

# Man and environment in the Alpine Region (Palaeolithic and Mesolithic)

*Alberto Broglio*

## 1. The area and its characteristics

The southern side of the Eastern Alps and the plain immediately to the south have been used as a model to study the problem of the human population in the Alps in the Palaeolithic and Mesolithic. This area has been chosen because of the large number of known Palaeolithic and Mesolithic sites, the consequent concentration of research, and because the distribution of sites appears more significant than in other Alpine areas.

The chosen area extends from the Alpine watershed to the upper Adriatic coast including the basins of the rivers Adige, Astico, Brenta, Piave, Tagliamento and the Sarca-Garda. Along the Alpine divide there are the peaks of the Atesine Alps (3500-3700 m) and the Carnic Alps (2600-2700 m) divided by important valleys (Resia 1508 m, Brennero 1375 m, Dobbiaco 1209 m, and Camporosso 812 m). To the south there is the Ortler group (3899 m), to the west the Adamello group (3544 m) and to the east the Dolomites (with peaks of less than 3000 m). Further south the Pre-Alps (highest peaks of just over 2000 m) are intersected by deep valleys. The Pre-Alps slope down to the Veneto-Friulan plain where there are the Euganean and Berici hills.

When judging the significance of Palaeolithic sites in our area it is necessary to take into account the possibility that potential deposits have been destroyed by the transgressions of Pleistocene glaciers, especially during the Würm II pleniglaciation. The probability that the Würm glaciations had destroyed older anthropogenic deposits is indicated by the distribution of Middle Palaeolithic sites up to the limits of the areas affected by the glaciations. The most notable example seems to be Monte Baldo, where Musterian artefacts are present only in the belt between the Würm glaciation of Garda and the local glacier.

The rare faunal deposits of *Ursus Spelaeus* from the Riss/Würm interglacial or Early Würm preserved in caves (Busi di Bernardo, Grotta delle Conturines) within the areas of glaciation do not contain traces of man.

## 2. Palaeolithic and Mesolithic sites

Between 1982-1986 the following sites have been excavated:

## 2.1 *Cionstan*

A small rock shelter formed in a large mass of isolated dolomite on the Siusi Alps at an altitude of 1850 m. (Castelrotto, province of Bolzano). The site was excavated in 1986.

Remains of different periods were distributed irregularly throughout the anthropogenic deposit. Particularly interesting proved to be the earliest lithic assemblage which had different characteristics with respect to other industries in the Adige basin. It consisted of: a group of tools similar to those of the Final Epigravettian (backed points, bladelets and truncations), a group of tools attributable to the Final Epigravettian or Sauveterrian (scalene triangles and segments); a group of tools not known either in the Recent Epigravettian or in Mesolithic industries (rectilinear marginally backed bladelets). The microburin technique is not present.

Material used for the artefacts was local flint (dolomitic), flint from the Adige valley and rock crystal.

The absence of other implements indicates the site as a probable hunting encampment.

## 2.2 *Sites XV and XVI on the Siusi Alps*

These two open-air sites are found on the Cresta di Siusi on the southern limits of the Siusi Alps (Castelrotto province of Bolzano). Site XV is at an altitude of 2199 m, site XVI at over 2200 m. The sites were excavated in 1985 (LANZINGER, 1986).

A darkish layer, rich in organic material, contained within a sedimentary context in contact with the underlying rock (regolite), has yielded from the two sites a lithic assemblage consisting almost exclusively of microlithic tools (triangles, segments and double points) which point to a collocation in the Middle Sauveterrian phase of the Mesolithic sequence of the Adige basin (BROGLIO & KOZLOWSKI, 1983).

The structural disequilibrium (in comparison with contemporary sites in the valley or even mountain sites such as Frea 1) suggest that the two sites had been utilized as hunting camps.

## 2.3 *Riparo Soman*

The site consists of a large rock shelter situated on the left-hand side of the Adige valley (110 m), at about 10 m above the level of the actual river and about 1 km upstream from the Ceraino gorge (Dolcè, province of Verona). It was excavated in 1984/86 (BROGLIO and LANZINGER, 1986).

Different stratigraphic levels were identified at the base of the shelter. The lower consisted of a flood formation of the Adige. Above this there was a cryoclastic breccia with abundant anthropogenic traces in the upper levels.

Within the cryoclastic breccia there were: two lithic assemblages characterized by the grouping of backed points, backed bladelets, truncations, segments and triangles dated to the last phase of the Epigravettian; a lithic assemblage distinguished by the association of segments, triangles and double backed points, ascribed

to the middle phase of the Sauveterrian; an assemblage of trapezes of Castelno-  
vian period, an assemblage of trapezes with a fragment of pottery characteristic of  
the Early Neolithic of the Adige valley; and finally, Bronze age and historical  
artefacts.

#### 2.4 *Campon d'Avena*

The summit of Monte Avena (1450 m) situated on the Pre-Alps of Feltre,  
between the valley of Cismon and the Piave (province of Belluno), consists of a  
*plateau moulded by ancient morphology, only slightly incised by small valleys and*  
truncated by the erosion of its sides. At the head of one of these valleys (1430 m)  
excavations between 1984/87 revealed an interesting deposit (LANZINGER; *Id.*,  
1986; LANZINGER & CREMASCHI, 1987).

The lowest layer consists of «red earth» without finds. Above there are two  
layers of löss. A few artefacts dating to the Middle Palaeolithic were found in the  
lower layer (tt 15-8). A lithic assemblage dated to the Aurignacian come from the  
base of the upper deposit of löss (tt 7-5) and from the same deposit just below the  
grassy topsoil (tt 4-1) a Holocene assemblage.

«Scaglia Rossa» with the inclusion of flint nodules is found close to the  
excavation; this same flint was exploited on site for the fragmentation of cores,  
the preparation of pre-nuclei and the making of rare tools. The hypothesis that  
the Aurignacian occupation of the site was linked to the exploitation of flint is  
suggested by the frequency of different categories of artefacts. The site of Monte  
Avena is one of the highest altitude Aurignacian sites in Europe.

#### 2.5 *Grotta di Paina*

This cave site is situated on the eastern slopes of the Colli Berici at 335 m  
(Mossano, province of Vicenza). This site was the subject of new research between  
1981-87, carrying on from the initial excavation (LEONARDI *et al.*, 1962); the «Sala  
Terminale», the most internal part of the cave, and the «Grottina Azzurra», a side  
niche, were investigated.

The stratigraphic sequence in the Grottina Azzurra proved to be exception-  
ally interesting (BARTOLOMEI *et al.*, 1985). The lowest stratigraphic level was  
colluvial (tt. 10-12) and yielded a few lithic artefacts of uncertain date. The pollen  
analysis and that of the microfauna suggest a steppe-prairie environment. The  
same analyses on the subsequent layer (t. 9) indicated a more emphatic steppe  
environment, due to probable thermoclastic change. The few artefacts were  
attributed to the Aurignacian. There followed a sediment (t. 7) formed by diverse  
factors, whose pollen spectrum was identical to the layer below, but whose lithic  
assemblage was Gravettian. The analyses of the next layer, a löss deposit,  
suggested a periglacial steppe environment, and the lithic assemblage suggests an  
early phase («a crans») of the Epigravettian. Above this, a layer (t. 5) character-  
ized by a renewal of cryoclastic activity, revealed another steppe environment.

A successive phase of the Epigravettian was indicated by the lithic artefacts.  
Lastly, layer 4, with a high accumulation of organic material, contained Mesolit-  
hic, Chalcolithic and historic finds. Although hydric movement and the presence

of moles had highly disturbed the deposits in the «Sala Terminale», the sequence seemed to repeat that of the Grotta Azzurrina.

## 2.6 *Grotta di San Bernardino*

Another site on the eastern side of the Berici hills at an altitude of 150 m (Mossano, province of Vicenza). After the initial research (LEONARDI and BROGLIO, 1962) the excavation resumed in 1986. The upper stratigraphic sequence (Complex B) has revealed a Middle Palaeolithic, which differs from others known in the Veneto region.

Other than the excavations, systematic prospection has been continuing in, for example, the hill zone between the Lower Piave valley and the valley of Brenta, on the Siusi Alps, in Val Badia and on the Alpine watershed.

## 3. Other research

### 3.1 *The Mesolithic sequence of the Adige basin*

The lengthy Mesolithic series from the Romagnano III rock shelter, and other Mesolithic series from the Trento basin, radiocarbon dated from 7500-4500 B.P. (ALESSIO *et. al.*) have made it possible to establish a comparative sequence for the whole Adige basin. Modifications in the processes of flint knapping (LANZINGER, 1985) and in the typology of the lithic industries (BROGLIO & KOZLOWSKI, 1983) have been evidenced. Differences between the Sauveterrian and the Castelnovian complexes have been evidenced by cluster analysis of the characteristics of their industries, and also within the Sauveterrian complex it has been found that it is especially the microlithic tool assemblages that serve as chronological indicators.

Isolated finds or those not dateable by other means from the Adige basin have been chronologically placed using the above sequences. It has been shown that the Mesolithic sequence of the Adige basin can also be used as a model for finds from other areas (BROGLIO, 1983).

### 3.2 *The Mesolithic sequence of the Dolomites*

The Mesolithic site of Plan de Frea (BROGLIO, CORAI & LUNZ, 1983) is situated at 1930 m in the upper Val Gardena. It consists of three shelters, formed by an isolated mass, that were inhabited in the Mesolithic Age and subsequently in the Bronze Age. The Mesolithic industries correspond to a middle phase of the Sauveterrian (Freia I) and to an initial phase of the Castelnovian (Freia IV and Freia III). They are similar in structure to contemporary sites in the Trento basin. The material used suggests an extension of the logistical system of the group (or groups) that inhabited the site; apart from local flint (present in low degree, 15-20%), rock crystals from the valleys to the north of the Pusteria were exploited (0.1-0.3%) and flint from the Adige valley was largely prevalent.

The structural analogy with the industries from the valley floor (in contrast with the previously mentioned sites XV and XVI of the Siusi Alps) suggest that similar activities took place, in both types of sites despite the environmental differences.

### 3.3 *Mesolithic sites from the Veneto plain*

Four Mesolithic sites have been identified near to the lagoon of Venice, from four different concentrations of artefacts (BROGLIO, FAVERO & MARSALE, in press). They consist of two separate periods preceding the creation of the Venetian lagoon (two Sauveterrian assemblages dating to the Boreal, and two Castelnovian assemblages dating to the Atlantic). The flint utilized at the four sites originates from outcrops of the Pre-Alps and from gravelly flood levels of torrents from the upper plain.

The research of the Mesolithic site of Pagnano d'Asolo (Castelnovian), an open-air hill site, is being prepared for publication.

### 3.4 *Other researches*

The general problems of climatic conditions, of changes in culture and ways of life between the end of the Upper Palaeolithic and the start of the Mesolithic have been treated both in regional terms (BROGLIO, 1983; *id.* 1985) and in the sphere of the Italian peninsula (BROGLIO, 1984). The first part of an interdisciplinary study of the results of the earlier excavations of the Neolithic site of Fimon-Molino Casarotto has been published (BARFIELD and BROGLIO *eds.*, 1986).

A synthetic work has been published on the Palaeolithic and Mesolithic in the Veneto region (BROGLIO *ed.*, 1984).

Lastly, a volume dedicated to the Palaeolithic and Mesolithic has attempted a synthesis of the present knowledge of hunter-gatherers, their culture and environment (BROGLIO and KOZLOWSKI, 1987).

## 4. Conclusions

The scarce finds of the Lower Palaeolithic in our area come from a modest number of open-air sites in the Lessinian hills (the upper limit of the finds are at 800 m). According to a recent review, the lithic assemblages are of Mindel-Rissian date (PERETTO, 1984).

In contrast the Middle Palaeolithic finds are relatively numerous and come from sites in the Pre-Alps and the Euganean and Berici hills. The most important sites are rock shelters or caves, with continuous reoccupations, at an altitude of 100-300 m. In some of these sites the presence of man is known even during the Würm I pleniglaciation (CREMASCHI, 1984). The highest sites are distributed in the mountains of medium height (M. Baldo, M. Bondone, M. Lessini, Altipiano di Asiago, M. Avena); however their ages are uncertain although for M. Avena LANZINGER and CREMASCHI (1987) have proposed a Würm interpleniglacial.

In contrast to previous technological change, the emphatic typological differences between the industries of the Lower Palaeolithic and the Mesolithic have consented a more precise chronological dating of sites by means of lithic assemblages (BROGLIO, 1983); in consequence it is possible to identify the distribution of determinate phases and to advance hypotheses on socio-cultural and logistical systems in relation to environmental conditions. Because of this our research is particularly concentrated on the Lower Palaeolithic and Mesolithic sites.

The Aurignacian finds of Grotta di Paina and of Monte Avena, previously described, belong to an early phase of the Lower Palaeolithic. At the moment it is only possible to date the sites to the Würm interpleniglacial phase and not more precisely. Of great interest is the site of Campon di Monte Avena, both for its altitude (1430 m), one of the highest Aurignacian sites in Europe, and because of the exploitation of an outcrop of flint on the site itself.

This mountain site demonstrates clearly that the climatic conditions, during the Würm interpleniglacial, allowed the frequentation by man of sites of a certain altitude.

Grotta di Paina, with its Gravettian and Epigravettian assemblages, belongs to the middle phase of the Lower Palaeolithic. This cave and the «Grotta del Broion», also situated on the Berici hills, are the only known sites occupied by man during the Würm II pleniglacial. The pedological-sedimentary, pollen and faunal analyses of the sequence of Grottina Azzurra have indicated an arid steppe climate. In this period the Würm glaciations arrived at their maximum expansion; the moraines of Frankfurt and Brandenburg in Central Europe (23,000-18,000 b.p.), the Würm moraines in the Alps and in our region the formation of the morainic hills on the Veneto plain created by the glaciers of the valleys of Garda, the Piave and the Tagliamento.

In the latest phase of the Lower Palaeolithic, corresponding to the Late Würm glaciation (15,000-10,000 B.P.), the Pre-Alps territory is once again inhabited by hunter groups. The most important site, repeatedly occupied from Dryas I until the Alleröd oscillation, is a large rock shelter on the floor of a Pre-Alpine valley (Riparo Tagliente in the Valpantena); its lithic sequence serves as a model for the other Epigravettian finds of the region (BISI *et. al.*, 1983).

During the Alleröd interstadial (11,700-10,900 B.P.) and the successive cold arid period (Dryas III, 10,900-10,200-9,900 B.P.), sites are also known in the mountain area at an altitude of 1100-1600 m. The mountain sites are found on the higher alpine slopes. We can hypothesize them as being secondary seasonal camps for hunting animals that had migrated from the plain and the Pre-Alpine valleys after the diffusion of broadleaved woodlands there. With no doubt one of these animals was the ibex, which was the main food resource for Epigravettian hunters up until the Alleröd interphase. Recent research in the «Grotta di Ernesto», on the Asiago plateau, have confirmed this hypothesis.

The Pre-Boreal and Boreal Mesolithic sites have a different distribution. The most important sites, frequented during different periods, are situated on the valley floor. The Adige valley had, it seems, a privileged position probably due to the presence of the basin of Trento, formed after the withdrawal of the Würm glaciation. A consistent number of mountain sites are also known at an altitude of 1800-2300 m. The sites are either rock shelters or open-air, with a preference for

passes or for the shores of small lakes. They have been interpreted partly as secondary seasonal camps, partly as hunting encampments.

The use of diverse materials by the Mesolithic hunters of the mountain sites indicates both a thorough knowledge of the area and a logistical system capable of exploiting it.

The sites with Castelnovian industries (Recent Mesolithic) of Atlantic age differ areally from those discussed above. In the Adige valley, there is a continuation of intense frequentation of the rock shelters, witnessed by the richness of the anthropogenic deposits. In the mountain zones, in the Dolomites, the finds of trapeze industries are scarce, or otherwise in the industries present, the trapezes represent only a small percentage of the tools (Frea III 2.4%, Frea IV 8.9%). The scarcity of trapezoidal tools can be interpreted as a sign of the sites' antiquity; in fact in the Castelnovian sequence one notes the progressive diffusion of this group of tools replacing the segments, triangles and characteristics of the Sauveterrian. We can therefore affirm that the use of seasonal hunting camps in the mountain areas was diminishing rapidly by the beginning of the Atlantic and afterwards it ceased completely. This affirmation is strengthened by the complete absence of Early Neolithic sites on the mountain slopes whereas on the Adige valley floor there is continued use of the same rock shelters inhabited in the Castelnovian period.

The Castelnovian Mesolithic sites are relatively numerous along the Pre-Alpine hill belt, both rock shelters and open-air sites, and on the Veneto plain in morphologically different situations. One can verify that during the Atlantic the logistical capabilities expanded to cover the territory of the Veneto plain.

This extension in the hunting area, between the end of the late Würm glaciation and the Atlantic, was determined by climatic changes. Up until the Younger Dryas there prevailed a steppe climate, sparsely wooded, populated by ibex that formed the major alimentary resource for Epigravettian hunters. The Alleröd oscillation created a more temperate and humid climate which favoured the growth of mixed oak woodland and fauna linked to that environment (red deer, roe deer and wild boar) which substituted the ibex as the main food source. The ibex was forced to migrate towards the mountains where hunters set up seasonal camps to hunt them. The practice of hunting on the mountain sites of medium altitude led to a widening of their logistical systems or at least to a modification of them.

We have seen that the Sauveterrian hunters of the Pre-Boreal and of the Boreal were settled mostly within the Alpine valleys, with a preference for humid zones. Around the sites in the Trento basin in the Pre-Boreal period, the ibex still had a prominent place amongst the game but they were to be progressively substituted by red and roe deer. Also in this case the ibex migrated towards the open mountain slopes, over 1800 m, where the Mesolithic hunters set up seasonal camps to hunt them. Similarly this signified an expansion of the logistical systems to include the mountain area as far as the Alpine watershed.

The warmer, more humid climatic conditions of the Atlantic led to the diffusion of broad-leaved woodlands in the plain, in all probability leading to more favourable hunting conditions. In this period, we have observed a diffusion of sites in the Pre-Alpine hill belt and on the plain. In the Adige valley there is a

continuity of important sites, especially rock shelters, whereas the mountain sites end. One can postulate whether the end of hunting on the mountain slopes in this period is due to a modification in their conditions, in the sense that an increase in the upper level of the forest line would have seriously reduced the open territory (which is probable if taken into account the morphology of the Dolomites), or if simply the hunting zones had moved to the plain.

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