archeologists of Lucerne (J. Bill) and Zug (S. Hochuli), the Swiss National Foundation for Scientific Research, the Museum of Prehistory in Zug (I. Bauer), Heimatvereinigung Wiggertal (H. Luterbach) and a private foundation (J. Schnyder)

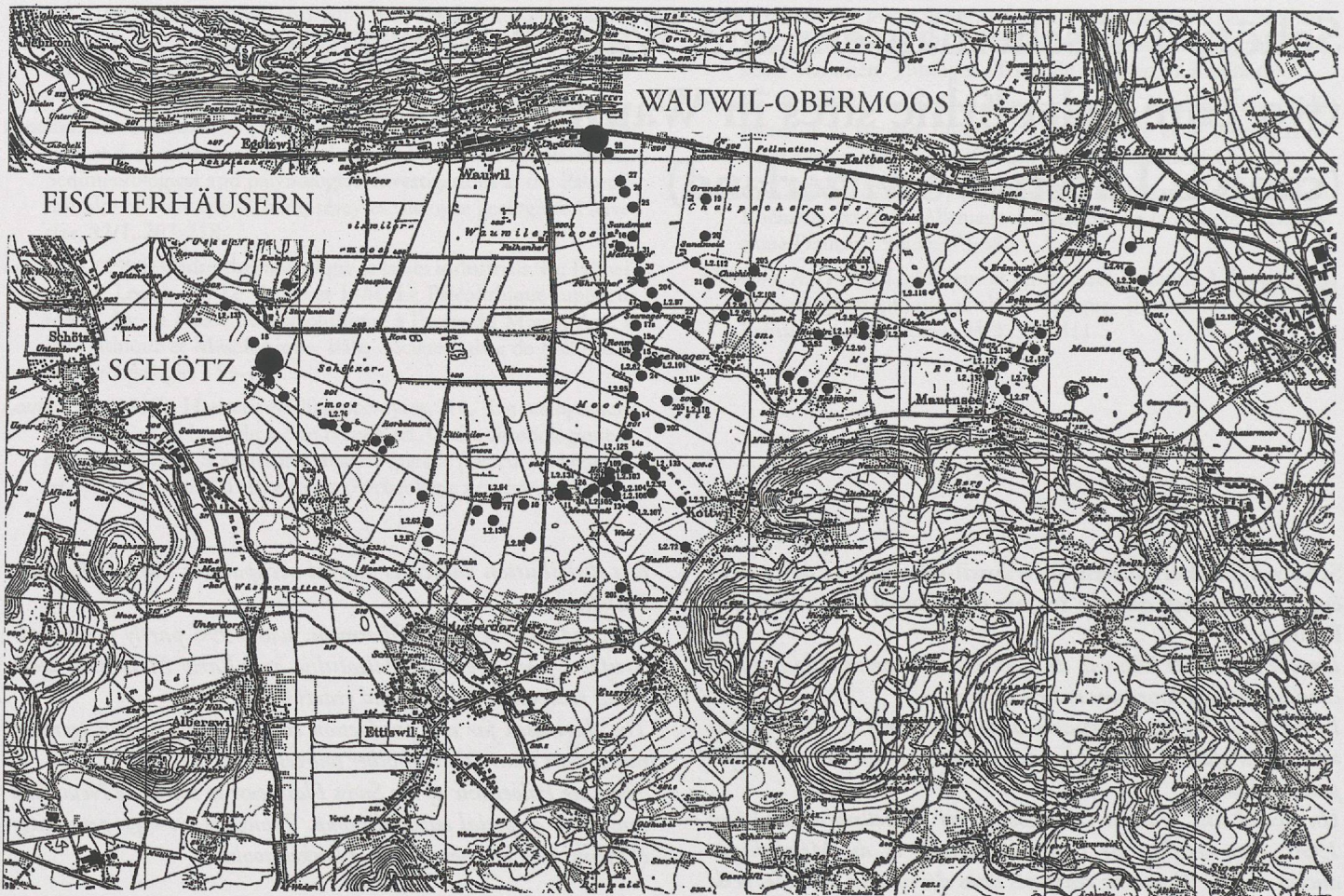


Fig. 2. Preneolithic sites in Wauwilermoos.

Before and during the two World Wars up to 5 meters of peat were removed, which left the prehistoric sites almost unprotected. Although the preneolithic settlement has been recognized for more than 70 years, only few excavations have taken place, and most sites are thus only known due to surface collections<sup>2</sup>.

Approximately 1/3 of the sites can not yet be dated by typology. These are mainly recently found sites which so far have delivered only a small number of artifacts.

The typological analysis of the archaeological collections has delivered the following *preliminary* datings:

Late Magdalenian:	7
Late Paleolithic (backed points)	51
Early Mesolithic	32
Late Mesolithic	24
Indet. Mesolithic	5
Undated	36

Most datable sites have delivered tools of more than one period. This can partly be explained by the size of the areas. Some collectors mention find distributions with a lengths of 100 meters and a width of 50 meters, a size which can only be explained by the existence of several settlements at the site.

The remarkably high number of sites containing Late Paleolithic (backed point group) artifacts are not necessarily

due to a high population density in the Lateglacial Period. The question of the duration of the different Lateglacial and Early Postglacial periods has to be taken into consideration, too. It seems that the only marked change happens at the transition from the Magdalenian to the Late Paleolithic (Nielsen, 1998).

### Schötz 1-Fischerhäusern

Schötz 1-Fischerhäusern is situated on a sandy hill on the western shore of the former lake. The site has delivered numerous flint artifacts from the late Magdalenian, the Late Paleolithic, the Mesolithic and even the Neolithic. The size of the area considered to be the same site by former collectors and archaeologists is not known. The site comprises a number of different settlements and must thus be rather large.

In 1929 a small excavation was carried out by the Swiss Prehistoric Society (fig. 3). We don't know very much about the results. The assemblage found in a 30 cm zone in a thick sand layer seems to belong to the Late Paleolithic only.

2. Apart from the two sites discussed in this article the excavation of the late Mesolithic settlement of Schötz 7-Rorbelmoos (Wyss 1979) is the only Preneolithic excavation. Excavations of Neolithic sites are numerous.



Fig. 3. Schötz-Fischerhäusern. Excavations 1929 and 1933. After J. Bill 1995.

The German archaeologist Hans Reinerth conducted a larger project in the area during the 1920es and 30es. He concentrated on the Neolithic settlements, but carried out an excavation in the site discussed here, also (Nielsen 1997).

The results of his investigation were regrettably never published. Pits with fireplaces, which were considered to be Mesolithic huts, and a number of potsherds – which a recent analysis showed to be Late Bronze Age (Bill 1995 18ff) – was attributed to the same period (fig. 4). The flint assemblage, which was supposed to be Mesolithic, can be dated to the Late Paleolithic (Azilian related) as shown below.

A plan shows a level with the six above mentioned pits, partly with fireplaces and the supposed shoreline.

According to the scarce documentation, nine areas were excavated by Reinerth's team. Artifacts from the areas IV to IX are kept in the Museum of Natural History in Lucerne. Apparently the areas I-III delivered no finds. Plans exist from only one of the areas. The plan has been given no number by Reinerth, but by comparing the plan with the artifacts recorded, it must be area VII.

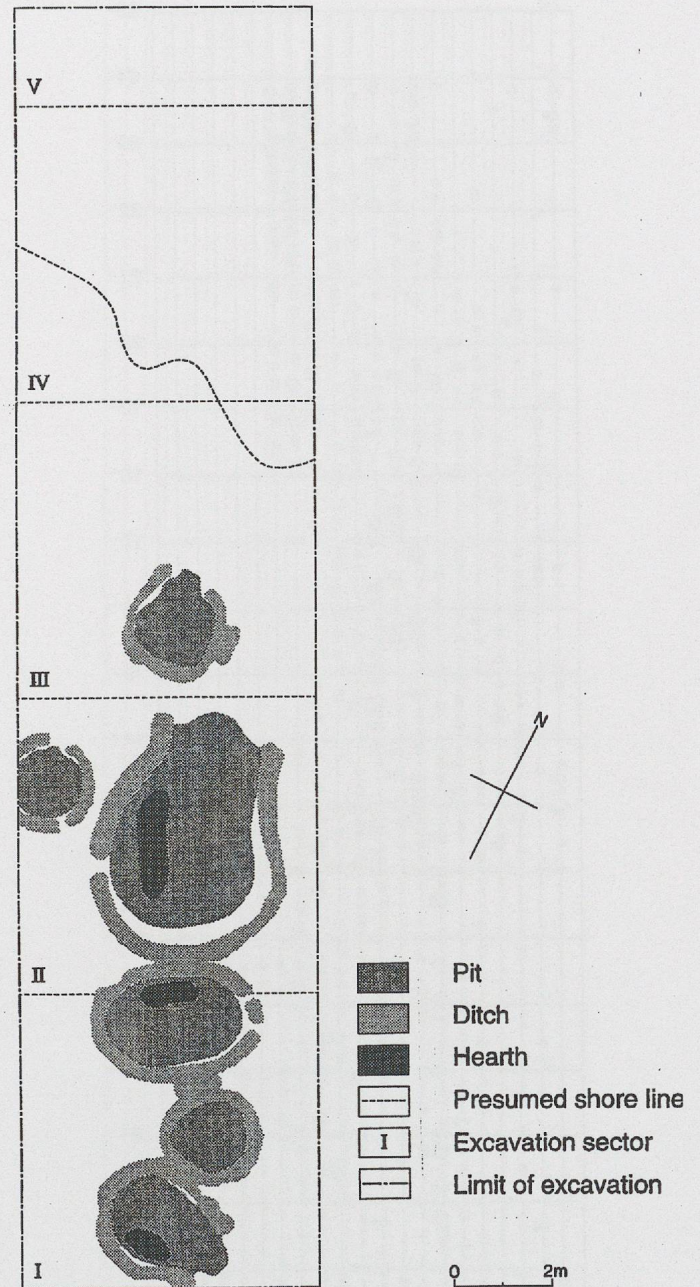


Fig. 4. Schötz-Fischerhäusern. Area VII. Excavation 1933 (Bill 1995).

The artifacts found were recorded on two axes. On one axis the letters A to V represents approximately 30 cm each. On the other axis the artifacts were recorded with a precision of 5 to 10 cm. Not all pieces could be located precisely and are thus not plotted on the plan.

The distribution of the flint artifacts are shown in the figures 5-8.

There seems to be concentrations between meter 12 and 17 and between meter 18 and 23. The lack of finds in the square P-V / 12-25 might be explained by disturbances or erosion. The shoreline which was established by Reinerth cannot be recognized in the flint distribution, and might thus be younger than the Lateglacial settlement.

It is not possible to establish concentrations of certain artifact types. We are probably thus dealing with an area which has been settled several times during the Lateglacial period.

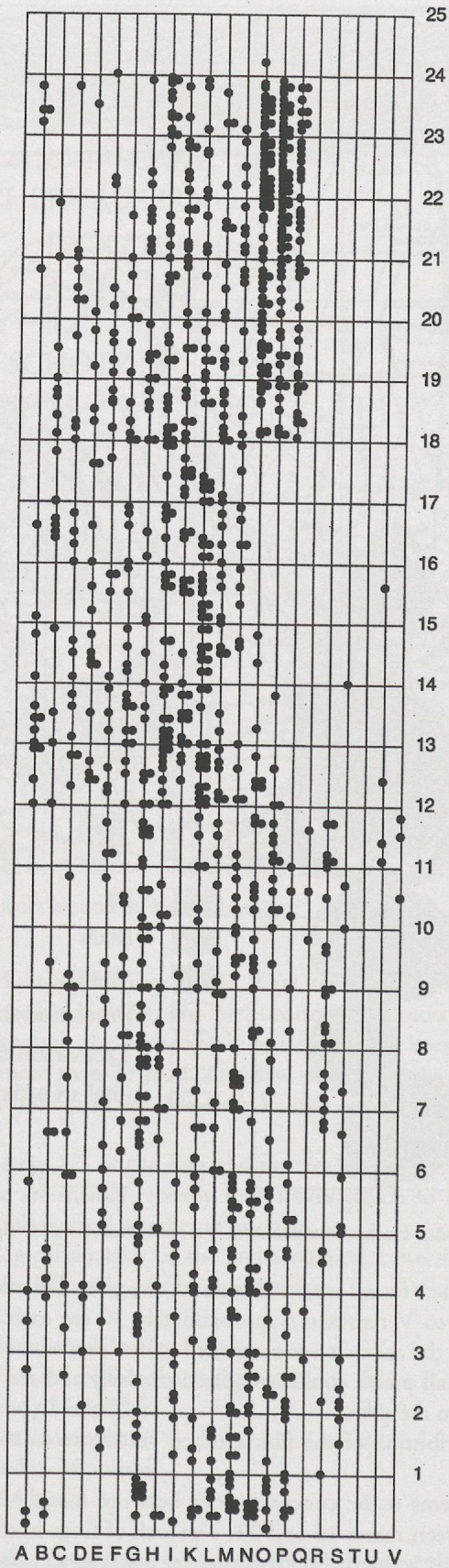


Fig. 5. Schötz-Fischerhäusern. Area VII. Excavation 1933.  
Distribution of all artifacts.

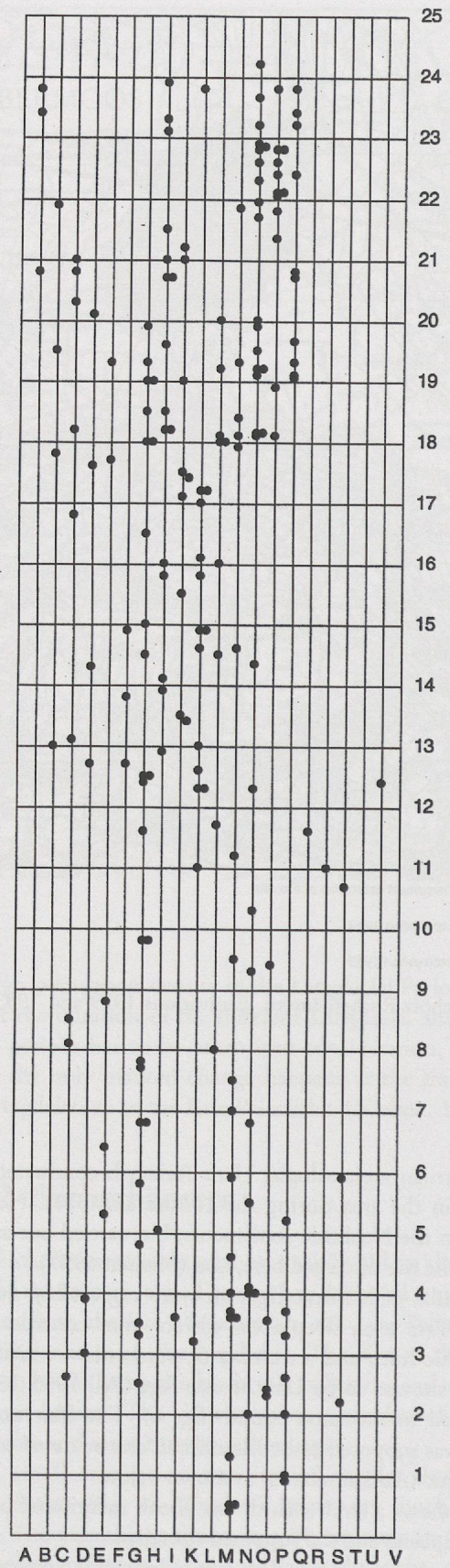


Fig. 6. Schötz-Fischerhäusern. Area VII. Excavation 1933.  
Distribution of all tools.

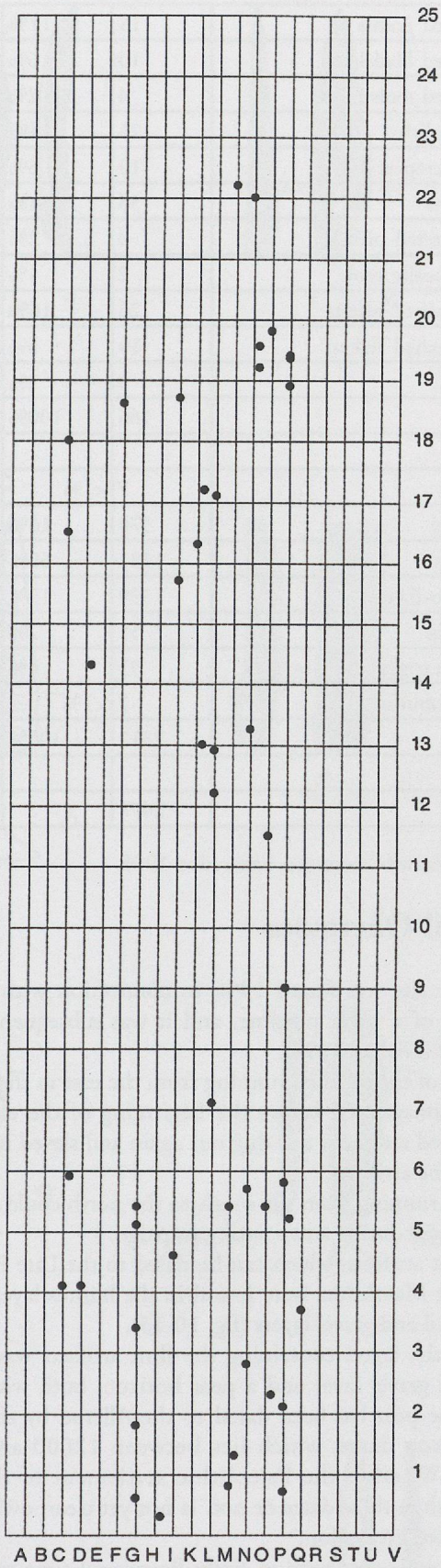


Fig. 7. Schötz-Fischerhäusern. Area VII. Excavation 1933. Distribution of cores.

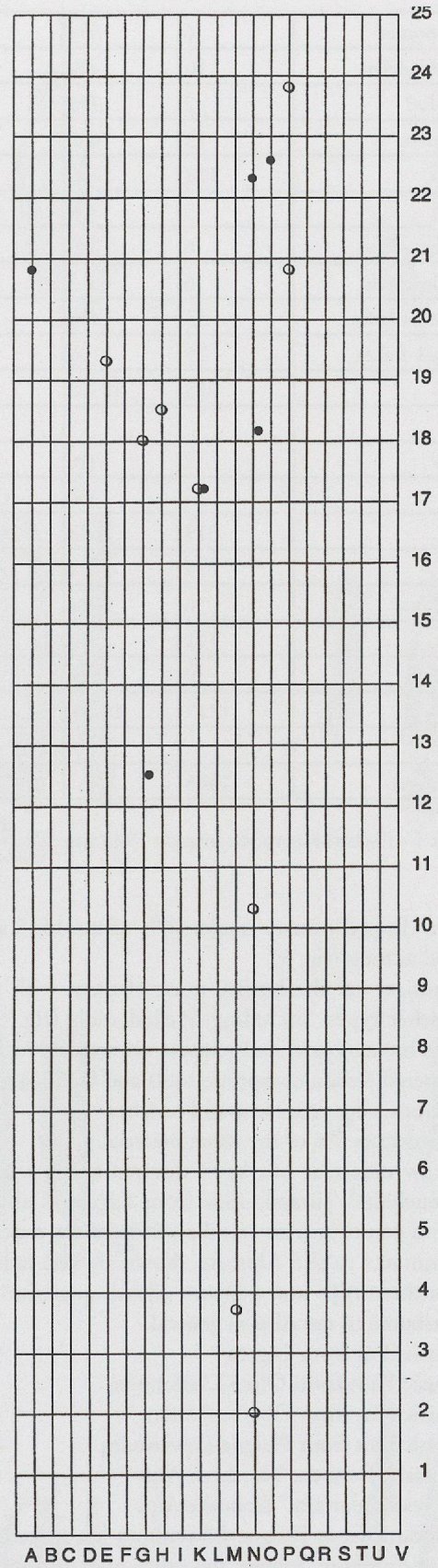


Fig. 8. Schötz-Fischerhäusern. Area VII. Excavation 1933. Distribution of backed tools.

- backed points
- backed bladelets

backed points	6	3%	
backed bladelets	10	4%	
microliths?	2	1%	
endscrapers	13	6%	
burins	122	54%	
borers	5	2%	
splintered pieces	6	3%	
composite tools	6	3%	
retouched blades	33	14%	
retouched flakes	25	11%	
	228	101%	16%
nodules	2	<1%	
cores	56	5%	
blades	319	26%	
flakes	694	57%	
micro-flakes	6	<1%	
debris	101	8%	
burin spalls	39	3%	
	1217	100%	84%
flint artifacts	1445		100%

Fig. 9. Schötz 1 - Fischerhäusern. Excavation 1933 area VII.

According to the preliminary results 16% of the 1445 artifacts are identified as tools (fig. 9).

Clearly dominant are the burins, most of them with truncation. The other types, including backed tools (fig. 9) (e.g. points with a broken back) and scrapers are scarce. Notable are borers, splintered pieces, composite tools and blades and flakes with truncations, edge retouche and notches.

The cores constitute 5% of the waste material.

The flint raw material has been determined by Jehanne Affolter, Neuchâtel<sup>3</sup>. Jurassic flint from Lägern is absolutely dominant and constitutes no less than 95% of the determined artifacts. Contacts to the Alps are shown by red radiolarite from the northern Alps and a brown „flysch-quartzite“ which can be contributed to the Alps in general.

- 146: Jurassic flint from Lägern 95%
- 102: Jurassic Flint from Olten-Chalchhofen 2%
- 311: Jurassic flint from Oberbuchsiten <1%
- 142: Jurassic flint from Pleigne-Löwenburg <1%
- Red radiolarite from the Northern Alps <1%
- Brown „Flysch quartzite“ from the Alps <1%

The flint exposure from Pleigne-Löwenburg lies approximately at 60 km bee-line from Schötz, the other ones at distances of between 20 and 45 km.

backed points	18	11%	
backed bladelets	10	6%	
backed tools indet.	4	2%	
microliths	23	14%	
endscrapers	10	6%	
burins	56	34%	
splintered pieces	4	2%	
composite tools	2	1%	
retouched blades	26	16%	
retouched flakes	10	6%	
indet.	3	2%	
	166	100%	7%
cores	7	<1%	
blades	370	16%	
flakes	1381	60%	
micro-flakes	399	17%	
debris	55	2%	
burin spalls	93	4%	
microburins	7	<1%	
	2312	100%	93%
	2478		100%

Fig. 10. Wauwil-Obermoos. Excavation 1996.

## Wauwil-Obermoos

This new site was found 1996 in connection with the construction of a water pipeline, and it was subsequently partly excavated (Nielsen 1996).

The part of the pipeline running from the east to the west was already constructed before the beginning of the excavation. The refilled sediment was dug out again and sieved in order to sort out the artifacts.

The part running from the south to the north could (roughly) be excavated during a two week campaign.

2478 flint artifacts, which can be dated to the Late Paleolithic and Early Mesolithic, were found in the humus layer and different sand and gravel layers (fig. 10-13).

Beneath the layers containing the flint artifacts was a mixed sand and gravel layer and a peat horizon, both without any finds. The peat has been dated to the Allerød by three AMS radiocarbon dates, which lies between 12000 and 11000 BCcal<sup>4</sup>. Whether the Paleolithic settlement of the site is younger than these dates or not, is not yet clear, owing to the very limited excavation.

The cultural layers were in Early Postglacial time torn up by the rising lake and subsequently redeposited (fig. 14).

3. So far only the tools were determined.

4. UrC-6062 11150 ±50 BP, UrC-6063 10900 ±60 BP, UrC-6064 11990 ±60 BP.



Fig. 11. Schötz-Fischerhäusern. 1-16 backed tools. 1-6 stray finds. 7-16 Excavation 1933. 1:1.



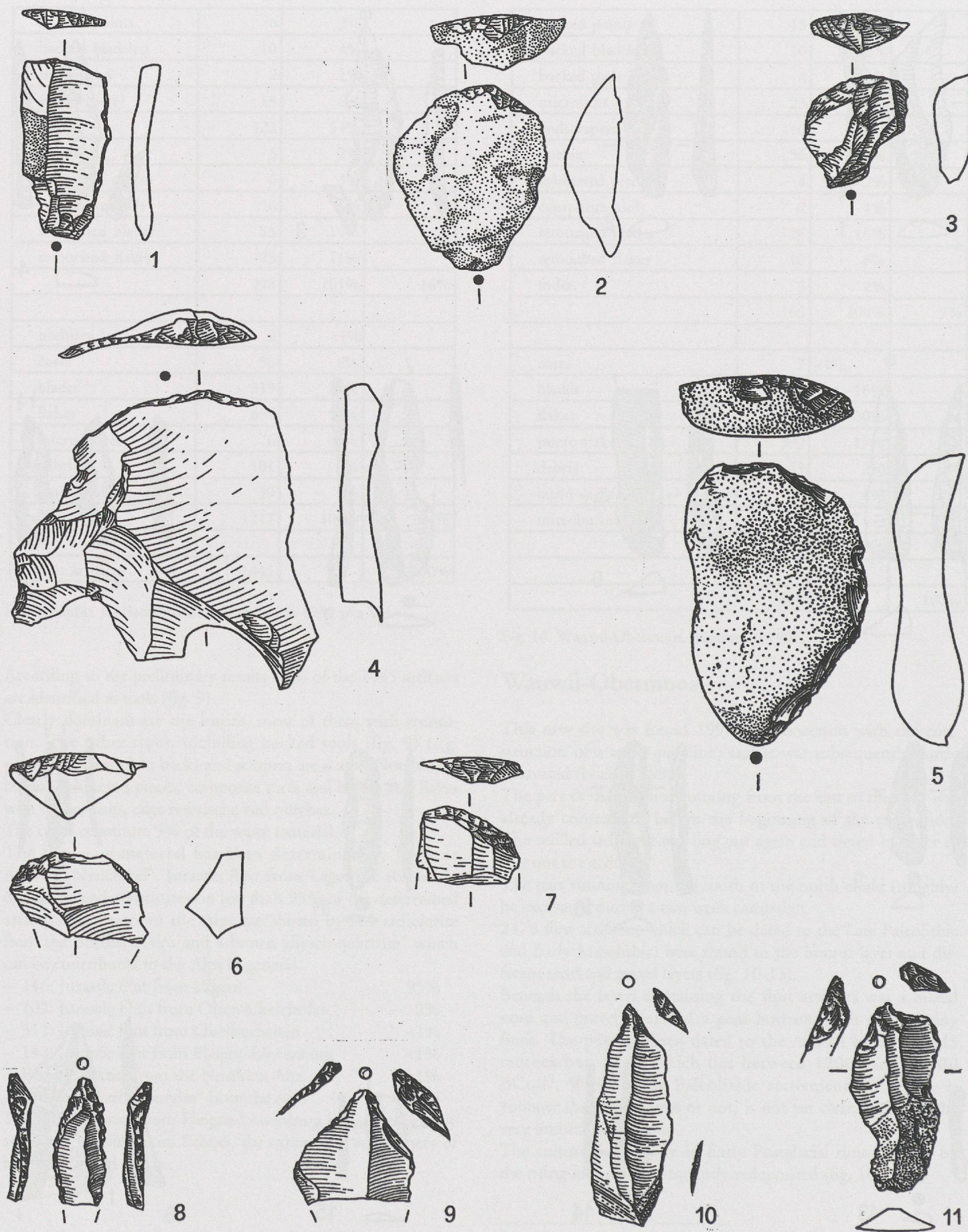


Fig. 12. Schötz-Fischerhäusern. 1-7 scrapers, 8-11 borers. 1:1. Excavation 1933.



Fig. 13. Schötz-Fischerhäusern. 1-10 burins, 11-12 composite tools, 13 splintered piece. 1:1. Excavation 1933.

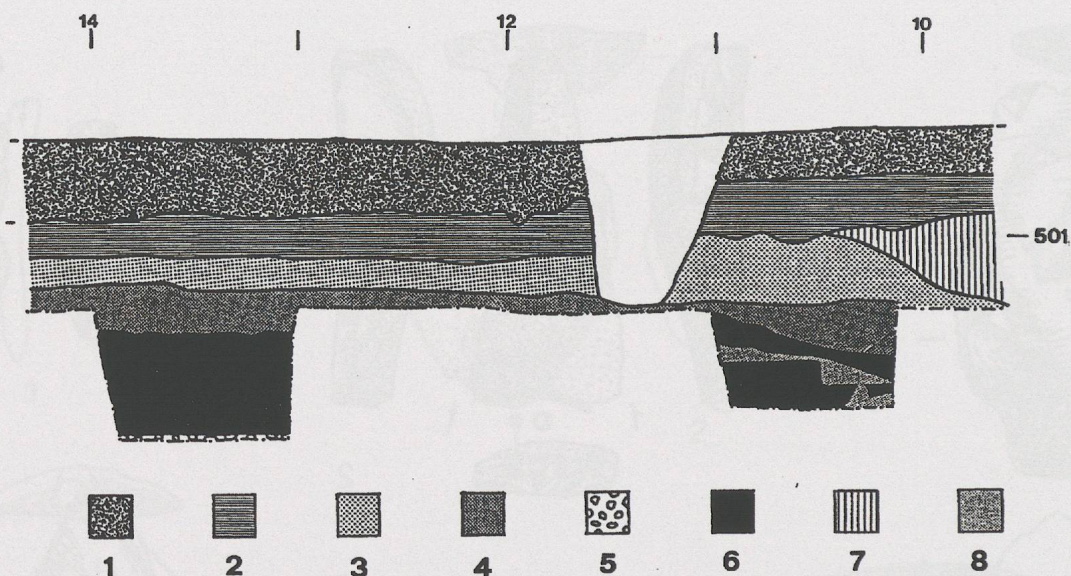


Fig. 14. Wauwile-Obermoos. Excavation 1996. Profile m 10-14.

- 1. Humus. Contains flint artifacts.
- 2. Sand and gravel mixed with humus. Contains flint artifacts.
- 3. Sand and gravel. Contains flint artifacts.
- 4. Sand and gravel. Contains few flint artifacts.
- 5. Coarse gravel/Moraine? No finds.
- 6. Peat (Allerød). No finds.
- 7. Sand and gravel. Contains flint artifacts.
- 8. Sand and gravel. No finds.

Important for the interpretation of the site is the fact that a part of the assemblage (73%) is heavily water rolled and brown patinated, while the rest shows a white or grey patination and only slight or no traces of water rolling (fig. 15-16).

It seems evident that the Paleolithic tools are water rolled and brown patinated, and that this is not the case for the Mesolithic artifacts (fig. 17-18).

The Late Paleolithic assemblage from Wauwil-Obermoos is also characterized by a dominance of burins. Most of these tools are truncated. A few dihedral burins could be magdalenian, but as other typical tools of this culture are missing, a Late Paleolithic dating seems most likely. A number of burins has a steep edge retouch, a trait which seems to be characteristic of the Late Paleolithic of the Swiss Plateau (fig. 19-20).

			n
backed points	18	100%	18
backed bladelets	9	90%	10
backed tools indet.	3	75%	4
endscrapers	6	60%	10
burins	52	93%	56
splintered pieces	2	50%	4
microliths	0	0%	23
retouched blades	19	73%	26
retouched flakes	8	80%	10
indet.	2	67%	3
	119	73%	164

Fig. 15. Wauwil-Obermoos. Excavation 1996. Water rolled tools.

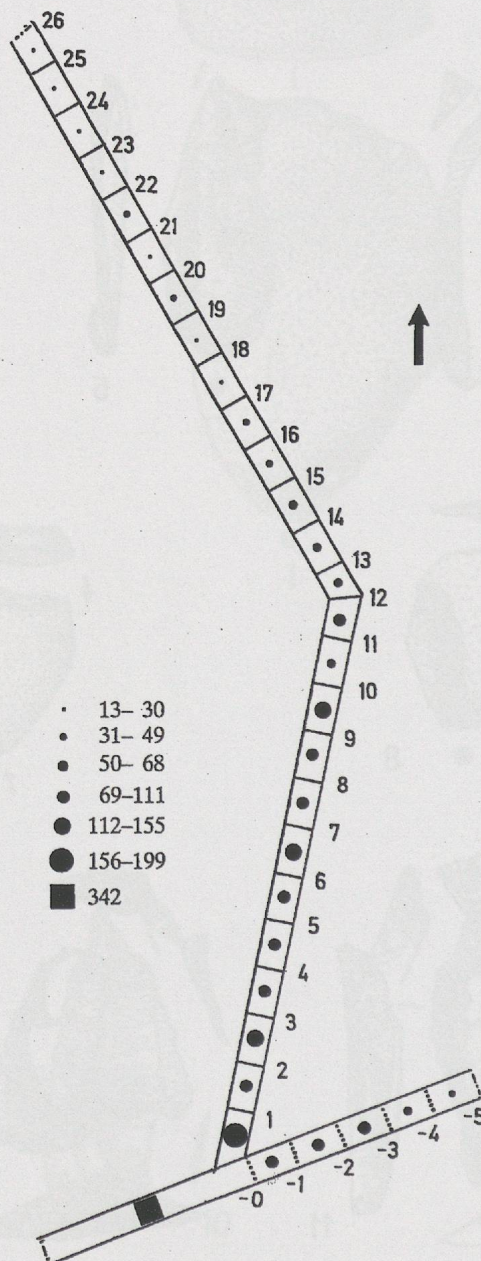


Fig. 16. Wauwil-Obermoos. Excavation 1996. Distribution of flint artifacts. number of flint artifacts.

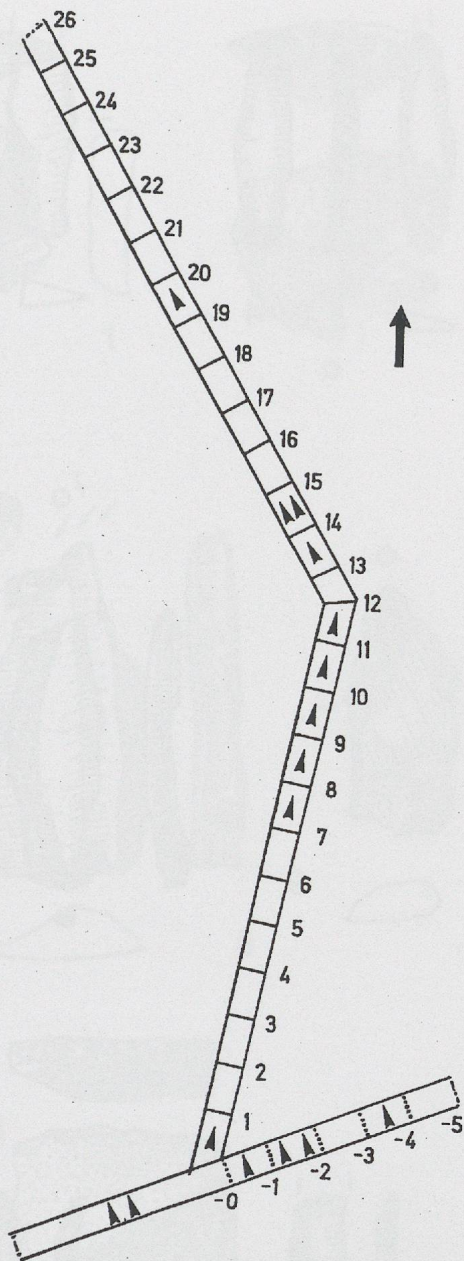


Fig. 17. Wauwil-Obermoos. Excavation 1996. Distribution of backed points.

The backed points constitute no less than 15% of the tools and thus five times the percentage of Schötz-Fischerhäusern. This is probably partly due to the fact that the sediment in Wauwil-Obermoos was sieved, which was not the case in the excavation of 1933. The points comprise symmetrical and asymmetrical pieces of very varied sizes. A single rather broad artifact might be a broken backed point, the assignment to this type is not certain, though. One backed point has subsequently been truncated and used as a burin. This trait has been recognized in other Lateglacial assemblages in Central Europe (Kind 1995, Abb. 11, 14-15). The great variety in the size of the points might indicate several settlements during the Late Paleolithic period.

The backed bladelets all show a steep retouche on one edge. Truncated pieces are not present.

Endscrapers and splintered pieces are very scarce, borers are not represented at all.

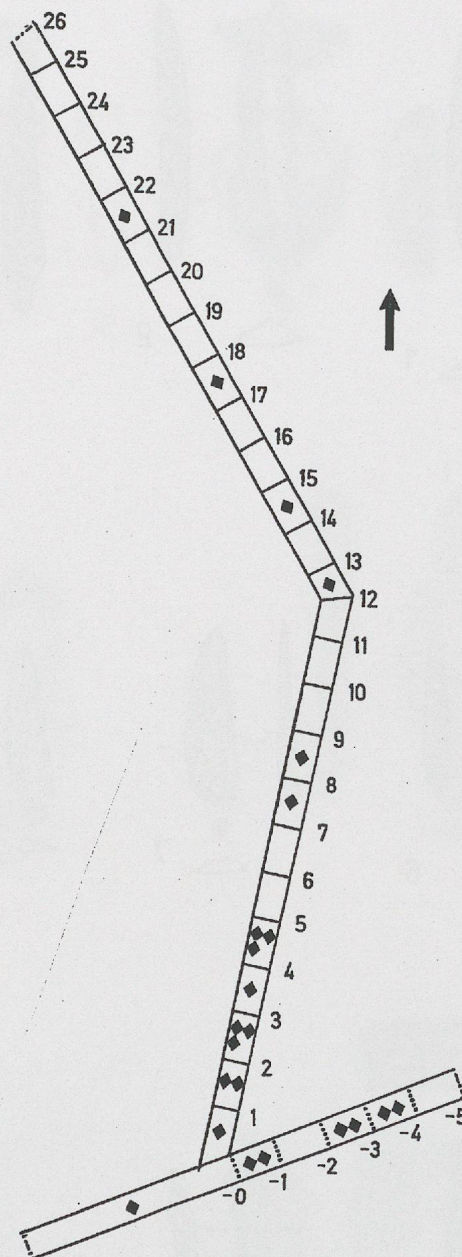


Fig. 18. Wauwil-Obermoos. Excavation 1996. Distribution of microliths.

The flint raw material can according to J. Affolter be attributed to the following types (fig. 21):

- 102: Jurassic flint from Olten-Chalchofen 37%
- 146: Jurassic flint from Lägern 62%
- Jurassic flint from Oberbuchsiten 1%

The fact that larger pieces in this material are entirely missing, seems to be due to the natural sorting by the water. The part of the site investigated by us obviously represents the area where smaller artifacts were deposited. This assertion is supported by the fact that cores constitute less than 1% of the not retouched artifacts compared to the 5% in the undisturbed site of Schötz-Fischerhäusern.

Probably the artifacts have been transported from the part of the site which lies to the west, on the former beach of the lake.

The Late Paleolithic of the central and eastern part of the Swiss Plateau (east of the Lake of Biel) seems to constitute a special



Fig. 19. Wauwil-Obermoos. 1-15 backed tools. 16-20 microliths. 1:1. Excavation 1996.



Fig. 20. Wauwil-Obermoos. 1-4 scrapers, 5-15 burins. 1:1. Excavation 1996.



Fig. 21. Origin of flint raw material. Determination and mapping: J. Affolter.

1. Lägern
2. Olten-Chalchofen
3. Oberbuchsiten
4. Pleigne-Löwenburg

cultural group within the backed point groups of the Lateglacial. Compared to the areas to the north (Jura) and to the west, the quality of the tools are rather poor. A very high percentage of burins, mostly truncated, is another typical trait of this area. Results of recent excavations in the bog of Federsee in Southern Germany indicate a close relationship between southern Germany and the Swiss Plateau in the Lateglacial period (Kind 1995).

Since well excavated and well dated assemblages are still missing, questions concerning the internal chronology and the way of life cannot be answered.

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