Maps in alpine rock art: cultivations and cultures, land plots and societies[1] from Neolithic to Iron Age

Andrea Arcà *

Summary

Looking at the diffused presence along the Alpine rock art sites of a series of geometric figures and compositions, both in the earliest and in the most recent prehistoric phases, we may find deep formal similarities among such items, also at a long distance; they strengthen the plausible depiction of anthropic landscape elements, physically and semantically related to the terrain cultivation. While expressing strong links with the real elements, such iconographic items, considering their distribution in the landscape, can be understood as symbolic, or not always related to the representation of what is directly visible. The study of the superimpositions among figures and the archaeological context testifies their antiquity, dating back to the Recent and Final Neolithic, starting from the first half of the fourth millennium BC. Along with these earlier phases it is possible to recognize another set, three millennia younger and quantitatively limited, pertinent to the middle Iron Age, of which the Bedolina map is the best known standard-bearer. The most ancient compositions may play a major role in the history of topography, since they are by far the first zenith landscape representation in the Western and Near Eastern world. Actually, it is more than a millennium older than the Yorghan Tepe Mesopotamian clay tablet (2300 BC), generally considered the oldest topographic map. The same should be said as concerns the history of agriculture, as the engravings offer the irreplaceable pictorial evidence of the development of various agricultural practices, from slash and burn agriculture and hoe tillage – on the occasion of the first settlements – to furrow plowing for planting seeds, from grain fields to vineyards and orchards: a series of cultivations techniques well depicted by the sequence of the alpine iconographic cultures. Deepening the interpretation level, it also seems possible to propose a relationship with the communities that produced such iconographies, classified on the basis of social anthropology studies; through this interpretive path, we may open a little window over the arrangement of the land possession, with a gradual shift from common to private ownership.

Riassunto

La diffusione nei vari complessi petroglifici dell'arco alpino di una serie di figure e di composizioni geometriche, le quali, sia nelle fasi più antiche che in quelle più recenti, manifestano anche a distanza strette somiglianze formali fra loro, palesa la plausibile raffigurazione di elementi antropici del territorio, legati fisicamente e semanticamente alla coltivazione della terra; pur manifestando forti legami con gli elementi reali, tali reperti iconografici, se ne si considera la distribuzione spaziale, possono essere intesi come simbolici, o per lo meno non sempre legati alla rappresentazione di quanto direttamente visibile. Lo studio delle sovrapposizioni e i dati di contesto archeologico ne dimostrano la precedenza cronologica, a partire dal Neolitico Recente e Finale, cioè dalla prima metà del IV millennio a.C. Accanto a queste fasi più antiche si riconosce un pacchetto più recente di tre millenni, quantitativamente limitato, pertinente alla media età del Ferro, del quale la mappa di Bedolina è l'alfiere più conosciuto. Tali composizioni possono giocare un ruolo di primo piano nella storia della topografia, in quanto costituiscono di gran lunga la prima rappresentazione zenitale del territorio del mondo occidentale e del Vicino Oriente, più antiche di oltre un millennio della tavoletta mesopotamica di Yorghan Tepe (2300 a.C.), generalmente ritenuta la più antica pianta topografica. Discorso analogo va proposto per la storia dell'agricoltura, in quanto offrono l'insostituibile testimonianza iconografica dello sviluppo delle varie tecniche colturali, dall'agricoltura taglia e brucia e dal dissodamento alla zappa – in occasione dei primi insediamenti – all'aratura per assolcatura da semina, dai campi di cereali ai vigneti e ai frutteti; una sequenza colturale ben illustrata dal succedersi delle culture iconografiche alpine. Approfondendo il livello interpretativo, sembra altresì possibile proporre una relazione con le società che hanno prodotto tali moduli iconografici, classificate sulla base degli studi di antropologia sociale, aprendo uno spiraglio sulle modalità di articolazione della proprietà della terra, con un graduale passaggio dal possesso comunitario a quello privato.

---

* Università di Pisa - Dottorato in Scienze dell'Antichità e Archeologia; Cooperativa Archeologica Le Orme dell'Uomo, Cerveno (Bs); www.rupestre.net; email: aa_arca@yahoo.it

(English proofreading by Alexis Taylor Bonera)

1 In Italian it is "poteri e poderi" (powers and small farms), a pun not possible to reproduce in English.
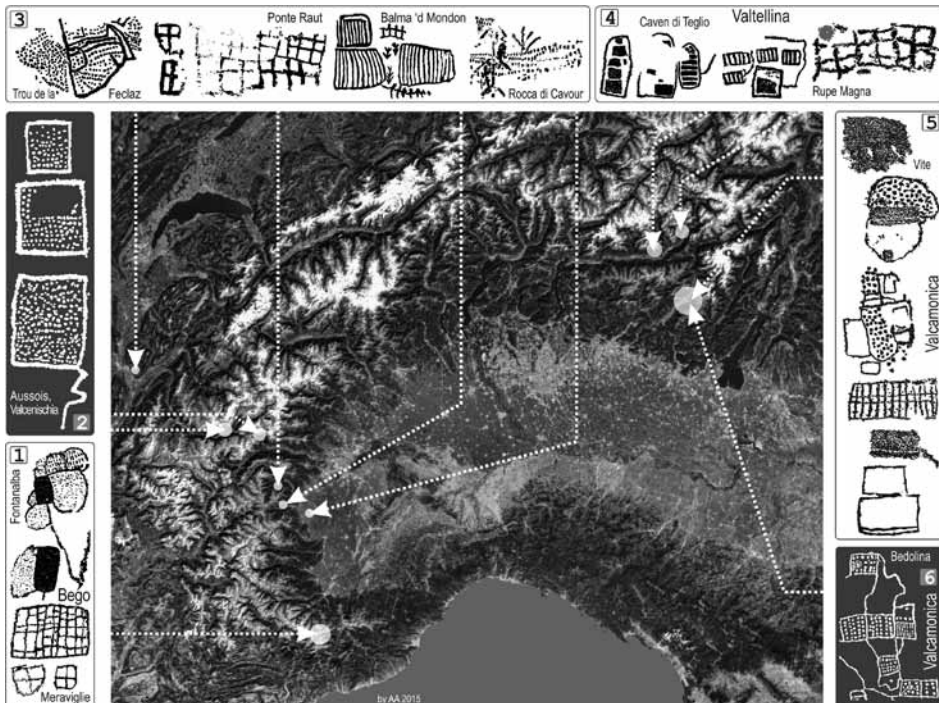
Fig. 1 – Distribution map of the alpine rock art topographic modules; the Iron Age patterns (2 and 6) are highlighted in negative contrast (from Google Maps; tracings *Footsteps of Man*)

1. Introduction

A series of figures, either individual or compositions, showing evident geometrical features is widely found in both alpine rock art poles, Valcamonica and Mt. Bego (and not only), with a striking similarity in both ancient (Valcamonica-Mt. Bego) and recent (Valcamonica-Maurienne and Cenischia valleys) phases (Fig. 1). Such iconic sets were not executed in a well-planned and well-arranged context of vertical engraved panels, as for the Copper Age monuments and engraved boulders/stelae, but mainly in a situation of horizontal rock surfaces, where Neolithic, Bronze Age and Iron Age signs are now amassed and shelved, in some cases with confused and disordered results.

Shapes, iteration and combination of the various modules of the geometric patterns make it likely, although still hypothetical, the recognition of a set of territorial representations (Bicknell 1913; Battaglia 1934; Anati 1960; Id. 1975), suggesting the terms of topographic figures or, better yet, of topographic compositions, often more simply cited as "maps". These representations don't reflect any natural landscape, such as mountains, rivers, trees and so on, nor panoramic views, but more likely portray a land with clear elements of anthropogenic soil modification, like ploughed and cultivated rectangular plots, with aligned dots probably depicting cereal sheaves and associated nearby settlements; a human landscape where laboured fields play the most important role. In fact, the semantic of the word "geometry", which in its Greek roots means

8

measure of the land, if intended as worked land, is here fully respected; we may say the same about geography. Since in many cases the engraved surface doesn't provide a panoramic view over the surrounding slopes[2], it may be supposed that along with a direct factual depiction we may also acknowledge a memory-related or symbolic one.

2. Geographic position

As their distribution was already detailed by the author of this paper (Arcà 1999a; Id. 2004), it is appropriate to summarise here only the most important cases.

In Valcamonica we can count nearly twenty zones with topographic petroglyphs; of which the main ones are Bedolina, *Dos Costa Peta* (Fig. 2), *Dos dell'Arca*, Foppe di Nadro, *Pia' d'Ort*, Seradina, Sonico, Vite. It is possible to find very simple one or few modules compositions as well as more complex ones, composed by various geometric modules, ordered dots and perimeter lines. More recent topographies, i.e. the Iron Age ones, are rare and are present only at two sites, Bedolina and *Pia' d'Ort* (Sansoni, Gavaldo 1995).

Fig. 2 – Geometric modules engraved on the *Dos Costa Peta* rock (Paspardo, Valcamonica; photo and tracings *Footsteps of Man*)

In the Mount Bego area (Arcà 2013) the geometric figures represent 15.8% of all significant engravings (Lumley de 1995). Compositions of pecked rectangles, accompanied by ordered dots or "macaroni"[3] in areas protected by curved lines, are very common at Fontanalba, particularly in its XIX zone. This characteristic pattern is very similar, if not identical, to the Valcamonica one, hence constituting a kind of "common module" (Fig. 3). At Fontanalba it is often organised in very large compositions. In the *Marvels valley* this "common module" is quite absent, while, on the contrary, simple or complex grids are very frequent. Here it seems possible to distinguish the depiction of stone-terracing on slopes or stone enclosures for herds, like those described by Geist at Fontan, near the Cime de Causéga (Geist 1995).

In the western Alps, particularly where rock paintings are concerned (Fossati,

---

2   But in some important cases it does, like in the Pellice valley, VIT29 (Paspardo, Valcamonica), Bedolina (Capo di Ponte, Valcamonica) and Caven (Teglio, Valtellina).
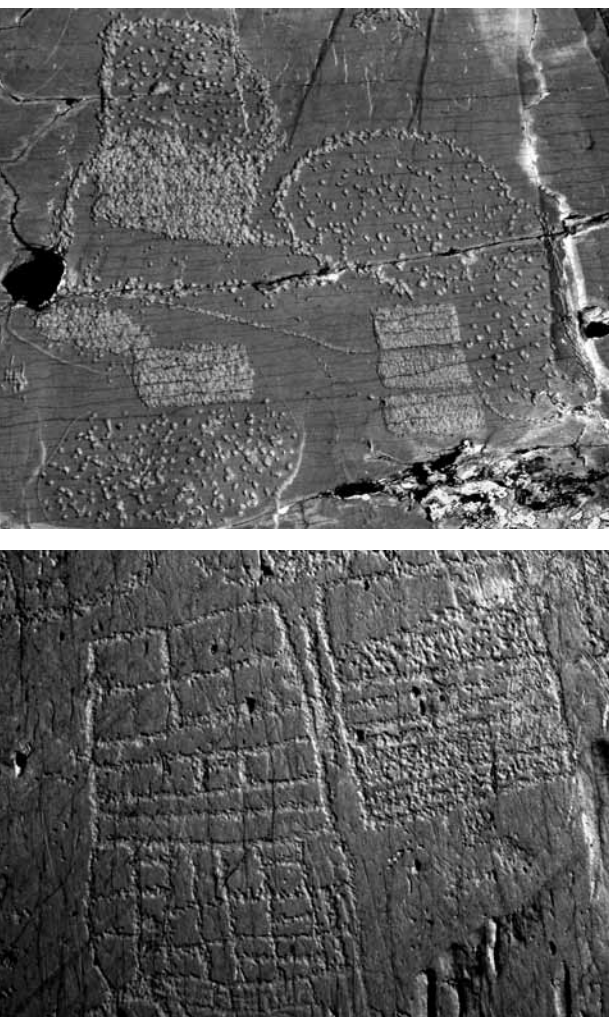3   To describe the shape, obviously, not the meaning.

ARCÀ 2012), grids are not only present at Mt. Bego, given that the white rock-paintings of Ponte Raut, popularly known as *Rocio 'dla Fantino* ("Rock of the Fairy"; PONS 1938; SEGLIE, RICCHIARDI 1988; ARCÀ 1995), show a striking similarity with the *Marvels valley* ones. Not far from the *Rocio 'dla Fantino* area, in the Pellice valley (Turin, Italy) a notable red-painted surface is known (NISBET 1994; ARCÀ 1999b; ARCÀ, GAMBARI 2002). Three rectangular grids with vertical lines are accompanied by schematic anthropomorphic figures, both in rows and isolated, sometimes reversed. There is also a sort of hook, which may represent a plough. A similar red painted hook or arrow point is present at the Rocca di Cavour shelter (GAMBARI 1992; GAMBARI *et al.* 1999), where can also be noticed 4-5 lines of irregularly aligned dots: maybe the dots symbolize the seeds and the hook the plough?

Still in the small group of western Alps rock paintings (Fig. 4), the Trou de la Feclaz (St. Jean d'Arvey – F; AYROLES, PORTE 1984) shelter[4], in the French Savoy, is particularly impressive: here aligned dottings encompassed by perimeter lines are very similar to Valcamonica topographics, like, in particular, a sector of the *Dos Costa Peta* Rock at Paspardo.

Fig. 3 – Mt. Bego area topographic modules: Fontanalba (up), rectangles, dottings and perimeter lines; *Marvels valley* (bottom), grids (photos by A. Arcà)

Coming back to the central Alps, we need to include Valtellina (Fig. 5), where at least five sites are present (ARCÀ 1999a; MARTINOTTI 2006; ID. 2009), of which Dosso Giroldo, near the *Rupe Magna* (Grosio), with elongated rectangles, and Caven near Teglio, with grids and inner rectangles surrounded by oval-shaped lines on the upper part – like at Sonico, in Valcamonica – are the most important. All the sites enjoy a large panoramic view over the plain bottom of the valley.

To deal with the recent topographic compositions, Iron Age modules with contoured squares, dottings and zigzagging or meandering lines, we need to

4 Red-polychrome paintings in ochre with aligned dots, lines, finger paintings, asterisks and human schematic figures.

return to the western Alps, of which the main site is Aussois, in the French Maurienne Valley (BALLET, RAFFAELLI 1990; 1993; 1996), with at least eight rocks with topographic modules (Fig. 6). Similar ones are present in the neighbouring Cenischia Valley (ARCÀ 2002; 2009b).

3. CHRONOLOGICAL POSITION

The study of the figures with a relationship of superimposition with "maps" (FOSSATI 1994; ARCÀ 2004), allows to assign to topographic patterns a chronological precedence in the prehistoric engraving sequence, starting from the IV millennium BC, if not from the end of the Vth, covering a chronological frame which represents one of the most ancient post-Palaeolithic phases in the alpine area. Also on this specific part more details are given in ARCÀ 1999a and 2004. Regarding more ancient engraving phases, very recent studies (ARCÀ et al. 2014) unveiled in the Aosta valley an extremely interesting engraved shelter with mask-like figures pertaining to the middle of the V millennium BC, with many points of contact with the Brittany megalithic art: topographic modules don't seem involved in such ancient iconography.
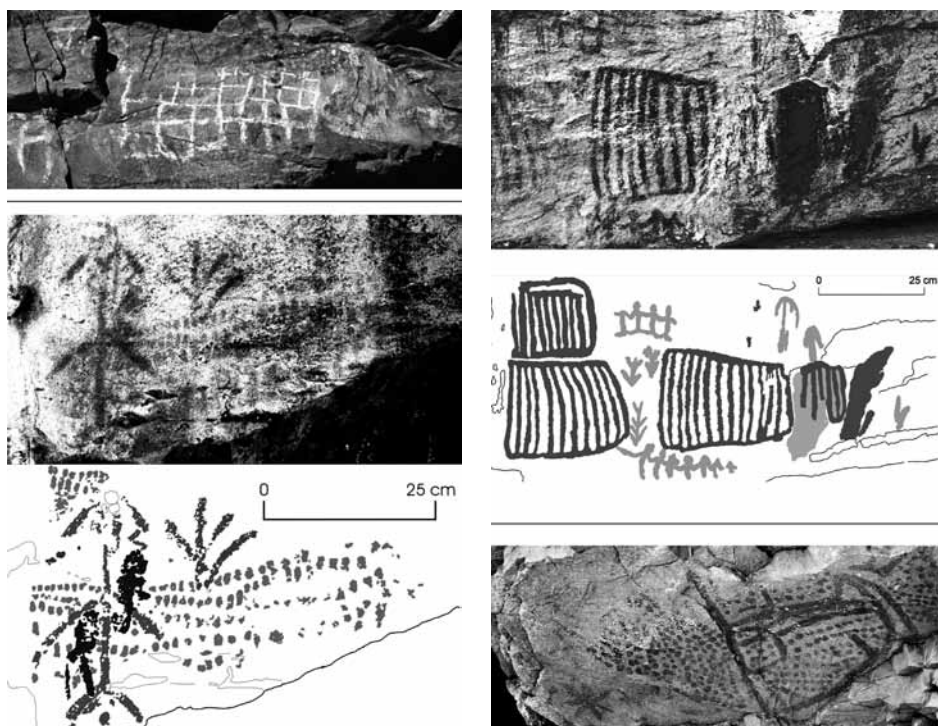

Fig. 4 – The topographic modules of the western Alps rock paintings (reading order): grids at Ponte Raut, *Rocio 'd la Fantino* (TO – I; photo by L. Gribaudo, GRCM archive); *Balma 'd Mondon* (TO – I), grids and anthropomorphic figures (photo, colour exasperation and tracing by A. Arcà); Rocca di Cavour (TO – I), dottings, anthropomorphic figures, possible ploughing scene (photo by F. Zavattaro, tracings *Footsteps of Man*); Trou de la Feclaz, St. Jean d'Arvey, dottings and perimeter lines (photo by A. Chatain)
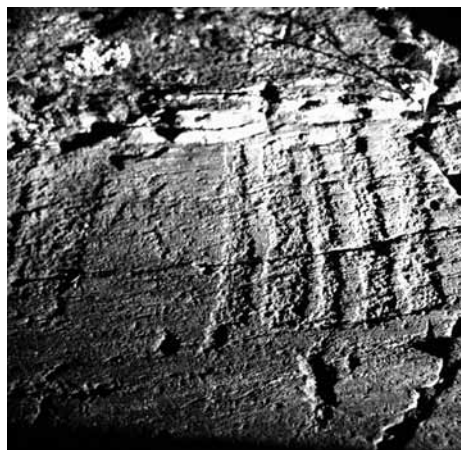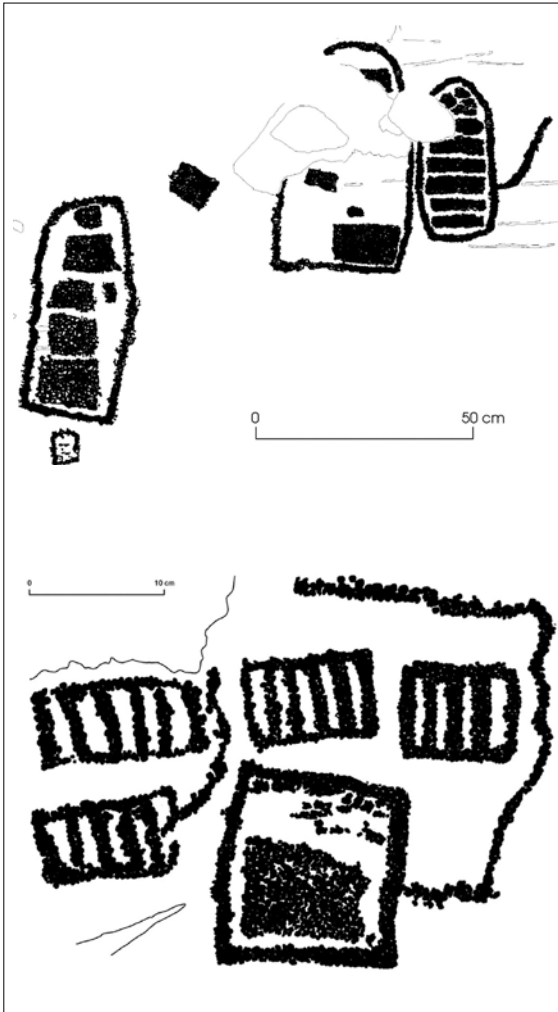
Fig. 5 – Valtellina topographic modules: Caven di Teglio (left), with panoramic view from the engraved surface over the valley bottom, and Dosso Giroldo (right; photos and tracings *Footsteps of Man*)
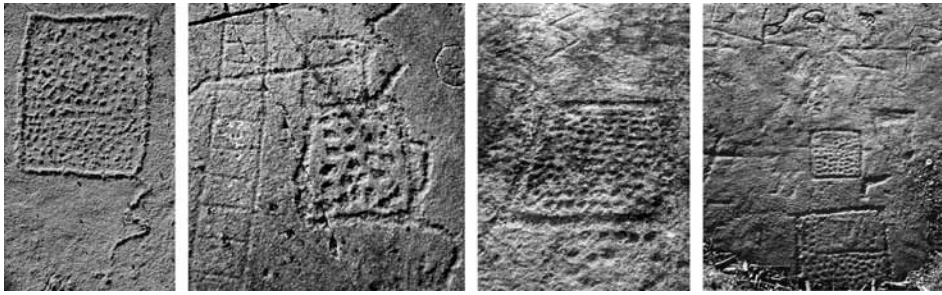
Fig. 6 – Aussois les Lozes (Maurienne valley – F), dotted squares and rectangles; zone 9: a Middle Iron Age warrior figure with bi-triangular body is overlaid by a geometric module (right; photos by A. Arcà)
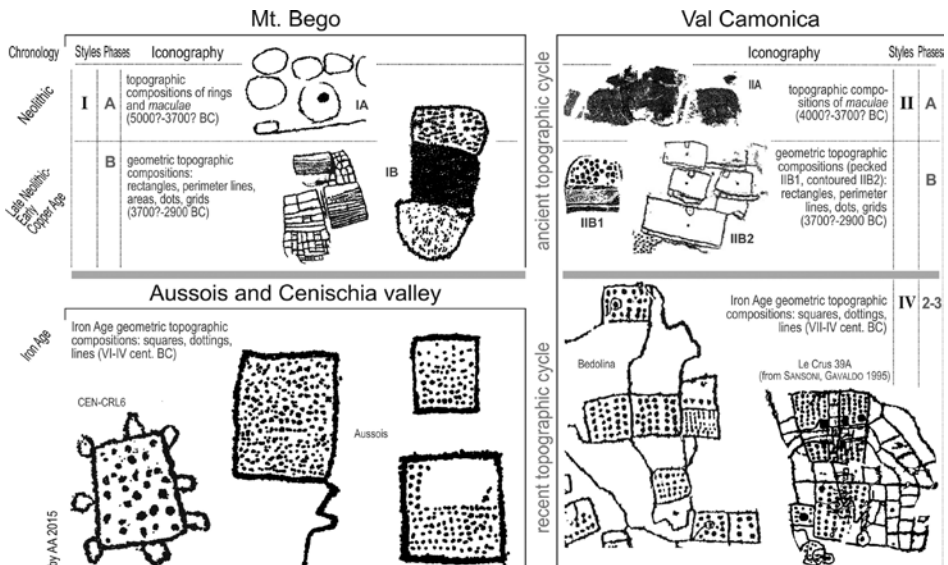

Fig. 7 – Mt. Bego, western Alps and Valcamonica, chronological table of the topographic compositions, ancient and recent phases (tracings *Footsteps of Man*)

First of all, it should be specified that two distinct and distant topographics phases are evident. The first is related to a Recent Neolithic to Early Copper Age range (Valcamonica and Mount Bego), the second to the Iron Age (Valcamonica and Haute Maurienne; fig. 7). Each phase is well testified by superimpositions, demonstrating a good parallelism between western and central Alps (Arcà 1999a).

In Valcamonica, in more than one case (Fossati 1994a) topographics are covered by Copper Age figures – such as daggers, sun-figures and ploughing scenes – starting from the IIIA1 phase (Remedello 2 period, 2900–2500 BC; de Marinis 1997), as on the Borno I boulder face B (Frontini 1994), at Bagnolo 2 and at Ossimo 8, meaning that topographical engravings have been executed before 2900 BC. The first phase of topographic engravings at Vite is made up of *maculae*, entirely pecked pseudo-rectangular areas on which double-based rectangular and aligned pecked dots are superimposed (VIT6, VIT29). Consequently, I proposed to assign the maculae to the IIA style (4200?-3700 BC) of the Valcamonica rock art (Arcà

2007; 2009a) and the geometric compositions to the IIB style (3700-2900 BC); the latter further subdivided into IIB1 (those with fully pecked areas) and IIB2 (those with contoured areas). In fact topographics totally occupy these phases, and no other sign seems to be associated.

Again in Valcamonica, the data coming from the archaeological background, mainly from the Chalcolithic Ossimo-Pat monumental area (POGGIANI KELLER 2004; EAD. 2009), should be carefully considered. Here four engraved little boulders bearing topographics patterns were "recycled", face down, in the Copper Age tumulus A and in the votive circle 174; in this way tumulus A and the votive circle represent valid *termini ante quem*. The boulders show approached rectangles and connecting lines. A 3700-3510 cal. BC date comes from some charred branches found in a pit under mound A, likely pertaining to the first implantation of the site, which also includes the engraved boulders. These dates are fully compliant with the chronology suggested by the archaeo-stylistic analysis.

In the Mt. Bego region, the geometric Fontanalba figures are quite identical to the pre-Remedello topographics of Valcamonica. Archaeological excavations at the *Gias del Ciari* shelter (CONTI 1943; 1972; MANO 1998) revealed a human presence from the Cardial early Neolithic to the Chalcolithic and Early Bronze Age. Consequently, here too it is possible to hypothesis a pre-Remedello engraving phase (Neolithic or Early Copper Age), originating in the IV millennium.

This is also testified by superimpositions. The *Rock of the Three Hundreds* at Fontanalba is one of the most richly engraved of the area. In four cases, oxen or ploughing scenes cover topographic engravings, even if in a barely visible way, due to erosion. Also among the grids, in the *Marvels Valley* area, it is possible to discern some superimposition. On the rock of the *False Sorcerer* (ZIV GII R11A) a grid is covered by three Copper Age daggers and by a horned figure. On the rock of the *Anthropomorph with Zig-zag Arms* (ZIV GIII R16D), a grid is superimposed by an anthropomorphic figure.

In Valtellina, at Tresivio 1 sector E (SANSONI *et al.* 1999), rectangular pecked areas appear very faint and superimposed by Early and Middle Bronze Age axes[5]. At Dosso Giroldo, on the most important engraved rock, the *Rock of the Warriors*, topographics are clearly superimposed by standing warriors of the First Iron Age.

Regarding Valtellina, the papers of Angelo Martinotti must be cited. The author correctly underlines some distinctive features that make plausible the definition of a separate group spread in Valtellina (Caven, Grosotto, Ca' Gianoli), with some influences and extensions as far as the neighbouring Valcamonica areas, like at Cornèl de l'Aiva. These Valtellina-Valcamonica modules are characterised by ogee or oval outlines encompassing rectangular pecked areas, in some cases narrowed and elongated up to assume a line feature. The most interesting aspect of Martinotti's study is the plausible individuation of a formal evolution of the general shape and of the inner areas of these modules (MARTINOTTI 2006; 2009), which he defines as shield-shaped and interprets as topographics, starting from the Early Copper Age, or from the Neolithic-Copper Age, to the Ancient to Recent

_____

5 S. Gavaldo proposes an Early to Middle Bronze Age date for the topographics of Tresivio, pointing to the uniformity of all the figures. The pecked topographic elements are however present only in one sector, and likely superimposed by the axes.

Bronze Age (Sonico and Teglio S. Giovanni). This would cover the gap between the two already described topographic phases, even if only by a small number of engraved surfaces, which would explain the difficulty of identification – regarding both chronology and interpretation – of such phases. The author chooses terms like "stereotyped grapheme" and "ideogram" for defining the shifting of such figures from territorial depictions to symbolic marks.

Iron Age engraved maps are not particularly numerous, both in Valcamonica and in the Maurienne French valley. Despite the lack of quantitative consistency, the chronology is well testified by the superimpositions. On the famous Bedolina map – already placed in the Late Bronze Age (BELTRÁN LLORÍS 1972; ANATI 1975) and more recently studied by C. Turconi (1997) – the topographical representation overlies First Iron Age warriors (ARCÀ 1994; TURCONI 1997) and it is overlaid by Late Iron Age huts; hence a VII-IV cent. BC should be estimated. The same occurs at *Le Crus* (GAVALDO 1995), where many warriors are overlaid by a topographical grid. At Aussois a square filled by orderly arranged dots covers a bi-triangular figure of a First Iron Age warrior holding a spear.

4. THE TOPOGRAPHIC POINT OF VIEW

Two other aspects should be outlined, related to topography and agriculture, respectively. Regarding the first one, since these representations show human landscapes seen from above, they take origin from the same intellective process of a plan map and we may say that they act as maps, although not having the current purpose of finding places or choosing ways and directions[6]. What was their original function is not yet known and it may only be presumed, given that we are addressing fossil cultures. The zenithal point of view is a natural perspective in a mountain area, where slopes or valley bottoms are commonly seen as in a bird's-eye view from the opposite side or from panoramic spots at higher altitudes. It is not only a question of shape, but also of colour, as laboured fields stand out thanks to their regular shape and the chromatic contrast between different kinds of vegetation and bare or worked land.

As confirmed by some ancient Egyptian samples, like the Turin papyrus (1160 BC) on which Ramesses IV ordered to depict sandstone quarries and other mines, it should be pointed out that from the very earliest stages only elements of the human landscape have always been the object of the first mapping attentions, and it may be suggested that there was the need to outline, probably as a novelty and perhaps with ritual practices, these artefacts of human-scapes, and not necessarily to remark natural passes or features that were already well-known by long-time. This process seems not to be so distant from the one which originated writings, with the need of marking containers or recording goods and products.

In view of their age, which doesn't has any equivalent with other archaeological

---

6 Among the most ancient surviving samples of road maps we may cite the Roman army ones: the *itineraria scripta*, where stations (*mansiones*) and mileage were noted, like in the Vicarello beakers of the I cent. AD, and the *itineraria picta*, where a schematic landscape morphology was added. The only *itinerarium pictum* existing today is the famous *Tabula Peutingeriana*, a medieval copy (XII-XIII cent. AD) of a Roman original of uncertain date, probably III-IV cent. AD. While cartography in ancient Greece was closely linked to science and philosophy, the Roman one, both republican and imperial, was strongly based on practical needs, like cadastre and military purposes. On the occasion of colony foundations or land division in *centuriae*, metal, stone or linen maps were produced (*formae*), a copy of which was preserved in the Rome state archives.
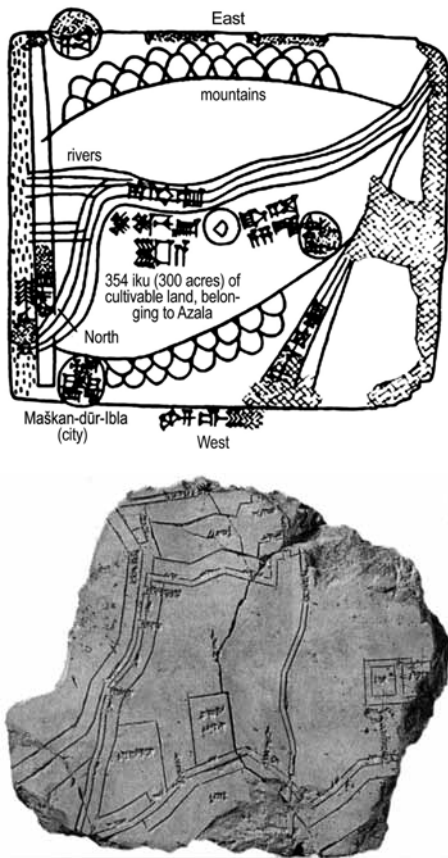
Fig. 8 – Mesopotamian clay tablets with cunei-form inscriptions and depictions of maps: left, Ga-Sur at Nuzi (Yorghan Tepe, IRQ; 2300 BC), map with rivers, hills and cardinal points; right, Nippur city (IRQ) walls, with the Euphrates River and temples (1500-1300 BC; photo University of Pennsylvania Museum of Archaeology and Anthropology)

remains of this particular subject, these geometric compositions should be recorded in the history of topography and cartography as the oldest ancestors of maps. It is a record which this scientific discipline should take suitable note (ARCÀ 2007).

This is not only valid for the western world but also for the middle eastern one. In fact, they are a thousand years older than the Yorghan Tepe (2300 BC, Kirkuk) clay tablet, depicting a plot[7] delimited by hills and surrounded by a river, and two thousand years older than the Nippur map[8] (1500-1300 BC), both considered the most ancient cartographic items (Fig. 8). As confirmation that topographic subjects were not so common among the many thousands Mesopotamian clay tablets, it should be pointed out that only few dozens of them are marked with houses, villages or maps of plots (MILLARD 1987).

Regarding rock art, which is un-doubtedly a very rich and promising research field for this branch of the humanities, the Bedolina map, one of the most famous Valcamonica engra-ved panels, however younger than the Yorghan Tepe tablet, is mainly cited in geography and topography textbooks or specialised essays; we could refer to BLUMER 1964, where it is described as the most ancient known plan map of an in-habited site. This is also the case of the valuable and fundamental volume edited by John Brian Harley and David Wo-odward (HARLEY, WOODWARD 1987), where the text written by Catherine Delano Smith, a cartography historian who worked with the CCSP-*Camunnian Center of Prehistoric Studies*, when dealing with plan maps, refers on various occasions to petroglyphs with topographic compositions, especially in Valcamonica (Bedoli-na and *Le Crus* 39A rocks) and Mt. Bego (*Bego Village* and *Skin Hill Village* rocks) areas. These items are described as «*outstanding in terms of their cohesiveness and appropriateness of their signs. They are accepted here as possible examples of prehistoric*

7 Not only the size of the plot is shown, corresponding to approximately 12 hectares, but, for the first time ever, also the cardinal points.
8 Clay tablets with cuneiform characters, with precise topography of city walls, temples, the Euphrates river, irrigation and drinking water channels and plots, with property annotations.

maps in accordance with the suggested cartographic criteria» (DELANO SMITH 1987, p. 80).

It is interesting to resume here these criteria: «*composition, appropriateness of image, and frequency*» (*ibid*., p. 74), that is to say «*that the artist's intent was indeed to portray the relationship of objects in space; that all the constituent images are contemporaneous in execution; and that they are cartographically appropriate*» (*ibid*., p. 61), with an additional threshold of «*a minimum of six cartographic signs*» (*ibid*., p. 74).

These assumptions remind me of what I wrote in 2004, when I tried to reply to the question "what is depicted?" by listing and examining four different kinds of iconographic objects, namely engraved figures, which respectively were areas, dots alignments, grids and perimeter lines (ARCÀ 2004, p. 340), proposing for each of them an agriculture and land-related interpretation. All these clearly homogeneous objects more and more populate topographic compositions – at least 50 elements can be counted in VIT 13 rock, to cite a case among many – that were most likely executed at once, making them fully compliant with the requirements proposed by C. Delano Smith. Presently we can distinguish even more different elements, at least eight, like dug fields or wheat fields, sowed fields, ploughed fields, sheaves, fences or stone walls, stone enclosures, plantations and paths (Fig. 9-10).

More ancient cases are dealt with under the definition of picture maps, with a front or perspective view, like the Çatal Hüyük wall painting, dating back to the last quarter of the VII millennium BC, where a village with its houses and a volcano erupting in the background is depicted.

The problem is that geography and topography related studies are not up to date regarding rock art, as they refer to the Bedolina rock as a Bronze Age composition, while according to most recent studies its chronology should be shifted onward to the First-Middle Iron Age (TURCONI 1997), i.e. the middle of the I millennium BC, and they ignore or misunderstand the three millennia older topographic compositions of the Neolithic-Early Copper Age (4 mill. BC). Also for this reason the splitting into two groups[9] of the topographic prehistoric compositions should be better specified: the oldest comprises the largest number by far of engraved surfaces – pertaining to various areas like Mt. Bego, Valcamonica and western Alps rock paintings; the younger (*infra*) the Bedolina map, with few other petroglyphs coming from the nearby Valcamonica slope (including the "new" Bedolina map) and from Aussois in the western Alps.

5. THE AGRICULTURAL POINT OF VIEW: THE SIGNS OF THE GROUND

The role of these compositions is also crucial from the point of view of the history of agriculture. If we accept this interpretative path, they provide the most ancient iconographic evidence on the development of cultivation techniques, starting from the hoe tillage, symbolised by the irregular pecked areas called *maculae*, and continuing with the ploughing for making sowing furrows (ARCÀ 2005), first reminded by the orthogonal field outlines and then made explicit by the ploughing scenes of the next monumental figurative phase of the third millennium (FEDELE 2011), in full Chalcolithic period. In this sense, the rupestrian imagery is an irreplaceable testimony not only of the development of human cultures in the Alps, but also of the introduction of new cultivation practices; regarding these

---

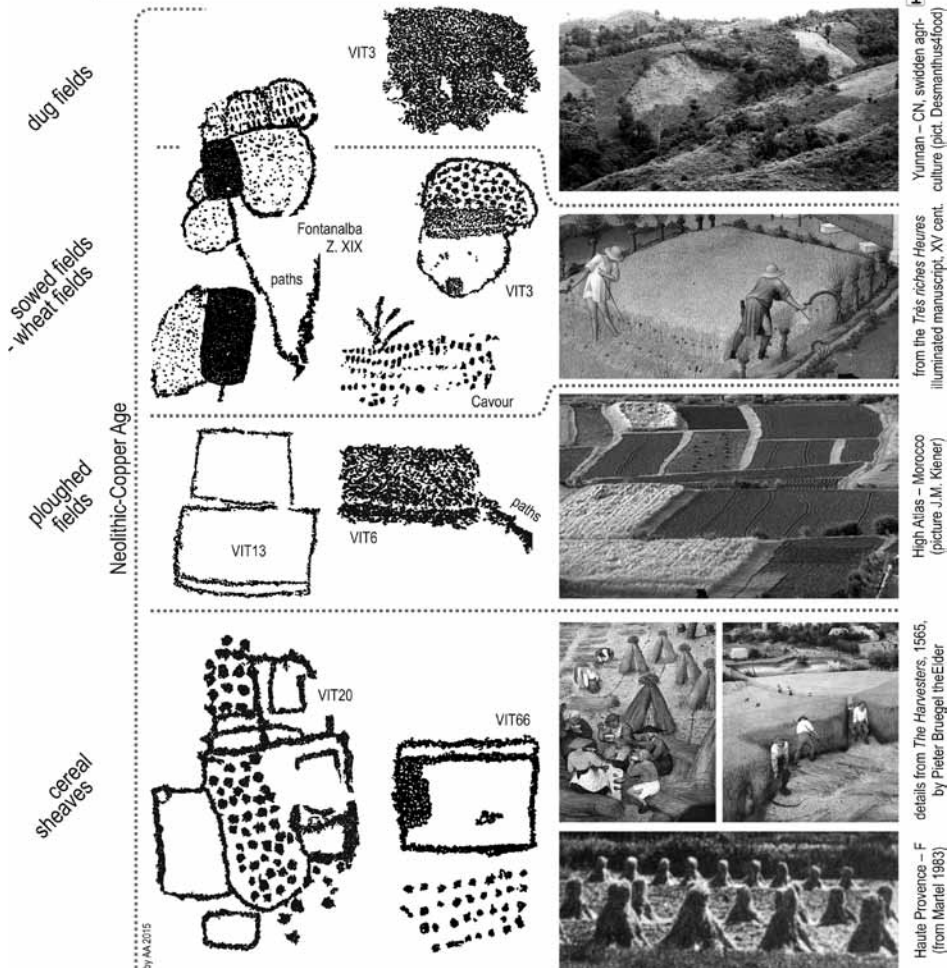9 A Bronze Age group is also to be considered (*supra*).

Fig. 9 – Alpine topographic engravings, visual interpretation of the suggested elements of agriculture and human landscapes (1; tracings *Footsteps of Man*)

aspects few other archaeological evidences – among which palinology should be included – can provide a stronger, and not only iconographic, evidence than rock art figures and scenes.

The suspect that these figures have been engraved on that occasion, or at least under the stimulus of a cultural change, in this case a change in cultivation techniques, such as land clearing for obtaining new cultivable areas or the introduction of new agricultural practices, is quite strong. In this sense, where culture and cultivation – or cultivation and culture – are strictly connected, the more ancient topographic representations may coincide with the first steady settlements within some mountain areas.

All these suggested pairings between engraved figures and elements of a hypothetical human landscape may rouse a certain amount of scepticism;

conversely, the fact that every single iconographic element makes sense within an articulated semantic package proves that the agricultural interpretative path undertaken, including the topographical one, has not tiny probabilities of being correct. In fact, we know from the study of the overlappings among figures that the irregular pecked areas (Fig. 11), so called *maculae*, were the first to be engraved within the topographic set. Many engraved surfaces, like VIT6 and VIT29 at Paspardo (Valcamonica), where *maculae* are clearly cut by more recent
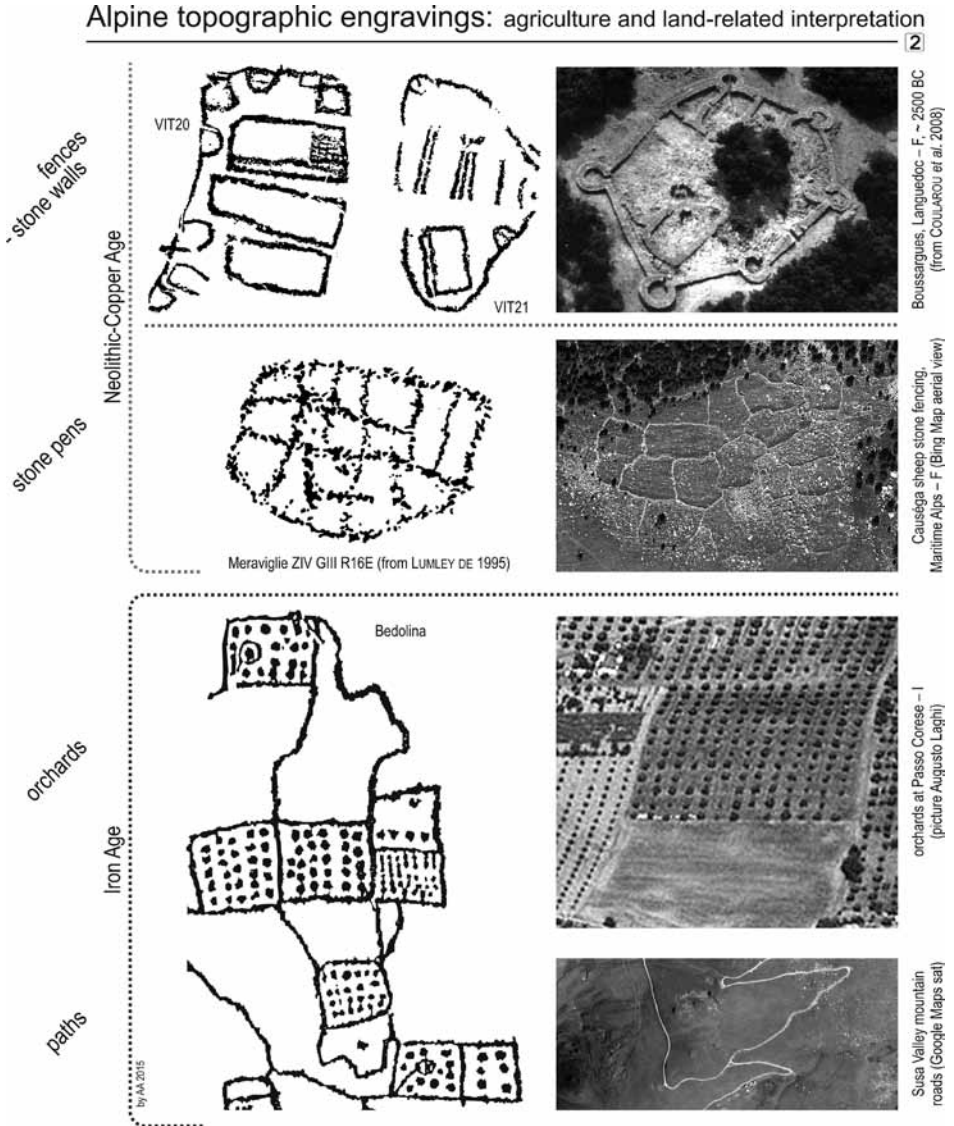

Fig. 10 – Alpine topographic engravings, visual interpretation of the suggested elements of agriculture and human landscapes (2; tracings *Footsteps of Man*)

rectangles, testify this. The look of these *maculae* is closely similar to that of a dug field, as seen from the opposite mountain slope, where hand tools make feasible the adaptation of an uneven terrain, forming non-geometric ground spots, with the brown of the turned-over soil producing a contrast with the surrounding green of the vegetation. In the history of agriculture, hoes are precisely the first tools used to work the soil; a clear iconography, even if in later periods, is provided by the Egyptian Ti's tomb in Saqqara (2400 BC). Such irregularly shaped fields are typical of swidden agriculture, dating back to the Neolithic, characterised by the slash-and-burn technique. On the contrary, the use of a plough, a more recent instrument where animal traction eases a straight path and the covering of the terrain is performed by parallel lines, constrains the field to be adapted to a geometric shape, mainly rectangular, like rock art imagery testifies.

Fig. 11 – Fields and pecked areas: (top) Tyrol mountain fields and (bottom) Foppe di Nadro rock 23 (photo *Footsteps of Man*), Valcamonica

Continuing with the interpretative path tied to human landscapes and agriculture, we may include topographic patterns into a wider thematic vein, which we may designate as one of the signs of the land, or of the ground. This vein is also populated by numerous[10] ploughing scenes (ARCÀ, FOSSATI 2013), mainly typical of the subsequent Copper Age and III millennium phases, until the ancient Bronze age, with a plough driven by oxen. Here, although potentially symbolic, the subject is clearly portrayed, and many details of the wooden ploughing tools are revealed. The fact that they represent the only engraved images we have of such ancient instruments testify how important these scenes are in terms of the history of agriculture. Regarding the archaeological findings in Europe proving the animal drive with the use of yokes, we could cite some copper statuettes portraying schematic yoked oxen, like those from the Bytyn hoard (TRB culture) or from the Lisková cave (SK), the latter dating back to the 1st half of the IV millennium BC (STRUHÁR *et al.* 2010).

Starting from the final Bronze age and continuing with the first Iron age, the few ploughing scenes are characterised by horses, in this case only in Valcamonica,

---

10 Copper Age and Ancient Bronze Age ploughing scenes are much more numerous at Mt. Bego (LUMLEY DE 1995) than in Valcamonica, 517 *vs*. 36 (FOSSATI 2008). Schematic ploughing scenes of oxen with linear bodies, very similar to the ancient Mt. Bego ones (BAROCELLI 1928), are engraved on some slabs of the Züschen tomb, which dates back to the IV mill. BC and used until the beginning of the IIIrd. Regarding Mt. Bego Ancient Bronze Age ploughing scenes, some Fontanalba figures depict a kind of plough which can be compared, thanks to the larger log, to the wooden plough found at Lavagnone (DE MARINIS 2000), dendro-chronologically dated to 2048-2010 BC.

since corresponding phases are almost completely absent in Mt. Bego. We must outline that the set of signs of the ground prevails in the most ancient phases (Fig. 12), i.e. during the Neolithic, while starting from the Copper Age it is gradually substituted by the larger thematic vein of the "signs of the war", which at first includes weapons and afterwards warriors.

In considering the idea – which for the moment is demonstrated only for the Iron Age iconography where signs of the war are quite totally dominant – of a prevailing male, and young, authorship in rock art making, we should ask if in a similar way the Neolithic topographic patterns could have had some relation with the (supposed) male tasks of clearing the wood, ridding the stones and tilling the ground. Also the process of taking possession, practically and/or symbolically,
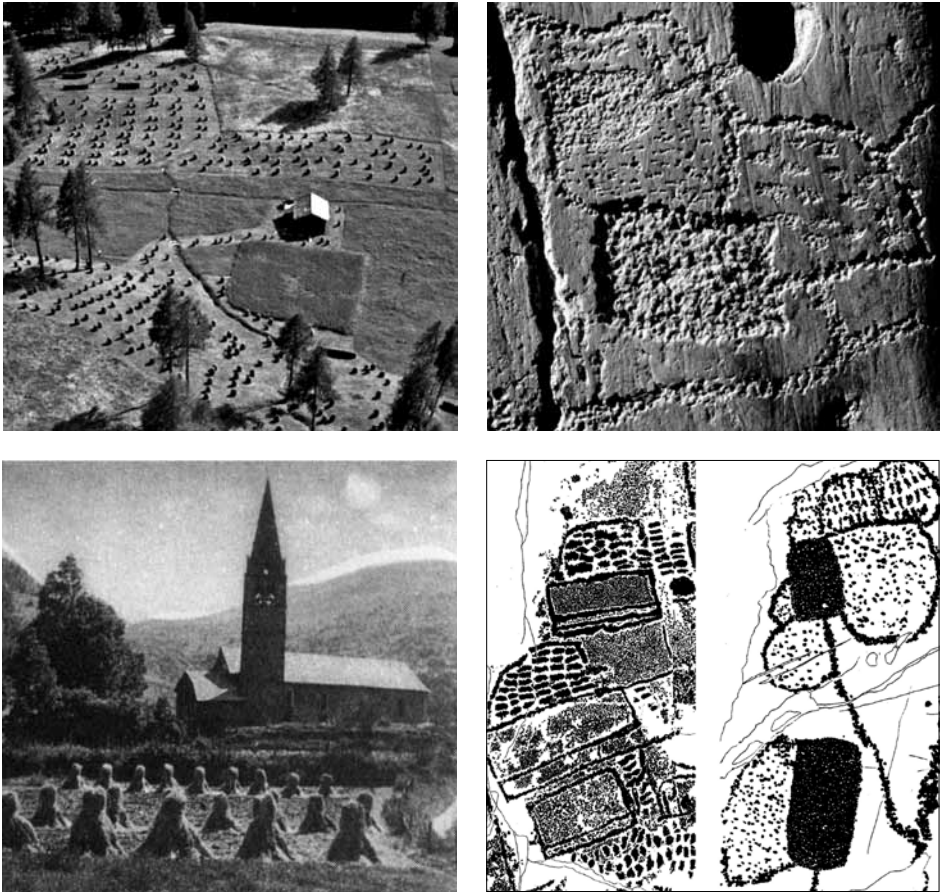

Fig. 12 – Fields and cereal sheaves in the topographic figures and in the Alpine landscape; top left, Tyrolean mountain fields and hay stooks (from a Tappeiner-Lana BZ – I 1995 postcard); top and bottom right, Fontanalba zone XIX topographics, Mt. Bego; bottom left, Haute Provence cereal stooks (from Martel 1983); centre bottom, VIT 29 (Paspardo, Valcamonica); tracings *Footsteps of Man*

of "virgin" land might be invoked. In this sense, the cited ground/war dualism[11] may be framed not as a thematic opposition, but as a diachronic evolution of the core elements capable of inspiring and generating iconography. To clarify this relation, a famous Italian aphorism, which however didn't originate in an archaeological context, underlines that it is the plough that traces the furrow, but it is the sword which defends it.

6. THE MOUNTAIN CULTURE POINT OF VIEW: REAL OR SYMBOLIC?

Regarding the real or symbolic nature of such topographic depictions, it seems undoubtful the usefulness of taking into account the widest range of mountain culture elements, like environment, geomorphology, altitude, economy, archaeological data, ethnography, popular traditions, written sources, sheep farming and so on.

A short mention to the degree of realism or symbolism concealed under topographic compositions has already been made; degree that is not the same if we consider Valcamonica and Mt. Bego under the geomorphological point of view.

In the central alpine rock art pole, engraved rocks are distributed at a much lower altitude than in the south-western one, at an average of 1300-1600 meters below. This circumstance is not the result of a free human choice, but it is clearly related to the amount of shale or sandstone rock formations suitable for engraving practice, as the pairing between geologic map and rock engravings distribution testifies. So, while in Valcamonica we can (but only in some cases) directly see from the engraved surfaces with topographics the surrounding landscapes – in which we might suppose that the depicted fields were distributed, mainly in the plain areas at the bottom of the valley, or on natural terraces along the slopes – for Mt. Bego there is no possibility of such an identification. In this rather lunar, rock-only landscape depicted as infernal[12] by many writers (e.g. BLANC 1878), the high altitude environment prevents the direct vision of cultivable areas, at least of the size that seems depicted by the topographics; here, in many cases, it is possible to find large and complex compositions, which we might call exaggerated and hypertrophic. In this sense, it is possible to speak in terms of symbolic or memory-related patterns: did they, while marking their territory, depict what they would like to see or receive as votive gifts, or what they would like to remember, as signs of memories linked to places where they would like to return, i.e. "home"?

Following such an interpretative line, we should not forget the environmental and ethnographic situation of another high mountain plateau particularly rich in prehistoric engraved rocks, the Oukaïmeden petroglyphic complex (MALHOMME 1959-61; RODRIGUE 1999; EZZIANI 2004), located at 2600 m of altitude in the Moroccan High Atlas, 80 km south-west of Marrakech. Like at Mt. Bego, along its smooth schist surfaces we can discern Copper Age and ancient Bronze Age daggers and halberds, few geometric signs and dottings, and also more ancient subjects (Fig. 13). The site name means the valley of the four winds, and here tribes from different

---

11 Here again, in Italian, the two words produce an assonance, already used by who writes, being "terra/guerra", reprised in CHIODI, BELLANDI 2012.
12 Already in 1878 Edmond Blanc describes the *Marvels valley* area as «*impossible de se figurer rien de plus triste que cette région (…) les sommets du Bégo (…) décharnés, ravinés, horriblement tourmentés par les avalanches, semblent d'immenses squelettes d'êtres infernaux*» (Blanc 1878, page 77).
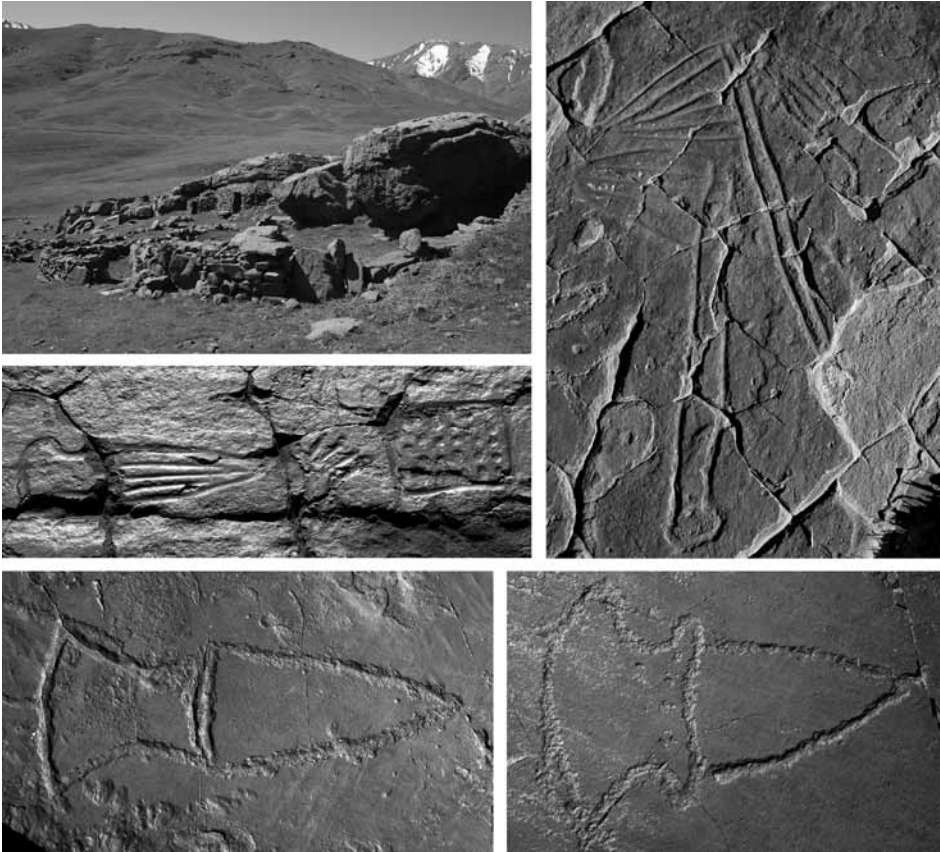
Fig. 13 – Oukaïmeden (Morocco), high mountain stone pens, Copper Age halberds and daggers, geometric figures with aligned dots (photos by A. Arcà)

valleys meet in summertime until October, each with its seasonal stone huts settlement for sheep and goats grazing. While all the village people move to higher altitudes, only young men remain there for the last autumn mountain pasture period, until the grass is suitable for feeding animals or until the first snowfall covers the slopes. In a similar way, in the Bego area the historical writings[13] on the rocks prove how hard and isolated was the life of lonely mountain shepherds on the Maritime Alps[14].

Even if someone may suggest an inappropriate ethnographic comparison, in not being certain the type of Neolithic mountain farming activity at such high altitudes

13 Here some samples of graffiti made by shepherds, excerpted from LUMLEY DE 1995, page 398-399, and translated from Italian (the area was part of Italy until 1947, and under the Savoy dukes since 1581) into English: «in this hell-site shepherds are all suffering like damned souls in the devil's house» (1882); «This year, 1890, the wind and misery reigns here, hunger for the stock» (1890); «I must remain in the midst of these rocks lost as the chamois (...) long is the night (...) who knows when it will be that blessed day I will go down, it's now 30 days that I'm here and I have a long beard like a mountain goat and I will frighten the devil» (1929).

14 Here's an interesting testimony from Davide Bertolotti (translated from Italian): «From eight to sixty years, rarely happens to shepherds to sleep elsewhere than on the naked ground, and mostly under the clear sky. They don't drink wine. They don't eat meat; they rarely use hot foods. Four pounds of grey bread, and some milk products, form their daily food» (BERTOLOTTI 1834 p. 89).

Fig. 14 – Fontanalba, zone XIX, a complex topographic composition with pecked areas, fences and paths (photo by A. Arcà)

of Mt. Bego – even though meaningful data emerge from archaeological test diggings[15] and paleoenvironmental studies[16] – or at Oukaïmeden, it is important to explore any possible productive justification of the seasonal human occupancy of the high slopes. In this sense, again for Mt. Bego, following the idea of topographic engravings not only as territorial marking but also as signs of memories, it would be important to carry out a research aimed at identifying the areas of origin of the shepherds practicing summer pasture and, possibly at the same time, making the engravings.

Taking into account the extent and complexity of the topographic representation (Fig. 14), and considering the number of oxen (up to four) depicted in the Copper Age and Ancient Bronze Age ploughing scenes, plain areas must be supposed. Since Mt. Bego geomorphology is rather complex, with intricate mountain ranges and peaks reaching 3000 m of altitude (the area also hosts the most southern alpine glacier), the surrounding valleys are resultantly quite narrow and consequently the southern Piedmont plain should be favoured. Although this plain area seems far, it's nonetheless the nearest as it takes a two-day journey at most to reach the core of Mt. Bego valleys from south Piedmont, which is obviously not a problem for a three-months *alpage* period.

In the Mt. Bego region, where high altitudes are involved, the duration of summer sheep farming – in more recent times also cows are present – in the high slopes is clearly linked to climatic and weather conditions, as the terrain need to be snow free. The actual duration is about three months, with the ascent taking place around St. John (24 June) and the descent around St. Maurice or St. Michel (22 or 29 September). On late June the slopes are quite snow free, except for canals filled by avalanches, and remain so until the first half of October unless heavy snowfall arrives, and consequently the area may be grazed. The present climate is to be

15 Of the about one hundred seasonal high altitude shelters, ten were subjected to excavations or surveys (a good summary in HUET 2012); in five cases archaeological findings confirm – from the Neolithic to the Early Bronze Age, although not continuously – the seasonal human presence near the upper limits of the wood.
16 As for paleoenvironmental studies (the same summary in HUET 2012), pollen of cerealia appears in the diagrams already in the first half of the V mill. BC; at the same time the presence of coprophagous beetles can be put in relation with the stationing of herds of herbivores at the Inferior Long Lake (2100 m above sea level; PONEL *et al*. 2001). Around the middle of the IV mill. BC, the rise of non-arboreal pollen level and the high rate of Cenopodiacee may testify the building of a mountain farm or a sheep pen near the Lac des Grenouilles at Fontanalba (2000 m above sea level; KHARBOUCH 1996, page 166). Sheep and not cows should be however involved.

considered warm and not so different from the MWP (Medieval Warm Period) and the Neolithic *optimum climaticum*. On the contrary, the recent LIA (Little Ice Age) which lasted from the XVI to XIX cent., reduced the temperatures by 0.8-1.1 C degrees with respect to those of the end of the XX century, not so different from those of the Middle Bronze Age Löbben cold phase, which probably contributed to the end of Mt. Bego engraving activities by pecking. Browsing through 19th-century literature, it is very interesting to read weather and climate descriptions, as in the Émile Rivière 1879 paper, where the famous French archaeologist describes the area as being accessible, and only with daily storms and thunders, just for 40 days a year, from the middle of July to the last week of August, when first snowfalls arrived; today this phase should be shifted towards the end of October, when high pressure sunny days are more common, even if storms, hail and thunders will probably never abandon this region. Rivière research in the area took place about 20 years after the end of the LIA (1850-60), while the cold peak was reached around the '20s of this century.

Regarding human geography, it should be noticed that the most ancient historical written document citing the "marvels" of Mt. Bego engraved rocks, a manuscript by Honorato Lorenzo of the end of the XVI century, copied a century later by Pietro Gioffredo[17], the official historian of the Savoy dukes (Gioffredo *post* 1663-*ante* 1692, pages 26-28), and another manuscript (Nallino 1796 *folio 7 verso, folio* 8 *recto*) written at the end of the XVIII century by Pietro Nallino, a Piedmontese priest, take their origins not in the nearby Tenda and Roia valley area, but respectively from the neighbouring valleys of the Gordolasca (from the west) and of the Gesso rivers (from the north, i.e. south Piedmont). Studying the actual maps – paths and mountain passes are always the same since dictated by the natural geomorphology – 8 and 10 hours of walking are respectively required to reach the *Marvels valley* from the lower Gordolasca valley and the middle Gesso valley, while from Tenda only 5-6 hours are needed.

7. The social anthropology point of view: plots, small farms and societies

Generally speaking, the interpretation of rock art studies is never simple, nor undeniable. In particular, in view of their articulation, this kind of approach could be even deeper when applied to topographic figures and compositions. Until now we have tried to unveil the external layer by reading signs in the ground and agriculture-related elements. Going further, we may pose the question of whether it is possible to establish a relation among the depicted human landscapes and the society who shaped them (Arcà 2010), i.e. if their analysis could contribute to unveil some economic and social data. Continuing along this path, it is useful to turn to social anthropology; Alain Testart is a leading representative of such a discipline, since his studies clearly outline how wealth represents the structural basis for a possible taxonomic classification of human societies (Testart 2005). It is self-evident that land is one of the main pillars on which wealth rests; Testart proposes three levels of human societies – or worlds, as he says – which in short are characterised by: no wealth ("acrematic" society, from Greek, which means

---

17 At the beginning of 2014, I rediscovered such manuscript at the Turin State Archive (Arcà in press). It is the most ancient written detailed source concerning European rock art.
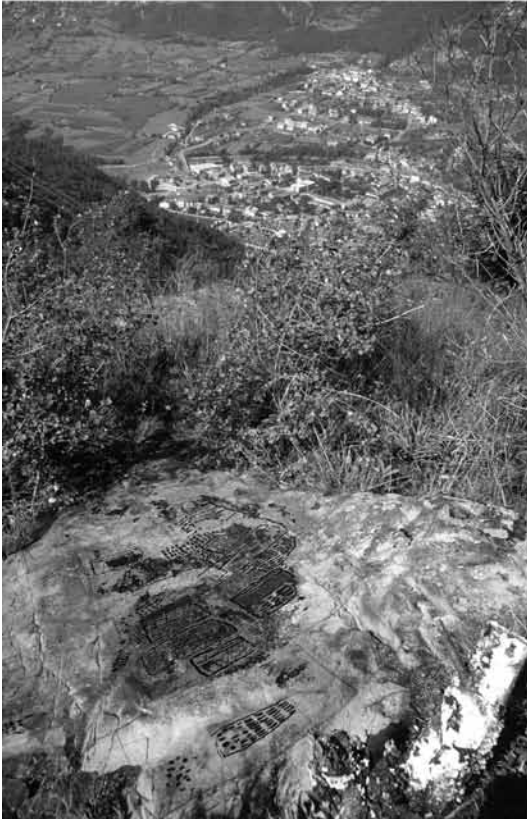
Fig. 15 – Paspardo, Valcamonica, topographic compositions suggesting fields arranged along the mountain slopes; top, VIT 19, grazing light photo and tracing; bottom, VIT 29, panoramic view from the engraved surface and tracing: maculae are overlaid by geometric figures and dottings (photos and tracings *Footsteps of Man*)

no riches); storage of goods and payment of social duties, subdivided into: 2a plutocratic-flaunting society; 2b semi-state society; 2c state or kingdom society; 3) land rent and state organisation.

Following Testart's classification, the alpine prehistoric and proto-historic societies should be categorised as plutocratic-flaunting for the III millennium BC, as testified by megalithic monumental iconography, and semi-state or kingdom societies for the I millennium, as alpine tribe names sculpted in Roman triumphal monuments might suggest.

As land possession[18] is clearly connected to wealth, and the surplus of agricultural products to the storage of goods, we need to scan topographic compositions so as to highlight, if possible, the morphology of plots or farm units and which kind of cultivation is practiced. To achieve this result, the first thing to do, knowing the three millennia chronological gap, is to separate the ancient "maps" (Neolithic-Copper Age) from the Iron Age ones, of which the Bedolina map is the standard-bearer, and compare them.

Placing side by side these two groups, which by sharing many common points may at first look appear quite similar, some interesting differences emerge. Going through the ancient topographic compositions, we may find that modules, or areas, are alike, almost always rectangular and gathered along one or more rows, forming what we could define a sort of agricultural village. Such "hamlets" are sometimes surrounded by a perimeter line (at Paspardo, Valcamonica, VIT 13, 18, 19, 21, 29), probably an enclosure[19] or a fence to protect from herbivores or bears. In Valcamonica, rectangular areas are rarely connected by path-lines (Seradina). In some cases, like at VIT 19 (Paspardo, Valcamonica), the fan alignment may suggest a position along a descending mountain slope (Fig. 15). At Fontanalba, Mt. Bego region, pecked areas, again rectangular, are sometimes gathered, and more often grouped in few elements, quite always surrounded by perimeter oval lines encompassing aligned dots and joined by path-lines. Regarding rectangular areas, while in Valcamonica we may find both those completely pecked and those only outlined – the latter often with inner rectangular divisions – at Fontanalba only pecked ones are present.

Taking into account these conditions, we may assume a connection to a shared property, or a common assignment of the fields to be cultivated. In this sense we may refer to a plutocratic-flaunting society, which corresponds to point 2a of Testart's classification. With regard to the kind of farming, cereals are to be preferred, as the aligned dots, which in some cases occupy a large area (DCP 1 in Valcamonica, Trou de la Feclaz in the French Savoy), may likely symbolize sheaves, since arboriculture and stable housing – in this case dots should have represented piles of manure scattered across the fields to be fertilized – were not practiced at the time. We obviously need to add that the regular dots arrangement prevents the identification of sheep or grazing cattle. Regarding cereal sheaves, it should be pointed out that, due to combines, the practice of leaving them on the

18 Regarding this point, it is useful to recall this Ceasar passage: "*Sueborum gens est longe maxima et bellicosissima Germanorum omnium (…) sed privati ac separati agri apud eos nihil est*" (CAES. *De Bell. Gall.,* IV, 1). Hence no private land possession for a German tribe at the end of the Iron Age.
19 In the case of the VIT19C rock (Paspardo, Valcamonica), the four concentric fences may be interpreted as a de-fensive system.

Fig. 16 – A visual interpretation of the Bedolina map engraved rock (bottom, Valcamonica, Iron Age) in comparison with orchards (Passo Corese – I, photo by Augusto Laghi)

field is today no longer in use. Hence they are no longer recognised as a human landscape feature, as this common practice was in use only until recent times, like in Ireland on stone stands or in the Alps, to allow better ripening and preservation of the grain until the following spring.

During the Iron Age, the engraved "maps" show more regular and spaced out units, always quite square, both in Valcamonica and in the Maurienne valley. They probably depict fields or farms managed more independently on a family-run basis; the spacing between the units is outlined by connecting lines, sometimes very long and zigzagging (Aussois zone 19 rock 1), which most likely represent walking paths. This may suggest an approach to private ownership of land, still based on work and not on possession, while land rent possibilities are still lacking. This may correspond to a semi-state society, i.e. point 2c of Testart's classification. Instead of cereals, the more squared alignment of dots, particularly in Valcamonica, may evoke a tree or bush plantation, like a vineyard; the terrace

where the Bedolina map (Fig. 16) lies is indeed quite well positioned as it faces south-east. The inner circular ring, at times repeated in the Bedolina map, may represent the stone to press the must and the circular channel the drainage conduit. Such stones, with a carved channel and conveying beak, were utilised until the middle of the last century; or else the same ring could be interpreted as a hut, a storage product or a tool shed.

8. Conclusions

Even though the talk could go on much longer, I believe to have exposed enough elements to stimulate a discussion on the subject. As a concluding consideration, it may be appropriate to point out how the individuation of farming-related activities and the ability of suggesting interpretative patterns for the social anthropology may strengthen the topographic and agricultural interpretation of the alpine geometric compositions. Since signs of the ground, they perform as a fundamental semantic focus in the entire alpine rock art panorama, starting from the time of Neolithic settlements to the middle of the first millennium BC, i.e. few centuries before Romanisation.

At the same time the possibility of "reading" on these stone pages the four millennia and beyond long sequence of the development of agricultural practices, from the slash-and-burn technique, i.e. form the birth of agriculture, to ploughed fields and from cereal stooks to orchards or vineyards, underlines the great – but underused – potential of analysis granted by rock art studies to the sciences of the territory, like archaeology, ancient topography and human geography. Like all rock art figures, topographic compositions represent a hidden heritage of precious and valuable iconographic data, difficult to find and see, and surely not easy to explain. If on the one hand the current level of archaeological analysis can shed light on when they were engraved, and the interpretative path can give us an understanding of what is depicted and a glimpse on some aspects of the society that produced them, on the other a deeper and further level may be unreachable: the legacy of our ancestral and fossil cultures doesn't allow us to know if what we are facing are the traces of tribal ritual activities, of individual votive gifts, of memory-related signs or of individual signatures. In any case, from the iconographic point of view, these are the only voices that are still speaking: a more than sufficient reason to carefully listen to them.

Bibliography

Anati E.
1960   *La Civilisation du Val Camonica*, Paris, Arthaud.
1975   *Evoluzione e stile nell'arte rupestre camuna*, Capo di Ponte (Bs), Ed. del Centro.
Arcà A.
1994   *Vite, incisioni topografiche: prima fase dell'arte rupestre camuna*, in «NAB», 2, pp. 91-98.
1995   *La Roccia della Fata*, in *Immagini dalla Preistoria, incisioni e pitture rupestri: nuovi messaggi dalle rocce delle Alpi Occidentali*, Catalogo della mostra in occasione della XXXVII Riunione Scientifica I.I.P.P., Alba (Cn), Boves, Artigrafiche Corall, pp. 96-99.
1999a *Incisioni topografiche e paesaggi agricoli nell'arte rupestre della Valcamonica e del Monte Bego*, in «NAB», 7, pp. 207-234.
1999b *Le pitture rupestri della Balma di Mondon, analisi preliminare*, in «Bollettino della Società Piemontese di Archeologia e Belle Arti», nuova serie, LI, Atti del convegno Archeologia e arte nel Pinerolese e nelle

Valli Valdesi, Pinerolo 15-16 ottobre 1999, [2001], pp. 57-62.

2002 *L'arte rupestre del Rocciamelone, Spirali, meandri, asce e guerrieri tra Novalesa e valle di Susa*, in «Segusium», 41, pp. 35-76.

2004 *The topographic engravings of the Alpine rock-art: fields, settlements and agricultural landscapes*, in Chippindale C., Nash G. (eds.), *Pictures in place: the figured landscapes of Rock-Art*, Cambridge, Cambridge University Press, pp. 318-349.

2005 *Rappresentazioni agricole e scene di aratura nell'arte rupestre della Valcamonica e del Monte Bego*, in «BEPAA», XVI, Aoste, pp. 77-93.

2007 *Le raffigurazioni topografiche, colture e culture preistoriche nella prima fase dell'arte rupestre di Paspardo. Le più antiche testimonianze iconografiche nella storia dell'agricoltura e della topografia*, in Fossati A. (ed.), *La Castagna della Valcamonica. Paspardo, arte rupestre e castanicoltura*, Atti del Convegno interdisciplinare, Paspardo 6-7-8 ottobre 2006, Paspardo (Bs), pp. 35-56.

2009a *Monte Bego e Valcamonica, confronto fra le più antiche le fasi istoriative. Dal Neolitico al Bronzo Antico, parallelismi e differenze tra* marvegie *e* pitoti *dei due poli dell'arte rupestre alpina*, in «RSP», LIX, pp. 265-306.

2010 *Potere, poderi e rappresentazioni del territorio nelle incisioni rupestri alpine dal Neolitico all'età del Ferro*, in «BEPAA», XXI, Aoste, pp. 247-259.

2013 *L'arte rupestre nell'età del Rame: il Monte Bego*, in De Marinis R.C (ed.), *L'età del Rame, La Pianura Padana e le Alpi al tempo di Ötzi*, Roccafranca (Bs), Compagnia della Stampa, pp. 141-160.

Arcà A. (ed.)

2009b *La spada sulla roccia: danze e duelli tra arte rupestre e tradizioni popolari della Valcenischia e delle valli del Moncenisio*, Atti della giornata di studi, 23 maggio 1998 - Novalesa: integrati con il corpus delle incisioni e delle pitture rupestri del complesso petroglifico del massiccio del Rocciamelone e con Giaglione, Venaus, Mompantero, Meana, Mattie e Chiomonte, schede etnografiche, Torino, GRCM.

in press

Honorato Lorenzo, Pietro Gioffredo e il Monbego, un manoscritto ritrovato.

Arcà A., Daudry D., Fossati A.E., Morello F., Raiteri L.

2014 *Il riparo inciso di Montjovet-Chenal (AO), seimila anni e più di iconica rupestre*, in De Marinis R.C. (ed.), *Le manifestazioni del sacro e nella regione alpina e nella pianura padana, studi in*

memoria di Angelo Rampinelli Rota, Atti del Convegno, Brescia, Palazzo Broletto, 23-24 maggio 2014, Nuvolera (Bs), Euroteam, pp. 27-66, DOI: 10.13140/2.1.4082.1444.

Arcà A, Fossati A.E.

2013 *Le scene di lavoro nell'arte rupestre della Valcamonica e del Monte Bego*, in «BEPAA», XXIV, Actes du XIIIe Colloque international sur les Alpes dans l'Antiquité, 12-14 ottobre 2012, Brusson (Ao), pp. 455-462.

Arcà A., Gambari F.M.

2002 *Influenze mediterranee nelle pitture nel Neolitico finale in Piemonte*, in Ferrari A., Visentini P. (eds.), *Il declino del mondo neolitico. Ricerche in Italia centro-settentrionale fra aspetti peninsulari, occidentali e nord-alpini*, Atti del Convegno, 2001, Pordenone, Tipografia Bianchettin, pp. 421-426.

Ayroles P., Porte J.L.

1984 *Saint-Jean-d'Arvey: peintures rupestres. Nouvel abri à peintures de l'Age des Métaux: le Trou de la Feclaz*, in *10 ans d'archéologie en Savoie, Association départementale pour la recherche archéologique en Savoie*, [Chambéry], A.D.R.A.S., pp. 44-48.

Ballet F., Raffaelli P.

1990 *Rupestres. Roches en Savoie, gravures, peintures, cupules*, Chambéry, Musée Savoisien.

1993 *L'art rupestre de Maurienne*, in «Mémoires et Documents de la Société Savoisienne d'Histoire et d'Archéologie», 95.

1996 *Un exemple remarquable: Aussois*, in «L'histoire en Savoie», 31, numéro spécial.

Barocelli P.

1928 *Le incisioni rupestri delle Alpi Marittime (appunti paletnologici)*, in «Historia», II, 1, pp. 19-49.

Battaglia R.

1934 *Ricerche etnografiche sui petroglifi della cerchia alpina*, in «Studi etruschi», vol. VIII, Firenze, pp. 11-48, XXII tavv.

Beltrán Llorís M.

1972 *Los grabados rupestres de Bedolina (Valcamonica)*, in «BCSP», 8, pp. 121-158.

Bertolotti D.

1834 *Viaggio nella Liguria Marittima*, Torino, tip. Botta.

Bicknell C.

1913 *A Guide to the prehistoric Engravings in the Italian Maritime Alps*, Bordighera (Im), G. Bessone; trad. it.: Bicknell C., 1971; *Guida delle incisioni rupestri preistoriche nelle Alpi Marittime italiane*, Bordighera (Im), Istituto internazionale di studi liguri.

Blanc E.

1878 *Etude sur les sculptures préhistoriques du val d'enfer près de Lacs des Merveilles (Italie)*, in

«Mémoires de la Société des sciences naturelles, des lettres et des beaux-arts de Cannes et de l'arrondissement de Grasse», 7, 1877-1878, pp. 72-87.

Blumer W.

1964 *The Oldest Known Plan of an Inhabited Site Dating from the Bronze Age, about the Middle of the Second Millennium B.C.*, in «Imago Mundi», 18, pp. 9-11.

Chiodi C., Bellandi G.

2012 *La roccia 2 di Castagneto (Paspardo, Valcamonica): segni della guerra, segni della terra*, in De Marinis R., Dalmeri G., Pedrotti A. (eds.), IIPP - Atti della XLII Riunione scientifica, l'Arte Preistorica in Italia (Trento, Riva del Garda, Val Camonica, 9-13 ottobre 2007), in «Preistoria Alpina», 46, vol. II, pp. 77-81.

Conti C.

1943 *Scavo nel Gias del Ciari a m. 2210 s. m. Monte Bego-Alpi Marittime (nota preliminare)*, in «BPI», n.s., VII, pp 55-76.

1972 *Corpus delle incisioni di Monte Bego, I, prefazione di Piero Barocelli*, Bordighera (Im) Istituto Internazionale di Studi Liguri.

Coularou J., Jallet F., Colomer A., Balbure J.

2008 *Boussargues, une enceinte chalcolithique des garrigues du sud de la France*, Toulouse, Archives d'Ecologie Préhistorique.

de Marinis R.C.

1997 *The eneolithic cemetery of Remedello Sotto (Bs) and the relative and absolute chronology of the Copper Age in Northern Italy,* in «NAB», 5, pp. 41-59.

2000 *Il museo civico archeologico Giovanni Rambotti: una introduzione alla preistoria del lago di Garda*, Desenzano del Garda (Bs), Assessorato alla cultura, Desenzano del Garda.

Delano Smith C.

1987 *Cartography in the Prehistoric Period in the Old World: Europe, the Middle East, and North Africa*, in Harley J.B., Woodward D. 1987, pp. 54-101.

Ezziani E.H.

2004 *Contribution à une nouvelle chronologie des figures anthropomorphes des gravures rupestres du Haut Atlas (vallée de l'Ourika, Maroc)*, in «L'Anthropologie», 108, pp. 535-563.

Fedele F.G.

2011 *Origini dell'ideologia cerimoniale centroalpina dell'età del Rame: una «fase zero» di IV millennio?* In Casini S. (dir.), 2011, *Il filo del tempo: studi di preistoria e protostoria in onore di Raffaele Carlo de Marinis* in «NAB», 19, pp. 77-100.

Fossati A.

1994 *Le rappresentazioni topografiche,* in Casini S. (coord. scient.), *Le pietre degli dei. Menhir e stele dell'età del Rame in Valcamonica e in Valtellina* Bergamo, Centro culturale Nicolò Rezzara, pp.89-91.

2008 *Paesaggio e agricoltura nell'arte rupestre della Valcamonica*, in Belfanti C.M., Taccolini M. (eds.), *Storia dell'agricoltura bresciana, dall'antichità al secondo Ottocento*, vol. I, Brescia, FcB, pp.89-91.

Fossati A., Arcà A.

2012 *Le pitture rupestri sotto riparo dell'arco alpino, uno sguardo d'insieme*, in De Marinis R., Dalmeri G, Pedrotti A. (eds.), *L'Arte Preistorica in Italia*, IIPP - Atti della XLII Riunione scientifica (Trento, Riva del Garda, Val Camonica, 9-13 ottobre 2007), in «Preistoria Alpina», 46, vol. II, p. 173-178.

Frontini P.

1994 *Il masso Borno 1*, in «NAB», 2, pp. 67-77.

Gambari F. M., Arcà A., Fossati A., Marchi E.

1999 *Cavour, loc. Rocca. Documentazione e catalogazione incisioni e pitture rupestri*, in «QSAP», 6, pp. 214-217.

Gambari F.M.

1992 *Le pitture rupestri della Rocca di Cavour (TO) e le influenze mediterranee nell'arte rupestre dell'Italia nord-occidentale*, in *L'arte in Italia dal Paleolitico all'età del Bronzo*, Atti della XXVIII Riunione Scientifica I.I.P.P. (Firenze 20-22 novembre 1989), Firenze, [s.n.], pp. 399-410.

Gavaldo S.

1995 *Le raffigurazioni topografiche*, in Sansoni U., Gavaldo S., *L'arte rupestre del Pià d'Ort. La vicenda di un santuario preistorico alpino*, Capo di Ponte (Bs), Ed. del Centro, pp. 162-168.

Geist H.

1995 *Fontan, Cime de Causéga*, in Service Régional de l'Archéologie, Direction Régionale des Affaires Culturelles (DRAC), *Bilan scientifique de la région Provence-Alpes-Côte-d'Azur 1994*, Paris, Ministère de la Culture et de la Communication, pp. 91-93.

Gioffredo P.

[post 1663-ante 1692] *Brogliasso originale dell'Abate D. Pietro Gioffredo, nel quale si trovano registrate le memorie dal medesimo raccolte per la compilazione della sua storia delle Alpi Marittime*, ms., ASTo, sez. Corte, Biblioteca antica, manoscritti, mazzo J-a. X 13, libello G, pp. 26-28.

Harley J.B., Woodward D. (eds.)

1987 *Cartography in Prehistoric, Ancient and Medieval Europe and the Mediterranean, The History of Cartography*, v. 1, Chicago, University of Chicago Press.

Huet T.

2012 *Organisation spatiale et sériation des gravures piquetées du mont Bego*, thèse de doctorat de

nouveau régime, Université de Nice-Sophia Antipolis, UFR Lettres, Sciences Humaines et Sociales.

KHARBOUCH M.

1996 *Paléoenvironnement végétal de la région du mont Bego (Tende, Alpes- Maritimes) depuis 15000 ans. Contributions palynologiques et interprétations paléoclimatiques*, Thèse doctorale, Muséum National d'Histoire Naturelle- Institut de Paléontologie humaine, Paris.

LUMLEY DE H.

1995 *Le Grandiose et le Sacré*, Aix-en-Provence, Edisud.MALHOMME J.

MALHOMME J.

1959-61 *Corpus des gravures rupestres du Grand Atlas. Partie I et II*, Rabat, Publication du Service des Antiquités du Maroc.

MANO L.

1998 *Il sito preistorico del gias del Ciari, qt. 2155*, in *Valle delle Meraviglie (Regione del Monte Bego), Tenda. Revisione critica dei reperti emersi dai sondaggi archeologici del 1942*, Atti della XXXII Riunione Scientifica, Preistoria e Protostoria del Piemonte (Alba, 29 settembre - 1° Ottobre 1995), Firenze, pp. 181-183.

MARTINOTTI A.

2006 *Simboli scutiformi e tradizione topografica in Valtellina*, in «Notiziario Istituto Archeologico Valtellinese», 4, pp. 54-88.

2009 *Iconografia delle «rappresentazioni topografiche» in Valtellina tra Eneolitico ed età del Bronzo*, in «BCSP», 35, pp. 99-130.

MILLARD A.R.

1987 *Cartography in the Ancient Near East*, in HARLEY J.B., WOODWARD D. 1987, pp. 107-116.

NALLINO P.

1796 *Il corso del fiume Gesso descritto dal Prete Pietro Nallino, Cittadino di Mondovì, scritto nel 1796 anno in cui Nallino morì*, Torino, Biblioteca Reale, Manoscritti di miscellanea patria.

NISBET R.

1994 *Alcuni aspetti dell'ambiente umano nelle Alpi Cozie fra quinto e quarto millennio BP*, in *Proceedings of International Round Table «Highland Zone Exploitation in Southern Europe»*, Monografie di Natura Bresciana, 20, pp. 259-271.

POGGIANI KELLER R.

2004 *Siti di culto megalitici e occupazione del territorio nell'età del Rame in Valtellina e Valcamonica*, in «BEPAA», XV, pp. 143-160.

2009 *Il santuario di Ossimo-Pat*, in *La Valle delle Incisioni. 1909-2009 cento anni di scoperte.*

1979-2009 trenta anni con l'Unesco in Valle Camonica, Catalogo della mostra (Brescia 21 marzo-10 maggio 2009), pp. 223-236, Brescia, Provincia di Brescia.

PONEL P., ANDRIEU-PONEL V., PARCHOUX F., JUHASZ I., BEAULIEU DE J.L.

2001 *Lateglacial and Holocene high-altitude environmental changes in Vallée des Merveilles (Alpes-Maritimes, France: insect evidence)*, in «Journal of Quaternary Science», 16, 8, p. 795-812.

PONS S.

1938 *Preistoria Valdese: di un antico disegno a calcina della Valle Germanasca (Alpi Cozie) e di alcune ricerche affini*, in «Bollettino della Società di Studi Valdesi», 70, pp.3-17.

RIVIÈRE E.

1879 *Gravures sur roches de Lacs des Merveilles au Val d'Enfer (Italie)*, in *Association Française pour l'avancement des Sciences, compte-rendu de la 7e session*, Paris, pp. 783-793, 1 tav. f.t.

RODRIGUE A.

1999 *L'art rupestre du Haut Atlas Marocain*, Paris, L'Harmattan.

SANSONI U., GAVALDO S.

1995 *L'arte rupestre del Pià d'Ort, la vicenda di un santuario preistorico alpino*, con contributi di L. Bellaspiga e C. Gastaldi, Capo di Ponte (Bs), Ed. del Centro.

SANSONI U., GAVALDO S., GASTALDI C.

1999 *Simboli sulla roccia. L'arte rupestre della Valtellina centrale dalle armi del bronzo ai segni cristiani*, Capo di Ponte (Bs), Ed. del Centro.

SEGLIE D., RICCHIARDI P.

1988 *Pitture rupestri di Ponte Raut in Val Germanasca*, in «Survey», Rivista Internazionale di Arte Rupestre ed Archeologia Cognitiva del CeSMAP - Centro Studi e Museo d'Arte Preistorica, Anno 2°, 3-4, pp. 71-73.

STRUHÁR V., SOJÁK M., KUČEROVÁ M.

2010 *An Aeneolithic copper yoked-ox statuette from the Liskovà cave (northern Slovakia)*, in KALÁBKOVÁ P., KOVÁR B., PAVÚK P., ŠUTEKOVÁ J. (eds.), *PANTA RHEI. Studies in Chronology and Cultural Development of the South-Eastern and Central Europe in Earlier Prehistory Presented to Juraj Pavúk on the Occasion of his 75. Birthday*, «Studia Archaeologica et Mediaevalia», 9, Bratislava, pp. 449-467.

TESTART A.

2005 *Eléments de classification des sociétés*, Paris, Editions Errance.

TURCONI C.

1997 *La mappa di Bedolina nel quadro dell'arte rupestre della Valcamonica*, in «NAB», 5, pp. 85-113.