HUMAN SETTLEMENT AND ENVIRONMENTAL EXPLOITATION OF VALCAMONICA-VALTROMPIA WATERSHED FROM THE BEGINNING OF THE HOLOCENE TO THE MIDDLE AGES

Paolo $BIAGI^1\,$ and $\,ELisabetta\,\,STARNINI^2\,$

Parole chiave - Alpi centrali, insediamento umano, territorio montano.

Riassunto - Il lavoro presenta una sintesi dei dati a disposizione riguardanti la frequentazione umana più antica delle alte quote alpine, con particolare riferimento allo spartiacque Valcamonica-Valtrompia. Le ricerche condotte negli ultimi 30 anni hanno messo in luce numerose testimonianze del passaggio dell'uomo a partire dalla fine del Paleolitico Superiore. Un maggior numero di frequentazioni è documentato a partire dall'inizio dell'Olocene, e testimonia l'attività venatoria stagionale da parte di gruppi di cacciatori-raccoglitori mesolitici, non appena le praterie alpine si erano liberate dalla coltre glaciale. Le alte quote vennero frequentate nuovamente a partire dall'età del Bronzo, come indicato principalmente da rinvenimenti di punte di freccia anche su sentieri attualmente ancora in uso, oltre che da una serie di datazioni radiocarboniche. Frequentazioni più recenti sono attestate per l'età del Ferro e il periodo Alto Medievale

PREFACE

In the last decades, the interest in mountain archaeology has greatly improved especially in the Alps, but also in the Pyrenees, the Pindos range of Western Macedonia, the Rhodopes, the Carpathians and the Caucasus, thanks to a series of projects whose scope is the study of the archaeology of human impact and high-altitude anthropogenic pressure (STIRN, 2014). Given the importance of the mountain ecosystem considered as a "marginal" environment exploited by man since the Palaeolithic, and the relevance that high altitude archaeology assumed in the archaeological dialogue, a research programme aimed at the study of the peopling of the Valcamonica-Valtrompia-Valsabbia watershed was promoted in the 1990s by Museo Civico di Scienze Naturali di Brescia. It resulted in the organization of an international congress held in 1993, and the publication of the proceedings as a monograph of the museum's journal, Natura Bresciana (BIAGI & NANDRIS, 1994).

The scope of this paper is to present and discuss some

Key words - Central Alps, human settlement, highland zone.

Abstract - This paper discusses some aspects of the highaltitude peopling of Valcamonica-Valtrompia watershed within the general pattern of the prehistoric and historic exploitation of the Central Alpine arc of northern Italy. Research carried out during the last 30 years has shown extensive evidence of human occupation starting from the end of the Late Palaeolithic. More information is available for the beginning of the Holocene, witnessing the ascent of the watershed by groups of Mesolithic hunter-gatherers as soon as the alpine pastures had been freed from the ice sheet. The highland zone was exploited again during the Bronze Age, as shown by the recovery of flint arrowheads from present-day footpaths, and a good set of radiocarbon dates. More recent, though sporadic occupations are documented during the Iron Age and the early Medieval period.

aspects of the earliest peopling of Valcamonica and Valtrompia within the general pattern of the prehistoric and historic exploitation of a segment of the Central Alpine arc of northern Italy. More precisely this paper considers some aspects of the highland zone exploitation and human settling along the Valcamonica-Valtrompia watershed. During the last 30 years our knowledge of the archaeology of this region has greatly improved thanks to many discoveries made mainly by local amateurs, and excavations carried out by institutional programmes of research (FRANCO, 2011). The results favoured the interpretation of the processes that led prehistoric and historic communities to settle and exploit this part of the alpine arc (BIAGI, 1992; 1998; BIAGI et al., 1994a; 1994b). Our view of the problem drastically changed during the 1970s, following the discoveries of new localities in the Trentino and the eastern Alps (BAGOLINI & DALMERI, 1992; BROGLIO, 1992; GRIMALDI, 2006; BERTOLA et al., 2007). The excavations carried out in the aforementioned region showed for the first time that groups of Mesolithic

hunter-gatherers seasonally settled around small lakes

¹Ca' Foscari University Venice. Department of Asian and North African Studies, Ca' Cappello, San Polo 2035, I-30125 Venezia - 🖂 pavelius@unive.it

² Turin University. School of Humanistic Sciences, Department of Historical Studies, Via Sant'Ottavio 20, I-10124 Torino

Fig. 1 - Distribution map of the most important Mesolithic sites mentioned in the text: Provaglio d'Iseo (1), Cividate Camuno (2), Foppe di Nadro (3), Cascina Valmaione (4), Pozza sotto lo Splaza (5), Stanga di Bassinale (6), Malga Rondeneto (7), St. Glisente (8), Laghetti del Crestoso (9), Laghi di Ravenola (10), Lago di Vaia (11) (drawing by P. Biagi).

of glacial origin located at ca. 2000 m. altitude. The new evidence contrasted with the general view of that time, according to which man had never inhabited the northeastern Alpine chain before the Iron and Roman periods (RAVAGNI, 1930).

The problems related with the mountain peopling have been recently reconsidered, especially as regards the northwestern Alpine arc (FEDELE, 1978; 1999; WICK, 1994), the Adige Valley and northeastern Italy in general (BROGLIO & LANZINGER, 1990; GRIMALDI, 2005), namely those regions where high altitude archaeology has greatly developed after the 1970s. A seminal volume on the Neolithic and Chalcolithic periods in central Valcamonica was published some 15 years ago, describing the results of the excavations carried out at Castello di Breno (FEDELE, 2008). More recent research has been centred on the Chalcolithic settlement and stele-statues that abound in the valley bottom (FEDELE, 2012).

THE LAST HUNTER-GATHERERS

The excavations carried out at Cividate Camuno, Via Palazzo, along the left (eastern) bank of the Oglio River, have brought to light the most important long sequence so far discovered in Valcamonica (POGGIANI-KELLER, 1988-1989; BAGLIONI & MARTINI, 2009). The lowermost layer has been attributed to the Late Epigravettian, radiocarbon-dated to 13,805±440 BP (GX-17273). This result suggests that the retreat of the glacier from the valley bottom took place a few thousand years before than previously suggested (HOROWITZ, 1975; BERTOLDI & CONSOLINI, 1989). It also shows that the valley bottom was already inhabitable a few millennia before the beginning of the Holocene.

The above data are supported by the results retrieved from a few pollen cores extracted from middle and high altitude peat basins. Their radiocarbon dating provides us with further information on the deglaciation of the valley bottom, confirming once again that it took place during the Tardiglacial (BARONI *et al.*, 1996).

At present only two Epigravettian valley bottom sites are known from Valcamonica: Cividate Camuno (Fig. 1, n. 2), and Castello di Breno. Just a few flint microbladelets and flakelets have been recovered from the latter site (FEDELE, 1988: 55). A third case is represented by a probable Late Palaeolithic horse engraved on a rock discovered at Luine (MARTINI et al., 2009). Apart from the above valley bottom, we do not have any evidence for Late Palaeolithic high altitude settlement. However, we know that the alpine high altitude grasslands were already open around 12,275 \pm 115 BP at Passo del Tonale (BARONI *et al.*, 1996: 11) and, roughly in the same period, Col di Val Bighera (2087 m) (GEHRIG, 1986: 118).

The exploitation of the high altitude alpine open landscapes that surround Valcamonica started at the beginning of the Holocene. The earliest Mesolithic sites excavated near Cascina Valmaione (1778 m) (Fig. 1, n. 4; Fig. 2) have been attributed to the Preboreal Sauveterrian culture, according to the typology of the chipped stone assemblages, characterised by hypermicrolithic tools among which are isosceles triangles obtained by microburin technique. Valmaione 2 has been dated to 9630 \pm 100 BP (GrN-20890) and 9410 \pm 80 BP (GrN-20093) (BIAGI, 1997).

In contrast the valley bottom did not yield any evidence of Preboreal occupation. An Early Mesolithic Sauveterrian, Boreal site is known from the aforementioned Cividate Camuno sequence. The layer overlying the Late Epigravettian horizon has been dated to 8820±112 BP (GX-18843) (POGGIANI-KELLER, 1988-1989). A small, though very important Mesolithic camp of this period has been excavated at Malga Rondeneto (1780 m) (Fig. 1, n. 7). It yielded just a few characteristic lithic implements produced on the spot, among which are microlithic scalene triangles obtained by microburin technique. The site was settled during a brief period of the summer as shown by the recovery of a few charred *Butrychium lunaria* seeds (BIAGI et al., 1994b: 137). Spruce and

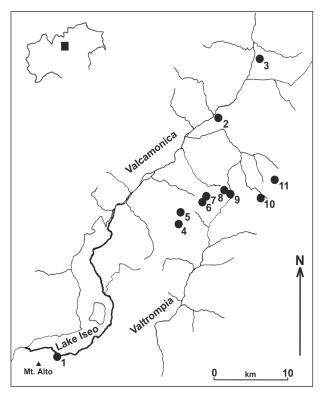




Fig. 2 - Location of the saddle above Cascina Valmaione where the Mesolithic sites are located. Valmaione 1 (black dot) and Valmaione 2 (white dot) (photograph by P. Biagi).

larch charcoals from the small fireplace recovered during the excavation yielded the date of 8880±150 BP (GrN-19590). The ephemeral, seasonal Boreal camp was located at the ecotonal belt between the upper tree line and the alpine open landscape (Fig. 3). Just south of the camp, an important sequence was found in 1990, from which a well-dated peat pollen sequence was recovered. Just below it, sediments showing the presence of a small basin were radiocarbon dated to the end of the glacial period (10,560±120 BP: GrN-19589). Peat started to accumulate above it around the end of the ninth millennium BP (8170±80 BP: GrN-19813) (Fig. 4). The Mesolithic camp was settled a few centuries before, most probably during a period of climatic dryness that took place at the beginning of the Boreal (SCAIFE & BIAGI, 1994).

Three more sites of this period have been discovered at Cascina Valmaione, on the terrace facing the upper Lake Ravenola (1957 m)(GrN-26800: 8160 ± 100 and GrA-59653: 8725 ± 40 BP from the same hearth) (Fig. 1, n. 10), and along the northern shore of Lake Vaia at the upper edge of Valsabbia, at 1915 m. of altitude (GrA-48363: 8285 ± 45 BP) (Fig. 1, n. 11).

Late Mesolithic sites attributed to the Atlantic are known from both valley bottom and high altitudes. The most important valley bottom site is located along the northern slope of the innermost morainic cordon of Lake Iseo (Fig. 1, n. 1), facing the present-day peat bog called Lametta (BIAGI, 1976). The site was closely related to the exploitation of the rich, good quality flint sources of Mt. Alto, ca. 5 km to the west. A small chipped stone assemblage of this period comes from Foppe di Nadro rock-shelter 2, in middle Valcamonica (BIAGI, 1997) (Fig. 1, n. 3; Fig. 5).

The surveys carried out in the 1990s have shown that Late Mesolithic Castelnovian sites occur also at some 2000 m of altitude (Fig. 6). So far the only excavated one is Laghetti del Crestoso (BARONI & BIAGI, 1997) (Fig. 1, n. 9). Three research seasons have yielded evidence of a complex Late Mesolithic, Castelnovian seasonal camp that was settled in two different periods of the Atlantic period. The site, located close to the northern shore of the lower lake, consists of many habitation structures among which are pits, postholes and fireplaces (Fig. 7). Two sets of dates from Picea/Larix charcoals were obtained from different features. They show that the site was settled first at the beginning of the Atlantic (GrN-21889: 7870±50 and GrN-21889: 7850±80 BP), and then some 1000 years later (GrN-18091: 6870±70 and HAR-8871: 6790±120 BP). The chipped stone assemblage consists of two main types of trapezoidal arrowheads produced by microburin technique. Most of the implements were manufactured on the spot utilizing Mt. Alto flint, whose outcrops are located some 1 day's walk from the site. The occurrence of cores, fabricators, primary, debitage and waste flakes and microburins confirms this impression. According to the results of the microwear analysis some kind of meat



Fig. 3 - Location of the Mesolithic Boreal site of Malga Rondeneto (white dot) from Bassinale (photograph by P. Biagi).



Fig. 4 - Malga Rondeneto: the peat sequence that started to accumulate during the Boreal period above whitish, laminated deposits indicating a Late Glacial lake basin (photograph by P. Biagi).



Fig. 5 - Foppe di Nadro rock-shelter 2, located along the left (eastern) side of Middle Valcamonica (photograph by P. Biagi).

processing and woodwork took place within the site. The general pattern of Mesolithic peopling of the watershed Valcamonica-Valtrompia is somewhat different from that of other Alpine regions of northern Italy, among which are the Adige Valley and its surroundings (LANZINGER & BROGLIO, 1966). For example the Valcamonica Valley bottom has never yielded any long Mesolithic sequence comparable to those excavated in the Trento Basin (CLARK, 2000), some of which have been interpreted as evidence for repeated occupations, perhaps related to winter "base camps". Moreover, we know that the highland zone of Valcamonica watershed was settled during the Late Mesolithic period up to ca. 2000 m. At present there is little information available for seasonal movements of Mesolithic hunter-gatherers between low and high altitudes. Nevertheless we know that at least since the beginning of the Atlantic the Mesolithic hunter-gatherers of Laghetti del Crestoso were in close relationships with groups settled along the southern shore of Lake Iseo, for lithic raw material procurement. In contrast, the Preboreal and Boreal huntergatherers obtained part of their flint from the Scaglia Rossa outcrops of the Venetian Pre-Alps or the Dolomites. The same is known for other sites excavated north of Gavia Pass (ANGELUCCI et al., 1992: 28). According to the evidence available from the circulation of the raw

materials utilised for making tools, we can assume that, in the study region, the Late Atlantic Mesolithic movements were quite different from those of the Early Mesolithic Preboreal and Boreal periods. Another important point regards the manufacture of hunting and processing tools. They were made locally, utilising raw material nodules brought appositely to the site.

THE EARLY FOOD PRODUCING AND LATER COMMUNITIES

Quite a different situation is known for later prehistoric food-producing periods. At present the earliest Neolithic site is that of Lovere, along the northwestern coast of Lake Iseo, carbon-dated to 6650 ± 170 BP (PoggIANI-KELLER, 1999-2000a: 302). Only three settlements of the Middle Neolithic Square-Mouthed Pottery Culture so far have been excavated at Coren Pagà (FERRARI and PESSINA, 1997), Breno (FEDELE, 2008; FEDELE et al., 2010), and Cividate Camuno (PoggIANI-KELLER, 1988-1989). All the three above sites belong to the late phase of development of the culture, characterised by incised and impressed ceramics (BAGOLINI *et al.*, 1979). This attribution is supported also by the geographic characteristics of Coren Pagà and Breno, two "fortified" sites similar to those located along



Fig. 6 - Location of the Late Mesolithic, Castelnovian camp of Laghetti del Crestoso (white dot) between Mt. Crestoso in the left (south) and Mt. Colombino, in the right (north) (aerial photograph by P. Biagi).

the Adige Valley and its affluents (DONDIO, 1995: 175). Breno yielded also settlement traces and material culture remains of the Lagozza Culture (FEDELE, 2008).

At present, indubitable evidence of high altitude Neolithic sites is absent. Two flint arrowheads perhaps attributable to this period have been recovered at Mt. Mignolino (2040 m.) and Malga Mignolino (1930 m.). The specimen from Mt. Mignolino is important because it was recovered from a footpath that transversally moves across the watershed. It shows that some of the presentday routes were already utilised during the Neolithic.

A radiocarbon date obtained from a charcoal sample collected from the small basin of Pozza sotto lo Splaza (GrN-20889: 5550 ± 50 BP) (Fig. 1, n. 5) is considered to be too recent. In effect the site yielded only a few atypical chipped stone artefacts collected from the surface.

More evidence of human activity is available for the Bronze Age. The finds of this period are represented mainly by flat-retouched flint arrowheads (Fig. 8). They show that during this period the high altitudes of the watershed were exploited mainly for hunting purposes, while so far we do not have any trace of pastoral activities. Many arrowheads have been collected from the surface of footpaths crossing its crests between 1535 and 2180 m. of altitude. Another specimen comes also from Lake Lova.

A few flint implements show that some kind of Bronze Age agriculture was practised at some places. This is the case for Malga Agolo, along the western slopes of Mt. Guglielmo. Other evidence of Bronze Age exploitation of the same mountain comes from the locality called Stalletti Alti at 1490 m., from which a charcoal sample from the site yielded a date of 3070±30 BP (GrN-24817) (BIAGI, 2003a: 247). Copper and Bronze Age fireplaces attesting ephemeral occupations during different periods of this age have been recovered at Valmaione. They have been dated to 3950±110 (GrN-20360), 3120±50 (GrN-20092), 3000±60 (GrN-20892) and 2930±60 BP (GrN-20095) respectively. An Iron Age date comes from the same area (2230±30 BP: GrN-20891). Another Bronze Age fireplace has been sampled at Malga Mai (3090±55 BP: GrN-26798), and close to St. Glisente saddle (2895±35 BP: GrN-18980 and 2815±35 BP: GrA-48362).

These dates show that the area was exploited also during later prehistoric periods. Along the Valcamonica Valley bottom a noticeable population improvement is known since the Chalcolithic. This is demonstrated not only by the great quantity of stele-statues and cult sites (FEDELE,

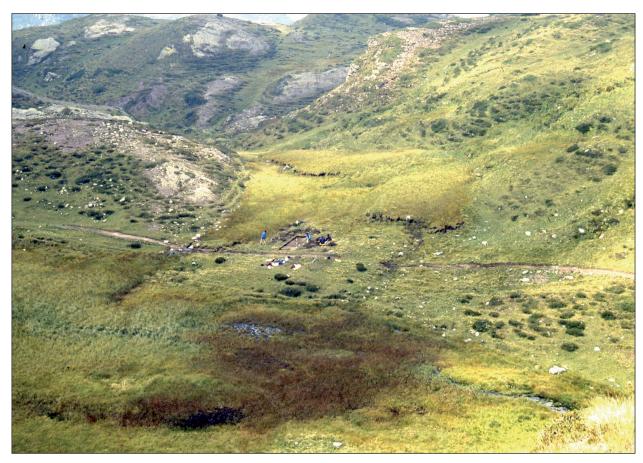


Fig. 7 - Laghetti del Crestoso. Excavations in progress at the Late Mesolithic, Castelnovian site located at the northern edge of the ancient lake shore (photograph by P. Biagi).

1995; 2012), but also by the impressive number of rock engravings discovered in well-defined spots of the valley (ANATI, 1995).

Moving farther south, the sequences excavated at Lovere show evidence of Chalcolithic and Bronze Age occupations dated to 3930±110 BP (GX-24942) and 3410±50 BP (GX-26852) respectively (POGGIANI-KELLER, 1999-2000a: 362; POGGIANI-KELLER et al., 2003-2006).

The St. Glisente saddle from which just a few late Mesolithic tools have been recovered (Fig. 1, n. 7), was resettled during the Middle Age, possibly during the hermitage of the saint who is supposed to have spent the last years of his life in this place (PIOTTI, 1912). Two similar dates 1050 ± 30 BP (GrN-24816), 1040 ± 30 BP (GrN-1020), and a third one 740 ± 35 BP (GrA-48361) are indicative in this respect.

DISCUSSION

A plot of the calibrated dates obtained from the watershed sites is presented in Fig. 9. It shows that the area was visited or briefly settled mainly during Mesolithic, Bronze, Iron, and Early Medieval periods. The area seems to have

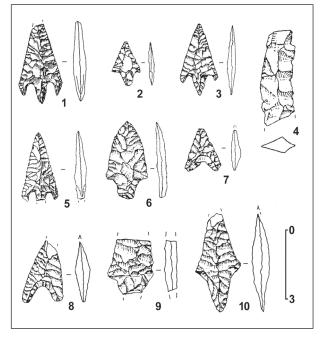


Fig. 8 - Flint arrowheads and sickle (n. 4) from Mt. Guglielmo (nn. 1 and 2), Punta Caravina (n. 3), Malga Agolo (n. 4), Valmaione (n. 5), Mt. Arano (n. 6), St. Glisente (n. 7), Mt. Crestoso (n. 8), Mt. Mignolino (n. 9), and Malga Mignolino (n. 10). See BIAGI, 2003b, fig. 9 and 10 (drawings by G. Almerigogna and E. Starnini).

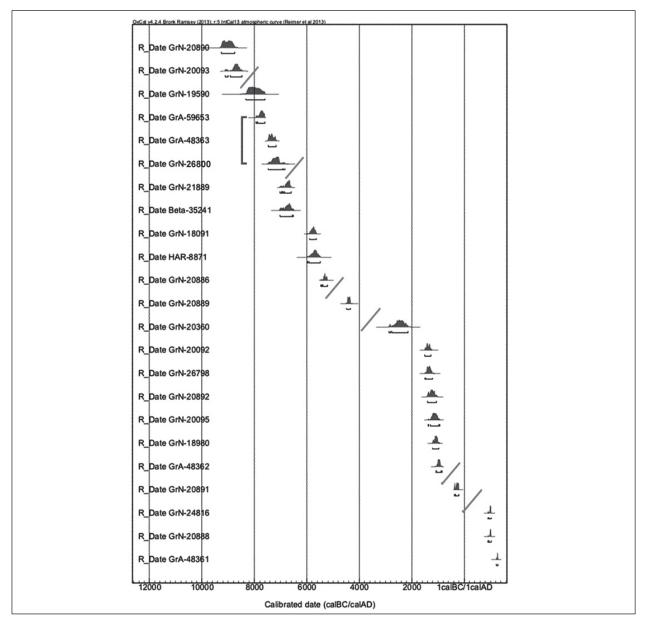


Fig. 9 - Plot of the calibrated dates from the high-altitude sites so far discovered along the Valcamonica-Valtrompia watershed. The red lines indicate boundaries between different occupation periods. The blue line conjoins Lake Ravenola dates GrA-59653 and GrN-26800 from charcoals from the same fireplace (calibrations by T. Fantuzzi according to BRONK RAMSEY & LEE, 2013, and REIMER et al., 2013).

been abandoned for many centuries just after the Late Mesolithic, and sporadically only during the Bronze Age. This evidence is similar to that available from other alpine regions where peopling started again during the Subboreal (CREMASCHI et al., 1994; BASSETTI et al., 2008).

The watershed was easy to access from the northern edge of the Po Plain. All the sites are located one-day's walk from the plain itself, and from good-quality flint sources. Mesolithic occupation traces are relatively numerous, though represented mainly by small flint scatters and isolated finds, while sites are rare. The latter consist of Preboreal (Valmaione), Boreal (Rondeneto, Ravenola and Vaia), and Late Mesolithic Atlantic camps (Laghetti del Crestoso, Bassinale and Valmaione). The curve of the radiocarbon dates is discontinuous, with gaps separating the three main periods of human activity (Fig. 8). Also the distribution of sites looks inhomogeneous. Find spots are located close to small lakes or waterholes of glacial origin, scattered along important, easily accessible communication routes. Many of them face Valcamonica, or lie close to the uppermost edge of alpine valleys incised by torrents flowing down to Valcamonica.

All the sites are most probably summer camps briefly settled by small groups of deer hunters (BINFORD, 1982). Their chipped stone tools are manufactured from flint nodules carried to the site from pre-alpine sources. With the exception of Laghetti del Crestoso, the site, once left, was never resettled again.

Site name	Initials	Altitude (m)	Coordinates	Lab. Number	Material	Δ ¹³ C	Uncal BP	Cal BC/AD (1o)	Reference
Cascina Valmaione 2	VM-6	1778	45°49'59"N-10°13'00"E	GrN-20890	Picea/Larix	-24.80	9630±100	9022±163 BC	Biagi, 1997
Cascina Valmaione 2	VM-2	1778	45°49'59"N-10°13'00"E	GrN-20093	Picea/Larix	-24.19	9410± 80	8710±109 BC	Biagi, 1997
Lago di Rondeneto	LRN-8	1780	45°50'42"N-10°15'23"E	GrN-19590	Picea/Larix	-25.50	8880±150	7992±212 BC	Biagi, 1997
Lago di Ravenola	RVN-1bis	1957	45°51'12"N-10°21'36"E	GrA-59653	Picea/Larix	-24.99	8725±45	7751±88 BC	Unpublished
Lago di Vaia	Vaia-1	1915	45°52'05"N-10°23'55"E	GrA-48363	Picea/Larix	-24.19	8285±45	7339±96 BC	Unpublished
Lago di Ravenola	RVN-1	1957	45°51'12"N-10°21'36"E	GrN-26800	Picea/Larix	-25.31	8160±100	7189±131 BC	Unpublished
Laghetti del Crestoso	LC-14	2006	45°51'18"N-10°18'53"E	GrN-21889	Picea excelsa	-23.80	7870±50	6755±87 BC	Baroni & Biagi, 1997
Laghetti del Crestoso	LC-3	2006	45°51'18"N-10°18'53"E	Beta-35241	Picea/Larix	Unknown	7850±80	6767±142 BC	Baroni & Biagi, 1997
Laghetti del Crestoso	LC-10	2006	45°51'18"N-10°18'53"E	GrN-18091	Picea/Larix	-23.82	6870±70	5770±70 BC	Baroni & Biagi, 1997
Laghetti del Crestoso	LC-1	2006	45°51'18"N-10°18'53"E	HAR-8871	Picea/Larix	Unknown	6790±120	5712±109 BC	Baroni & Biagi, 1997
Stanga di Bassinale	BSS-1	1861	45°50'22"N-10°15'12"E	GrN-20886	Picea excelsa	-23.85	6330±45	5307±54 BC	Biagi, 1997
Pozza sotto lo Splaza	SPL-1	1778	45°49'31"N-10°13'27"E	GrN-20899	Larix	-24.06	5550±50	4403±41 BC	Biagi, 1997
Cascina Valmaione 2	VM-5	1778	45°49'59"N-10°13'00"E	GrN-20360	Picea/Larix	-24.33	3950±110	2457±164 BC	Biagi, 1997
Cascina Valmaione 1	VM-1	1780	45°50'02"N-10°12'56"E	GrN-20092	Picea/Larix	-24.70	3120±50	1386±57 BC	Biagi, 1997
Malga Mai	MAI-1	1810	45°51'51"N-10°21'59"E	GrN-26798	Picea/Larix	-23.46	3090±55	1354±62 BC	Biagi, 1997
Cascina Valmaione 5	VM-8	1775	45°49'47"N-10°13'08"E	GrN-20892	Pinus	-26.24	3000±60	1245±99 BC	Biagi, 1997
Cascina Valmaione 2	VM-4	1778	45°49'59"N-10°13'00"E	GrN-20095	Picea/Larix	-25.55	2930±60	1146±96 BC	Biagi, 1997
St. Glisente	SGL-1	1990	45°51'28"N-10°18'12"E	GrN-18980	Picea/Larix	-23.63	2895±35	1091±60 BC	Baroni & Biagi, 1997
St. Glisente	SGL-009	2000	45°51'45"N-10°18'10"E	GrA-48362	Picea/Larix	-24.53	2815±35	972±40 BC	Unpublished
Cascina Valmaione 3	VM-7	1790	45°49'57"N-10°13'10"E	GrN-20891	Picea/Larix	-25.35	2230±30	299±62 BC	Biagi, 1997
St.Glisente	GLS-97	2025	45°51'38"N-10°18'10"E	GrN-24816	Picea/Larix	-23.88	1050±30	984±23 AD	Baroni & Biagi, 1997
St. Glisente	SGL-2	1990	45°51'38"N-10°18'11"E	GrN-20888	Pinus	-23.29	1040±30	994±18 AD	Baroni & Biagi, 1997
Mt. Crestoso	CRT-1	2117	45°51'15"N-10°18'13"E	GrA-48361	Picea/Larix	-24.48	740±35	1258±19 AD	Unpublished

Table 1 - List of the radiocarbon dates obtained from the watershed sites calibrated at 1σ according to www.calpal-online.de (see DANZEGLOCKE et al., 2014).

Given the evidence of hunter-gatherers activity in the area, we can assume that the watershed played a certain role in the life of the Mesolithic communities and their complex year round movements (LEE & DE VORE, 1982). During the good season a few people moved from their residential camp up to the high, alpine open landscapes for hunting. As mentioned above, after a long period, Bronze Age groups began to move along the watershed. Their passage is marked by flint arrowheads recovered from the surface of footpaths still in use today. Fireplaces of this period, as well as of the Iron Age have also been recorded. The high altitudes do not seem to have attracted human groups during the early historical period. In contrast early medieval fireplaces have been dated, although massive anthropogenic pressure seems to have started a few centuries later for deforestation and herding practises (BERRUTI, 2003).

Acknowledgements - Research and excavations along the Valcamonica-Valtrompia watershed were carried out in the 1990s thanks to the financial support of the Museo Civico di Scienze Naturali, Brescia. The programme of radiocarbon dating of the Holocene high-altitude sites was made possible thanks to grants from Ca' Foscari University, Venice. The authors are very grateful to Professor J. van der Plicht (Groningen University, NL) for the Δ^{13} C values of the radiocarbon results, Dr. R. Nisbet (Ca' Foscari University, Venice) for the charcoal analyses, and Dr. B.A. Voytek (Berkeley University, USA) for the correction of the original English text.

REFERENCES

- ANATI, E. 1995. Brescia Preistorica. 300 mila anni di presenza umana nel territorio Bresciano. Studi Camuni XVI: 1-157. ANGELUCCI, D., CREMASCHI, M., NEGRINO, F. & PELFINI, M. 1992.
- Il sito Mesolitico di Dosso Gavia Val di Gavia (Sondrio - Italia): evoluzione ambientale e popolamento umano durante l'Olocene antico nelle Alpi centrali. Preistoria Alpina 28 (1): 19-32.
- BAGLIONI, L. & MARTINI, F. 2009. Un contesto coevo. La capanna del Paleolitico superiore di Cividate Camuno-Via Palazzo. In La Valle delle Incisioni. 1909-2009 cento anni di scoperte, 1979-2009 trenta anni con l'UNESCO in Valle Canonica. Catalogo della Mostra, Brescia: 197-202.
- BAGOLINI, B., BARBACOVI, F. & BIAGI, P. 1979. Le Basse di Valcalaona (Coli Euganei). Alcune considerazioni su una

facies con vasi a bocca quadrata e sulla sua collocazione cronologico-culturale. Monografie di Natura Bresciana 3: 1-74. Museo Civico di Storia Naturale, Brescia.

- BAGOLINI, B. & DALMERI, G. 1992. Colbricon A vent'anni dalla scoperta. Preistoria Alpina 28: 285-292.
- BARONI, B. & BIAGI, P. 1997. Excavations at the high altitude Mesolithic site of Laghetti del Crestoso (Bovegno, Brescia - Northern Italy). Supplemento ai Commentari dell'Ateneo di Brescia per il 1977. Mosetti, Trieste.
- BARONI, C., CARTON, A., RAVAZZI, C. & SPERANZA, A. 1996. New data on Late-Glacial to Early Holocene palaeoenvironmental evolution in the Central Alps (Northern Italy). In Evans, S.P., FRISIA, S., BORSATO, A., CITA, M.B., LANZINGER, M. RAVAZZI, C. & SALA, B. (eds.) Late-Glacial and Early Holocene Climatic and Environmental Changes in Italy. Museo Tridentino di Scienze Naturali, Trento: 11-12.
- BASSETTI, M., DALMERI, G., MOTTES, E. & NICOLIS, F. 2008. La frequentazione delle alte quote nell'età del Bronzo. Il sito di Storo – Dosso Rotondo. In MOTTES, E., NICOLIS, F. & ZONTINI, G. (eds.) Archeologia lungo il Chiese. Nuove indagini e prospettive della ricerca preistorica e protostorica in un territorio condiviso fra Trentino e Lombardia. EFFE e ERRE, Trento: 107-127.
- BERRUTI, G. 2003. Lineamenti del paesaggio dell'Alta Val Camonica nel Medioevo: "dal documento al terreno". Annali Queriniani IV: 191-236.
- BERTOLA, S., BROGLIO, A., CASSOLI, P., CILLI, C., CUSINATO, A., DAL MERI, P., DE STEFANI, M., FIORE, I., FONTANA, F., GIACOBINI, G., GUERRESCHI, A., GURIOLI, F., LEMORINI, C., LIAGRE, J., MALERBA, G., MONTOYA, C., PERESANI, M., ROCCI RIS, A., ROSSETTI, P., TAGLIACOZZO, A. & ZIGGIOTTI, S. 2007. L'Epigravettiano recente nell'area prealpina e alpina orientale. In MARTINI, F. (ed.) L'Italia fra 15.000 e 10.000 anni fa cosmopolitismo e regionalità nel Tardoglaciale. Millenni Studi di Archeologia Preistorica 5: 39-94. Museo Fiorentino di Preistoria, Firenze.
- BERTOLDI, R. & CONSOLINI, M. 1989. Deglaciazione e sviluppo vegetazionale tardi-postglaciale nella regione del Lago d'Iseo attraverso analisi polliniche e datazioni C¹⁴. Memorie della Società Geologica Italiana 42: 139-145.
- BIAGI, P. 1976. Stazione mesolitica a Provaglio d'Iseo. Natura Bresciana 13: 75-92.
- BIAGI, P. 1992. Mesolithic Exploitation of the Highland Zone: a Case Study for the Southern Alps. Preistoria Alpina 28 (1): 367-372.
- BIAGI, P. 1997. Ricerche sul Mesolitico della Valcamonica (Brescia). Bollettino del Centro Camuno di Studi Preistorici 30: 23-40.
- BIAGI, P. 1998. Prospezioni e ricerche su uno spartiacque delle Alpi Meridionali: gli effetti dell'impatto antropico fra l'inizio dell'Olocene e il Medioevo. Saguntum 31: 117-124.
- BIAGI, P. 2003a. Le stazioni preistoriche del Monte Guglielmo (Gölem) e del Monte Ario in Val Trompia (Brescia). Commentari dell'Ateneo di Brescia per il 2002: 223-249.
- BIAGI, P. 2003b. Alcuni problemi concernenti il popolamento preistorico della Valcamonica. B.C. Notizie. Notiziario del Centro Camuno di Studi Preistorici, Maggio 2003: 12-20.
- BIAGI, P. & NANDRIS, J. (eds.) 1994. Highland Zone Exploitation in Southern Europe. Monografie di Natura Bresciana 20. Museo Civico di Scienze Naturali, Brescia.
- BIAGI, P., NISBET, R. & SCAIFE, R. 1994a. Hunter-foragers

Subsistence and Settlement in a Southern Alpine Watershed. Poročilo o raziskovanju paleolitika, neolitika in eneolitika v Sloveniji XXII: 219-232.

- BIAGI, P., NISBET, R. & SCAIFE, R. 1994b. Man and vegetation in the southern Alps: the Valcamonica-Valtrompia-Valsabbia watershed (northern Italy). In BIAGI, P. & NANDRIS, J. (eds.) Highland Zone Exploitation in Southern Europe. Monografie di Natura Bresciana 20: 133-142. Museo Civico di Scienze Naturali, Brescia.
- BINFORD, L.R. 1982. The Archaeology of Place. Journal of Anthropological Archaeology 1 (1): 5-31.
- BROGLIO, A. 1992. Mountain sites in the context of the North-East Italian Upper Palaeolithic and Mesolithic. Preistoria Alpina 28: 293-310.
- BROGLIO, A. & LANZINGER, M. 1990. Considerazioni sulla distribuzione dei siti tra la fine del Paleolitico Superiore e l'inizio del Neolitico nell'Italia nord-orientale. In BIAGI, P. (ed.) The Neolithisation of the Alpine Region. Monografie di Natura Bresciana 13: 53-70. Museo Civico di Scienze Naturali, Brescia.
- BRONK RAMSEY, C. & LEE, S. 2013. Recent and Planned Development of the Program OxCal. Radiocarbon 55 (2-3): 720-730.
- CLARK, R. 2000. The Mesolithic Hunters of the Trentino. A Case Study in Hunter-Gatherer Settlement and Subsistence from Northern Italy. BAR International Series 832. Hadrian Books, Oxford.
- CREMASCHI, M., POGGIANI-KELLER, R., ROTTOLI, M. & ZUCCOLI, L. 1994. Il sito preistorico di Casere Sasso in alta Val Biandino (Como): mutamenti ambientali e frequentazione antropica nelle Prealpi Lombarde durante l'Olocene antico e medio. In BIAGI, P. & NANDRIS, J. (eds.) Highland Zone Exploitation in Southern Europe. Monografie di Natura Bresciana 20: 235-258. Museo Civico di Scienze Naturali, Brescia.
- DANZEGLOCKE, U., JÖRIS, O. & WENINGER, B. 2014. Cologne Radiocarbon Calibrations and Palaeoclimate Research Package. Radiocarbon Laboratory, Cologne University, Cologne.
- DONDIO, W. 1995. La Regione Atesina nella Preistoria. Raetia, Bolzano.
- FEDELE, F. 1978. Man in the Italian Alps: a study of the Pleistocene and Post-Glacial evidence. In Freeman L.G. (ed.) Views of the past: Essays in Old World Prehistory and Palaeoanthropology. Le Hague and Paris, Mouton : 317-355.
- FEDELE, F. 1984. Towards a Human Ecology of Mountains. Current Anthropology 25 (5): 688-691.
- FEDELE, F. 1995. Ossimo I. Il contesto rituale delle stele calcolitiche e notizie degli scavi 1988-95: 1-81. La Cittadina, Gianico.
- FEDELE, F. 1999. Economy and territory of high-altitude Mesolithic land use: the Central Alps. In Della Casa P. (ed.) Prehistoric Alpine environment, society, and economy. Universitätsforschungen zur Prähistorische Archäologie 55: 25-36.
- FEDELE, F. (ed.) 2008. Ricerche archeologiche al Castello di Breno, Valcamonica. I. Notizie generali. Ceramica Neolitica e Calcolitica. Notizie Archeologiche Bergomensi 8: 7-430.
- FEDELE, F. 2012. Statue-menhir alpine: la ricerca di un contesto. Rivista di Scienze Preistoriche LXII: 169-194.

- FEDELE, F., TERRASI, F. & PASSARIELLO, I. 2010. Datazioni radiocarboniche AMS di siti archeologici del Castello di Breno, primo contributo: sito BC3. Notizie Archeologiche Bergomensi 18: 5-18
- FERRARI, A. & PESSINA, A. 1997. Aspetti del popolamento neolitico nell'alto Sebino. Ambiente e Archeologia nell'Alto Sebino: 65-84. La Cittadina, Gianico.
- FRANCO, C. 2011. La Fine del Mesolitico in Italia. Identità culturale e distribuzione territoriale degli ultimi cacciatoriraccoglitori. Società per la Preistoria e Protostoria della Regione Friuli-Venezia Giulia, Quaderno 13. Trieste.
- GEHRIG, R. 1986. Late-Glacial palaeoenvironments in the southern Alps (Val Camonica – Northern Italy). In EVANS, S.P., FRISIA, S., BORSATO, A., CITA, M.B., LANZINGER, M. RAVAZZI, C. & SALA, B. (eds.) Late-Glacial and Early Holocene Climatic and Environmental Changes in Italy. Museo Tridentino di Scienze Naturali, Trento: 118-119.
- GRIMALDI, S. 2005. Un tentativo di definire un modello di territorio e mobilità per i cacciatori-raccoglitori sauveterriani dell'Italia nord-orientale. Preistoria Alpina 41: 73-88.
- GRIMALDI, S. 2006. Radiocarbon dating of the early Mesolithic Colbricon site (north-eastern Italian Alps). Journal of Anthropological Sciences 84: 137-145.
- HOROWITZ, A. 1975. Holocene pollen diagrams and palaeoenvironments of Valcamonica, northern Italy. Bollettino del Centro di Studi Preistorici 12: 39-48.
- LANZINGER, M. & BROGLIO, A. 1996. Man-environment interactions during the Upper Palaeolithic and the Mesolithic in Northern Italy. In EVANS, S.P., FRISIA, S., BORSATO, A., CITA, M.B., LANZINGER, M., RAVAZZI, C. & SALA, B. (eds.) Late-Glacial and Early Holocene Climatic and Environmental Changes in Italy. Museo Tridentino di Scienze Naturali, Trento: 49-50.
- LEE, R.B. & DE VORE, I. 1982. Problems in the Study of Hunters and Gatherers. In LEE, R.B. AND DE VORE, I. (eds.) Man the Hunter. Aldine, New York: 3-12.
- MARTINI, F., BAGLIONI, L. & POGGIANI-KELLER, R. 2009. Le incisioni rupestri "protocamune" di Darfo-Boario Terme: revisione e ipotesi di una cronologia paleolitico della figura zoomorfa sulla roccia n. 34 di Luine. Preistoria Alpina 44: 245-258.

- Рютті, O. 1912. Il culto di S. Glisente eremita nell'Alta Val Trompia. Tipografia Camuna, Breno.
- POGGIANI-KELLER, R. 1988-1989. Cividate Camuno (BS). Via Palazzo. Resti di un insediamento Paleo-Mesolitico e Neolitico. Soprintendenza Archeologica della Lombardia, Notiziario, 1988-1989: 27-29.
- POGGIANI-KELLER, R. 1999-2000. Lovere (Bergamo): una sequenza stratigrafica esemplare dal Neolitico Antico al Bronzo Finale in area prealpina. Rivista di Scienze Preistoriche L: 297-374.
- POGGIANI-KELLER, R., CASTIGLIONI, E. & LEONINI, V. 2003-2006. Lovere (BG) - Colle del Lazzaretto, Via Decio Celeri. Insediamento pluristratificato dal NeoliticoTardo/Prima Età del Rame al Bronzo Finale. Annali del Museo 20: 155-177.
- RAVAGNI, G. 1930. Profilo preistorico del Trentino: età della pietra e del Bronzo. Tridentum, Trento.
- REIMER, P., BARD, E., BAYLISS, A., BECK, J.W., BLACKWEL, P.G., BRONK RAMSEY, C., BUCK, C.E., CHENG, H., EDWARDS, R.L., FRIEDRICH, M., GROOTES, P.M., GUILDERSON, T.P., HAFLIDASON, H., HAJDAS, I., HATTE, C., HEATON, T.J., HOFFMANN, D.L., HOGG, A.G., HUGHEN, K.A., KAISER, K.F., KROMER, B., MANNING, W., NIU, M., REIMER, R.W., RICHARDS, D.A., SCOTT, E.M., SOUTHON, J.R., STAFF, R.A., TURNEY, C.S.M. & VAN DER PLICHT, J. 2013. Intcal13 and Marine13 radiocarbon age calibration curves 0-50,000 years cal BP. Radiocarbon 55 (4) :1869-1887.
- SCAIFE, R. & BIAGI, P. 1994. Pollen analysis of the Rondeneto Mesolithic site and dating of peat accumulation in the Valcamonica region (northern Italy). In BIAGI, P. & NANDRIS, J. (eds.) Highland Zone Exploitation in Southern Europe. Monografie di Natura Bresciana 20: 143-152. Museo Civico di Scienze Naturali, Brescia.
- STIRN, M.A. 2014. Why All the Way Up There? Mountain and High-Altitude Archaeology. The SAA Archaeological Record 14 (2): 7-10.
- WICK, L. 1994. Vegetation development and human impact at the forest limit: palaeoecological studies in the Splügen Pass area (Northern Italy). In BIAGI, P. & NANDRIS, J. (eds.) Highland Zone Exploitation in Southern Europe. Monografie di Natura Bresciana 20: 123-132. Museo Civico di Scienze Naturali, Brescia.