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The Mesolithic/Neolithic transition in north eastern Italy and in the Adriatic Basin

The importance of the Trieste Karst (north-eastern Italy) and its related territories in the Neolithization process of the Adriatic Basin is mainly due to the fact that this is the only area where traces of interrelationships between the last hunter-gatherers and the first farmers have undoubtedly been detected. Furthermore this is the only region where, around the middle of the seventh millennium BP, three different aspects, the Castelnovian, the Impressed Ware and the Danilo one were active and to a certain extent roughly contemporaneous. In this paper, the problems of the early and middle Holocene of the Trieste Karst are considered in the broader view of the Mesolithic/Neolithic transition in the Adriatic. Along the coasts of this basin, traces of Late Mesolithic settlement are quite rare. This fact highly contrasts with the evidence provided by the first Neolithic, Impressed Ware villages sometimes very abundant especially in the Apulian Peninsula.

Key words: *Adriatic Basin. Castelnovian. Impressed Ware. Danilo.*

PREFACE

The scope of this paper is to outline our knowledge of the events that led to the Neolithization of north-eastern Italy within the broader context of developments in the Adriatic from the beginning of the Holocene to the advent of the first farming cultures.

Our knowledge of the hunter-gatherers communities that inhabited the coasts of the Adriatic basin is very scarce. It is not easy to evaluate whether this is due to 1) the limited number of surveys and excavations carried out in some regions, 2) the absence of interest in the subject demonstrated by most of the Neolithic specialists until a few years ago, 3) the specific orientation of many researchers toward well-defined sites such as multi-stratified cave sequences in order to establish chrono-typological sequences of the material finds and cultural aspects or 4) the scarce interest that archaeo-environmental studies have exercised in some countries, for too many years.

THE MESOLITHIC ALONG THE EASTERN ADRIATIC COASTLINE

The only Mesolithic sites known along the Ionian coastland of Greece are that of Sidari in northern Corfu (Sordinas, 1969), and those discovered by C. Runnels (1995) in south Epirus, on the sandy, coastal dunes close to the modern town of Preveza (Wiseman, 1995). Even though little is known of the flint assemblages from these sites, Harrold *et alii* (2001) mention the presence of trapezoidal microliths and bladelets with denticulated retouch.

The excavations carried out by Sordinas (1969) at the cigar-shaped, coastal shell-midden of Sidari showed evidence of Mesolithic occupation dated to 7770±340 (GXO-770). According to the excavator, the flint assemblage from the Mesolithic layer D, chipped from local pebbles, is characterized by atypical geometrics, among which are rectangles, triangles and trapezes and micro-tranchets. Adam (1999) has recently provided quite a different picture of the same as-

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semblage. She noted that the flint industry, obtained from allochtonous flint, contained no geometrics; on the contrary, unretouched artefacts, cores and technical pieces dominated it. The layer above, C base, from which come flint artefacts and a few fragments of pottery, has been dated to 7670±120 BP (GXO-771); while layer C top, dated to 7340±180 BP (GXO-772) yielded typical Impressed Ware ceramics.

The Konispol Cave is located in the Sarandë district of Albania, very close to the Greek border (Harrold *et alii*, 1999). The cave, which opens at 400 metres of altitude, overlooks the Strait of Corfu. Its stratigraphy shows several periods of occupation from the Late Palaeolithic to the Iron Age (Schuldenrein, 1998). The Mesolithic levels, from which comes an assemblage chipped from flint from the local limestone bedrock, yielded a bladelet industry containing isosceles trapezes obtained without the microburin technique. Five radiocarbon dates indicate that the Mesolithic occupation of the Konispol cave took place between 7630±140 BP (Beta-67804) and 7410±80 BP (Beta-79999).

No other Mesolithic site is so far known from Albania, even though some of the finds of Vlushë (Korkuti and Petruso, 1993), from which come a few geometric microliths (Korkuti, 1995: Tafel 3), are, by some authors, supposed to belong to this age.

Moving further north, other Mesolithic sites do exist in Montenegro where five caves and rock-shelters (Mihailović and Dimitrijević 1995) have yielded archaeological horizons attributed to this period, namely Trebački Krš (Duričić, 1996), Medena Stijena (Mihailović, 1996), Malisina Stijena (Mihailović and Dimitrijević, 1995), Odmut (Kozlowski *et alii*, 1994) and Crvena Stijena (Benac and Brodar, 1958). Only three of these, Odmut, Crvena Stijena and Medena Stijena, produced Late Mesolithic assemblages, while the other two were inhabited during earlier Mesolithic periods. Up-to-now the only Mesolithic radiocarbon-dated site is that of Odmut from which comes a set of 11 dates, all from charcoal, falling between 7790±70 BP (Si-2226) and 6736±130 BP (Z-142). Two more dates, Si-2228: 9135±80 BP and Si-2224: 8590±100 BP seem to be too old to be attributed to the Late Mesolithic horizon.

In a recent paper J.K. Kozlowski (1996) describes in detail the current knowledge in the region between the end of the Pleistocene and the beginning of the middle Holocene. Moving further to the north, the present situation is almost identical to that described by Kozlowski and Kozlowski (1983), some twenty years ago.

The evidence for Mesolithic sites is almost absent all along the Dalmatian coast. Recent discoveries in the Islands of Korčula and Brač seem to indicate the presence of Mesolithic levels at the cave sites of Vela Špilja (Čečuk an Radić, 2000) and Kopačina Špilja (Čečuk, 1995). At Kopačina, a radiocarbon date obtained from land snails collected from the Mesolithic layer gave the result of 9160±100 BP (Z-778).

No other Mesolithic site is known from the entire Dalmatian coast even from areas that have been intensively studied, as that surveyed by the Neothermal Dalmatia Project (Batović and Chapman, 1985) that failed in recovering any trace of Mesolithic occupation in the entire lowlands surrounding the town of Zadar (Chapman *et alii*, 1996).

The only Dalmatian site from which a radiocarbon date is available is that of Gopodska pečina (Malez, 1979), a cave that opens close to the springs of the Cetina River that yielded middle and late Palaeolithic assemblages. A charcoal sample from a fireplace found in layer C produced the date of 7010±90 BP (Z-579) (Srdoč *et alii*, 1981: 411).

The cave of Pupićina peć (Miracle, 1997) in the Karst of central Istria produced evidence of Mesolithic layers attributable to the Preboreal and to the Boreal periods dated between 10000±270 BP (Z-2576) and 8708±70 BP (Z-2635); while the neighbouring small cave of Šebrn Abri was inhabited during the Boreal climatic stage as indicated both by the presence of hypermicrolithic, elongated scalene triangles and by three radiocarbon dates ranging from 9280±40 BP (Beta-120272 and 8810±80 BP (Beta-127707) (Miracle *et alii*, 2000). Another Istrian cave, that of Podosojna (Malez, 1981), was inhabited during both the Sauveterrain and the Castelnovian periods. A radiocarbon date from this latter horizon produced the result of 6460±90 BP (Z-198).

THE MESOLITHIC ALONG THE WESTERN ADRIATIC COASTLINE

The number of Mesolithic sites is very low also along the Italian Adriatic coastline. Many of the sites reported by M. Taschini (1983) as Mesolithic are in fact Late Epigravettian and consequently they are not discussed in this paper. The same is to be said for some of the Apulian cave sites (Grotta di Uluzzo, Grotta del Cavallo, Grotta delle Prazziche and Grotta delle Cipolliane) mentioned by Bietti (1981: 34) in his report on the Epipalaeolithic and Mesolithic of the Italian Peninsula. They are to be attributed to the Late Glacial Romanellian and Epiromanellian Cultures (Milliken, 1998: 277). Nevertheless it is to be noted that a few Early Holocene radiocarbon dates come from the uppermost Romanellian levels of the Grotta Romanelli, where the stratigraphical sequence does not seem to be very clear (Milliken, 1998: 274).

Apart from the above-mentioned localities, the Mesolithic of Apulia is known from a few open-air and cave sites. The Grotta delle Mura, near Monopoli has an interesting stratigraphy, the uppermost layers of which are to be at-

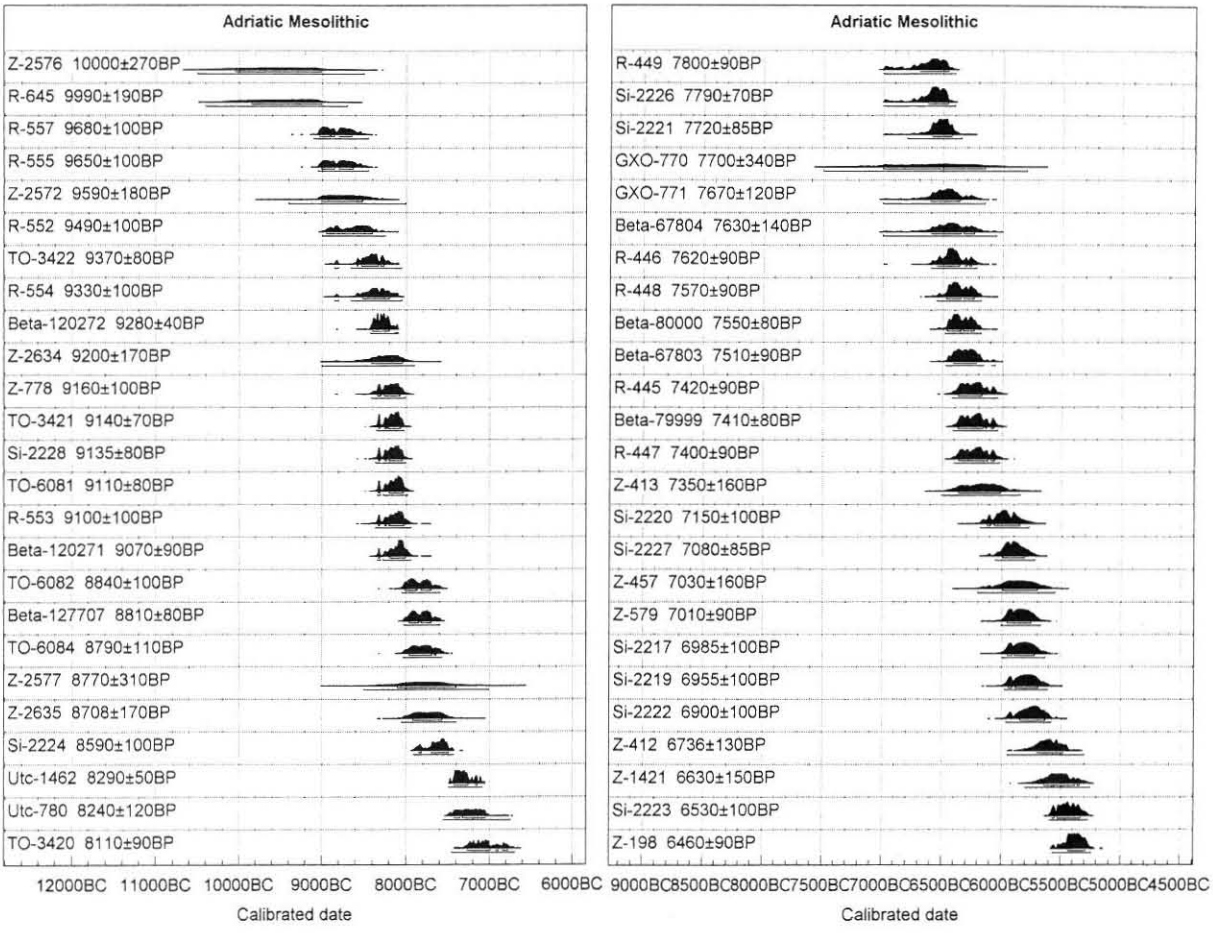

Figure 1. Radiocarbon calibration of the dates from the Adriatic Mesolithic sites (sources: Sordinas, 1969; Malez, 1979; Srdoč *et alii*, 1981; Broglio and Lollini, 1982; Bevilacqua, 1994; Kozlowski *et alii*, 1994; Müller, 1994; Čečuk, 1995; Calattini, 1996; Grifoni Cremonesi, 1996; Miracle, 1997; Harrold *et alii*, 1999; Miracle *et alii*, 2000; Mussi *et alii*, 2000).

tributed to the Mesolithic (layer 2) and to the Early Neolithic (layer 1). The Mesolithic occupation of the cave took place during the Boreal as suggested by both a flint assemblage rich in geometric microliths, such as isosceles triangles and double backed points, and the radiocarbon dates (8290±50 BP: Utc-1417 and 8240±120 BP: Utc-780) (Calattini, 1996: 30).

Late Mesolithic assemblages are recorded from the surface of the open-air sites of the Salento Peninsula, namely those surrounding the Alimini Lakes (Milliken and Skeates, 1990), Torre Testa (Cremonesi, 1978), S. Foca (Ingravallo, 1980) and, most probably, from the surroundings of Oria (Ingravallo, 1977). Another very interesting open-air site is that of Terragne, in the Province of Taranto, at 98 m of altitude, some 11 km from the present coastline (Gorgoglione *et alii*, 1995). This site has shown evidence of Boreal (Sauveterrian) and early Atlantic (Castelnovian) occupation as well as of an Early Neolithic (Impressed Ware) settlement.

Another Mesolithic site of the Salento Peninsula is that of Grotta Marisa (Grixoni, 1997, Pluciennik, 2000) that was inhabited in Boreal times.

The Cave Latronico, in Basilicata has produced evidence of Mesolithic, Castelnovian occupation. Four radiocarbon dates have been obtained from these levels. They range from 7800±90 BP (R-449) to 7400±90 BP (R-447) (Grifoni Cremonesi, 1996). Following M. Taschini (1983: 106-107) the finds from the Riparo Ranaldi, in Lucania (Borzatti von Löwestern, 1971) are not taken into consid-

eration because *il s'agit d'un site dont l'industrie, très pauvres, comprend de rares outil a dos, et aucun grattoir. L'aspect intéressant de ce gisement consiste en la présence, bien que faible, de géométriques, et surtout de trapèzes. L'absence totale de faune ne permet pas d'arriver à conclusions significatives* .

Moving northwards, no evidence of Mesolithic settlement has been recorded during the intensive surveys carried out in the Biferno Valley of Molise (Barker, 1995: 97). On the contrary, a few sites are known in the Abruzzi. A poor Sauveterrian assemblage is recorded from the cave site of Grotta di Pozzo, in the inland Potenza Province, from which eight radiocarbon dates have been obtained ranging from 9370±80 BP (TO-3422) to 8110±90 BP (TO-3420) (Mussi *et alii*, 2000: 279). The Grotta Continenza near Trasacco (Bevilacqua, 1994) gave a typical Mesolithic, Sauveterrain assemblage dated between 9680±100 BP (R-557) and 9100±100 BP (R-553).

Other open-air, undated sites are known at Ripoli (Radmilli and Cremonesi, 1963) and Ortucchio (Grifoni Cremonesi, 1985). The assemblages from these two sites are to be referred to the Sauveterrian Culture, while all the other caves around the Fucino Basin produced only evidence of Final Epigravettian, Palaeolithic occupation (Barker, 1975).

Even though R. Skeates (1999) mentions eight Mesolithic sites from the Abruzzi and Marche regions, only some of these are undoubtedly to be attributed to this period. The cave of Capo d'Acqua opens in the inland Aquila Province. Its peculiar flint assemblage, mainly composed of perforators on flake, is of dubious chronology (Radmilli, 1977: 238). The same observation is to be made for the similar surface assemblage from the open-air site of Campo di Giove.

In the Marche, the poor lithic industry recovered during the excavation of an Iron Age cemetery at Pievetorina, along the Chienti River (Silvestrini, 1991: 50), produced both Sauveterrian and Castelnovian tools. The Grotta del Prete, in the Sentino Valley, inhabited during the Final Epigravettian, was also settled around the beginning of the Preboreal period as indicated by the radiocarbon date of 9990±190 BP (R-645) (Broglio and Lollini, 1982: 56) (fig. 1).

No Mesolithic site is recorded along the Italian Adriatic coastline between the Marche and the Venetian Lagoon (Pluciennik, 1994: 54).

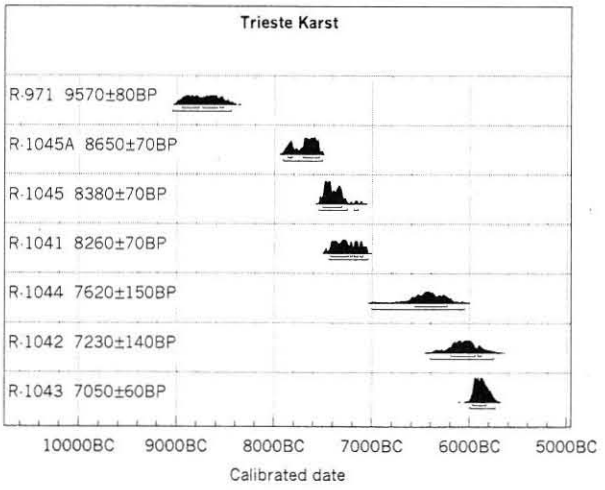

Figure 2. Radiocarbon calibration of the dates from the Trieste Mesolithic sites (source: Alessio *et alii*, 1983).

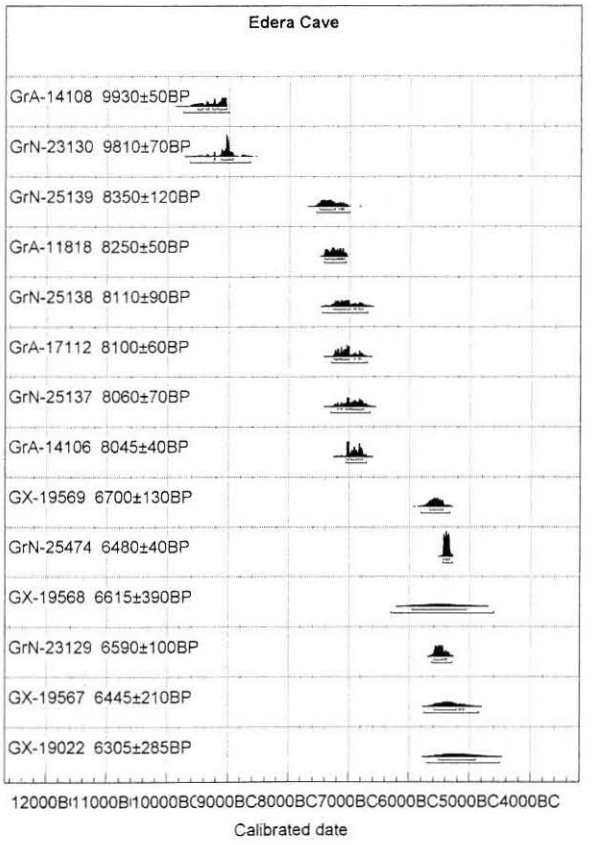

Figure 3. Radiocarbon calibration of the dates from the Edera Cave in the Trieste Karst (sources: Nisbet, 2000; Spataro, 2001).

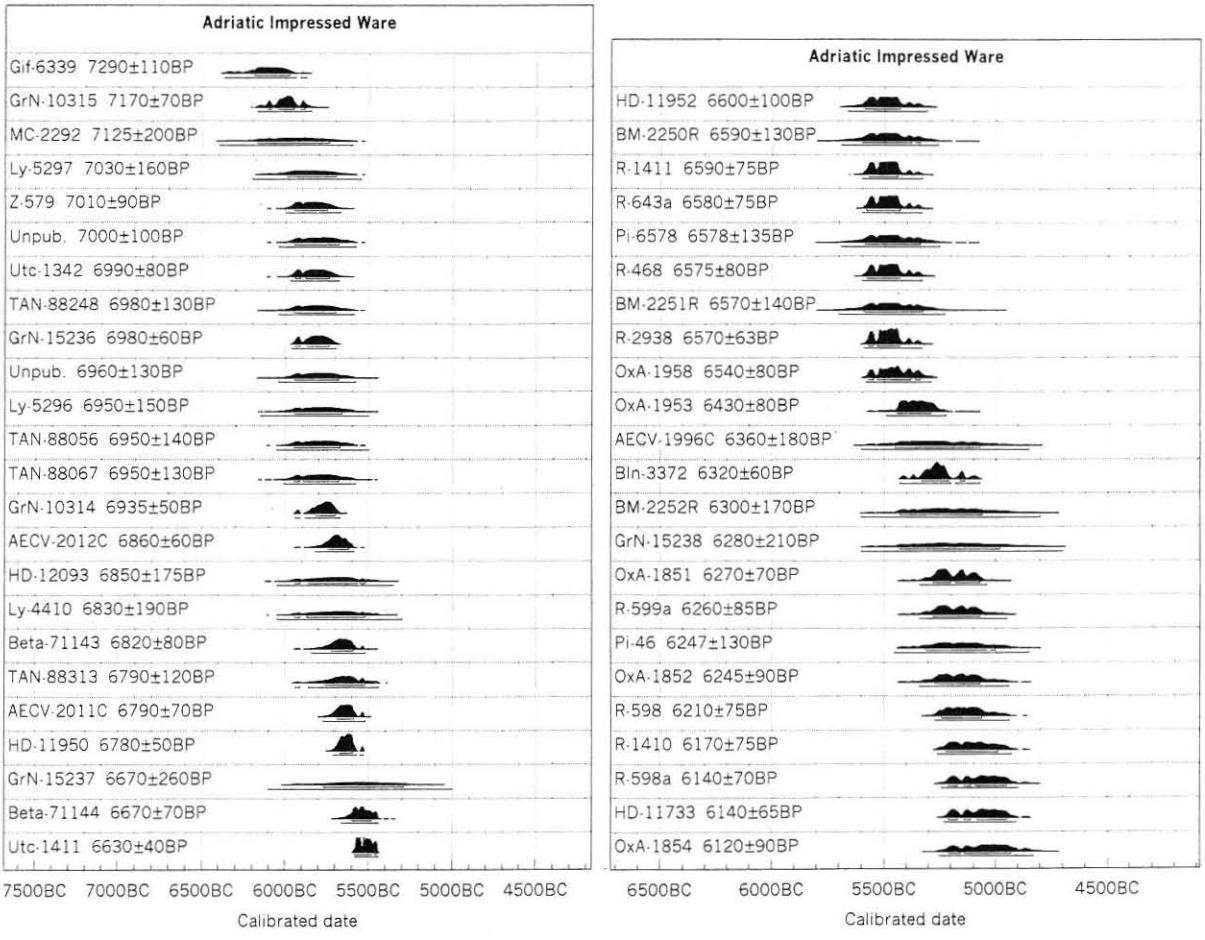

Figure 4. Radiocarbon calibration of the dates from the Adriatic Impressed Ware sites (sources: Gob, 1990; Müller, 1994; Skeates, 1994a; 1994b; Radi, 1995; Pluciennik, 1997; Bermond Montanari, 2000; Vartanian *et alii*, 2000).

THE TRIESTE AND SLOVENE KARST

Mesolithic sites were recognized in the Trieste Karst for the first time in the sixties (Radmilli, 1963). In her summary paper on the Mesolithic/Neolithic transition in the Trieste Karst, Montagnari Kokelj (1993: 73) reports that 18 cave and rock-shelter sites are supposed to have yielded Mesolithic assemblages. Only eight of these *have given materials suitable for analysis*. Four of these sites have been radiocarbon dated, namely the Benussi, Ciclami, Zingari and Edera Caves (Alessio *et alii*, 1983). From the Benussi sequence, from which both Boreal and Early Atlantic assemblages are known, come six radiocarbon dates that span a period between 8650±70 (R-1045A) and 7050±60 BP (R-1043). On the contrary only one date is available for the Zingari Cave that attribute the Mesolithic assemblage to the beginning of the Boreal period (R-971: 9570±80 BP). A Boreal date also comes from the Mesolithic levels of the Ciclami Cave, 8260±60 BP (R-1041) (fig. 2).

The excavations in progress at the Edera Cave have revealed a stratigraphy that, as regards the Holocene deposits, covers a period comprised between the Preboreal Mesolithic and the Migration period (Boschian and Pitti, 1984; Biagi and Voytek, 1994; Biagi *et alii*, 1993; Boschian, 1997). Here, the Preboreal, Sauveterrian Mesolithic occupation of layer 3d has been dated to 9930±50 BP (GrA-14108) and to 9810±70 BP (GrN-23130). The more intensive period of Mesolithic occupation is that represented by the palaeosurface discovered in the Boreal Sauveterrian layer 3c, dated to 8350±120 BP (GrN-25139) and to 8250±50 BP (GrA-

11818). Layer 3b above, marks the transition to the beginning of the Atlantic as indicated by a good set of radiocarbon dates and by the flint assemblage where a few trapezoidal arrowheads make their appearance for the first time. This layer yielded four radiocarbon dates between 8110±90 BP (GrN-25138) and 8045±40 BP (GrA-14106).

The Late Castenovian Mesolithic fireplace discovered in the above-lying layer 3a, from which a few potsherds were also recovered (Spataro, 2001) as well as bones of domesticated animals (Boschin and Riedel, 2000), has been dated to 6700±130 BP (GX-19569) on charcoal, and to 6480±40 BP (GrA-25474) on *Patella caerulea* shellfish. This latter date is questionable since 400 years have been deducted from the original result, corresponding to the supposed marine reservoir effect of the region, even though the real reservoir effect of the upper Adriatic, so rich in underwater springs, has never been calculated (fig. 3).

The results obtained from the study of the flint assemblages from the limited number of sites which allow reliable analysis and the results of the radiocarbon dates, indicate that the Mesolithic occupation of the Trieste Karst caves was in no case a continuous phenomenon. The presence of Preboreal sites is still badly documented. In effect, at present there is no undoubted evidence of human activity (that is of material culture remains such as structures and assemblages) from the Edera Cave layer 3d from which two samples of Pine charcoals have been dated. The more intensive period of occupation is clear from a rather advanced stage of the Boreal, the period which provided the richest assemblages from most of the Trieste Karst caves (Various Authors, 1984). The most intensive trace of Mesolithic occupation from the Edera (Nisbet, 2000), Benussi (Broglio, 1971) and Azzurra Caves (Ciccone, 1992) belong to this period.

Even though the Mesolithic radiocarbon dates from this region are not numerous, the absence of a supposed continuity of settlement of the Trieste caves throughout the entire Mesolithic seems arguably also from the radiocarbon assays. In fact, analysing the Edera Cave sequence, they are clearly subdivided into three well-defined blocks, separated by some one thousand years according to the different periods (Preboreal, Boreal and Atlantic) (fig. 3). Three distinct blocks can also be observed by diagramming the absolute dates obtained from the other four caves (fig. 2).

It is to be noted that also the radiocarbon dates from the Istrian caves of Pupićina peć (Miracle, 1997) and Šebrn Abri (Miracle *et alii*, 2000) indicate more intensive periods of occupation during the Boreal periods. The recent discovery of rock-shelters rich in typical Sauveterrian, Boreal assemblages in the Slovene Karst, close to the course of the Timavo River might reinforce this view (Turk, pers. comm. 2000).

The Early Atlantic Mesolithic, Castelnovian occupation of the Trieste caves seems to be much more episodic. The occurrence of very few trapezoidal arrowheads at the top of the Boreal sequences, such as that of the Grotta Azzurra and other caves, seems to indicate a sudden interruption of habitation of most of the Trieste Karst caves at the very beginning of the Atlantic pollen stage, as already suggested by Cremonesi *et alii* (1984a; 1984b) and Ciccone (1992: 42).

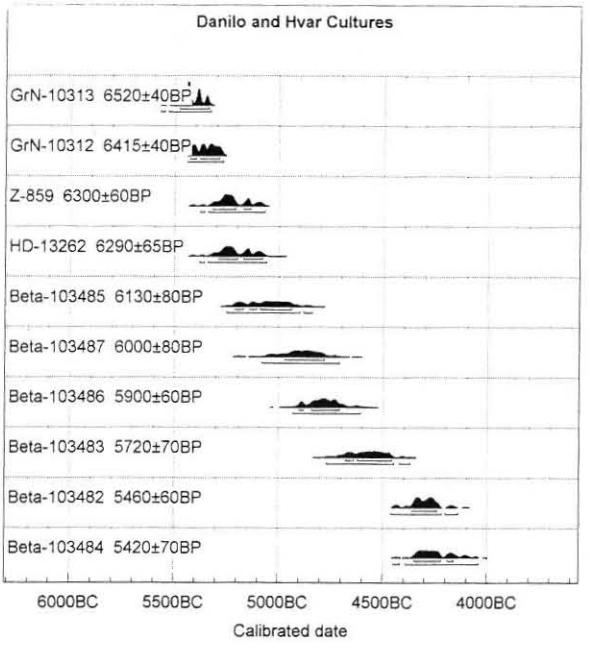

Figure 5. Radiocarbon calibration of the dates from the Danilo and Hvar Culture sites of the Dalmatian coast (sources: CHAPMAN, 1988; FORENBAHER AND KAISER, 2000).

THE IMPRESSED WARE AND DANILO CULTURES ALONG THE ADRIATIC COASTLINES

According to the available radiocarbon evidence, the first farming communities of the *Cardium* Impressed Ware Culture settled along the coast of Apulia during the last two centuries of the eight millennium BP (Vartanian *et alii*, 2000) (fig. 4). Similar dates are known also from a few *Cardium* Impressed Ware sites of the Dalmatian coast (Müller, 1994; Bass, 1998). But, while strong differences can be observed in the Impressed Ware material culture assemblages of the south-east and central-east Italian sites, *Cardium* Impressed Ware sites are well attested along the entire coast of Dalmatia (Müller, 1988) as far as Pula in Istria (Petrić, 1978-79);

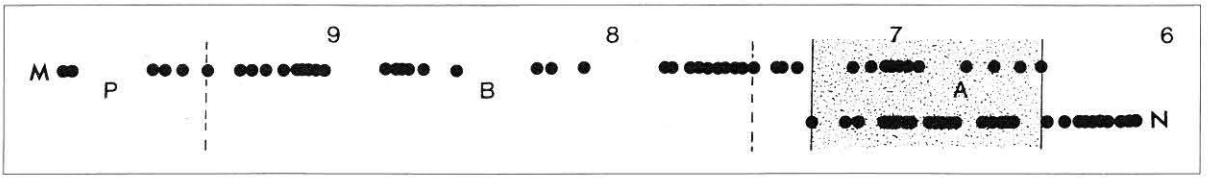

Figure 6. Scatterplot of the Mesolithic (M) and of the Impressed Ware (N) radiocarbon dates of the study region. P=Preboreal, B=Boreal, A=Atlantic. 6=6,000 etc. The shaded area indicates overlapping dates (*drawn by P. Biagi*).

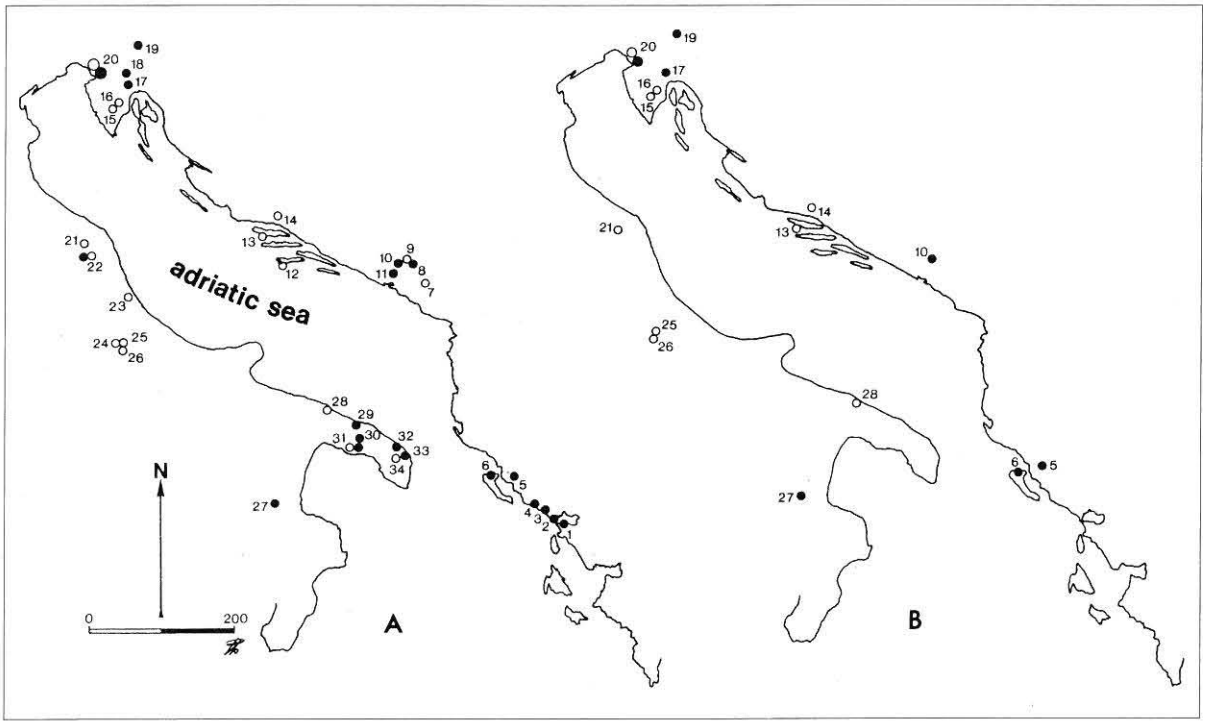

Figure 7. Distribution map of the early, Preboreal and Boreal (circles) and Late, Atlantic (dots) Mesolithic sites mentioned in the text. 1) Tourkovouni, 2) Preveza, 3) Loutsa, 4) Ammoudia, 5) Konispol Cave, 6) Sidari, 7) Trebački Krš, 8) Medena Stijena, 9) Malisina Stijena, 10) Odmut, 11) Crvena Stijena, 12) Vela Špilja, 13) Kopačina Špilja, 14) Gopodska pečina, 15) Pupićina peć, 16) Šebrn abri, 17) Podosojna, 18) Pod Črmukljo and Dedkov Trebe, 19) Breg and Ljubljana marsh sites, 20) Trieste and Slovene Karst caves, 21) Grotta del Prete, 22) Pievetorina, 23) Ripoli, 24) Ortucchio, 25) Grotta Continenza, 26) Grotta di Pozzo, 27) Latronico, 28) Grotta delle Mura, 29) Torre Testa, 30) Oria, 31) Terragne, 32) S. Foca, 33) Alimini Lakes, 34) Grotta Marisa (A). Distribution map of the radiocrabon dated Mesolithic sites of the same region (B) (*drawn by P. Biagi*).

their occurrence in the Trieste Karst caves is still debated (Velušček, 1997). It is well known that, along the Italian Adriatic coastline, the Impressed Ware Culture took some one thousand years to expand as far as Romagna (Bagolini *et alii*, 1989), where several sites are known including the well-dated open-air settlement of Fornace Cappuccini near Faenza (Bermond Montanari, 2000).

The abundance of sites of this culture in some regions as, for instance, the Apulian Tavoliere (Tiné, 1983) and the surroundings of Zadar in Dalmatia (Batović, 1966), highly contrasts with the great scarcity of Mesolithic occupation in the same areas.

As mentioned above, the presence of Impressed Ware ceramics from the Trieste Karst caves is highly questionable. With the exception of one single potsherd described by Cannarella and Cremonesi (1967: 298), found during the 1961-63 excavations at the Azzurra Cave, all the others are known from the description given by Korošec (1960) and

Leben (1967). These finds are supposed to come from Vlaš ka Jama or Pejca v Lašci (Caverna del Pettirosso), even though their real provenance is extremely uncertain.

As suggested by the available stratigraphic evidence, the first Neolithic of the Trieste Karst is represented by the so-called Vlaška Group, an impoverished aspect of the Danilo Culture (Barfield, 1972). This aspect, attributed to the middle of the seventh millennium BP on the basis of the absolute dates obtained from the Edera Cave sequence, is in fact contemporary to the Danilo Culture of the Dalmatian coast according to the radiocarbon evidence (Chapman, 1988) (fig. 5)

DISCUSSION

The present archaeological evidence clearly demonstrates that the Neolithization of the Adriatic coast took place between the end of the eight and the beginning of the seventh millennium BP. The traces left by the last Mesolithic hunter-gatherers of the Castelnovian Culture are extremely scarce. In fact they do not support the view suggested by Zvelebil and Lillie (2000) for the region under study as well as for the entire Balkan and Italian Peninsulas. In their paper, Zvelebil and Lillie (2000: 71) describe a few well-defined areas, including the entire Dalmatian Coast as well as the Salento Peninsula of south-eastern Italy, where *pottery was introduced first into forager communities in the Availability phase*, as well as *areas of concentrated hunter-gatherer settlement*. These latter would include, among others, a wide territory surrounding the upper course of the Sava River, a large mountainous region including part of Croatia, Bosnia, Montenegro and northern Albania as well as the Salento Peninsula and the entire, western Italian Peninsula.

Contrary to their undocumented opinions, it is well known that, for instance, Mesolithic sites are absolutely unknown along the entire course of the Sava and its surroundings. A distribution of the Late Palaeolithic an Mesolithic sites of the area was published by Kozlowski and Kozlowski (1983: 55), who mapped only two Tardigravettian sites, those of Polijšiška Cerekev and Vindja. Furthermore, the Mesolithic sites are extremely unwell represented (and not concentrated at all) along the western Italian Peninsula as reported by Taschini (1983) in her summary paper. A distribution map of the presently known Mesolithic sites of the other two regions of *concentrated hunter-gatherer settlement*, based on the evidence so far published, is provided in fig. 6, from which the scarcity (and not the concentration) of Mesolithic sites is evident.

It is to be pointed out that, as regards the process of the Mesolithic/Neolithic transition in the Adriatic Basin, the occurrence of Early Mesolithic, Sauveterrian sites is irrelevant since, as already demonstrated by Binder (2000: 121) for northern Italy and southern France, *the Sauveterrian Culture is not involved in the transition to agriculture*.

Furthermore, the (typological) seriation of the Late Mesolithic Castelnovian Culture is badly known (Biagi, 2001). This is particularly clear from the Adige Valley sequences excavated in the Trento basin (Broglio, 1971; Clark, 2000), as well as from the Trieste Karst caves. In both these regions the best-documented series are those of the Boreal, Sauveterrian Mesolithic, while the Castelnovian ones are often truncated or of difficult stratigraphic interpretation. An increase of population from the Boreal Mesolithic to the Atlantic Castelnovian is not attested at all. In northern Italy, isolated finds or scatters of typologically characteristic flint tools often represent the Castelnovian sites, while the *in situ* sites are extremely rare.

The graph of the Adriatic Mesolithic and Impressed Ware radiocarbon dates, indicates that they overlap around the beginning of the Atlantic, that is during the second half of the eight and the first half of the seventh millennium BP (Müller, 2000) (fig. 7). Nevertheless it must be stressed that, while the Late Mesolithic dates are all from east Adriatic sites, mainly from the Odmut Cave and from Slovenian open-air sites, the overlapping Impressed Ware ones are from *Cardium* Impressed Ware settlements located south of the Pescaro River in central Italy (Müller, 1988) or along the Dalmatian coast. It is very clear from the graph that the Boreal, Sauveterrian Mesolithic was not involved in the Neolithization process.

At this stage of research, apart from a long series of purely speculative and never confirmed theories (Zvelebil, 1994), the main question is: where were the Mesolithic populations at the beginning of the Atlantic period? this question has already been put for the entire Balkan Peninsula (Bailey, 2000), where the situation is in some way comparable to that of the Adriatic basin.

The importance of the Trieste Karst for the understanding of the phenomenon in that region is due to the fact that the territory is located in a key zone. It is close to the northern limit reached by the spread of the Dalmatian Impressed Ware, at the north-western extreme of the distribution of the Danilo Culture, which according to the most recent data, reached the eastern Friuli Plain around the middle of the seventh millennium BP (Ferrari and Pessina, 2000; Pessina, 2000). At the same time, there is evidence for the last hunter-gatherers in the Trieste Karst. At the excavations carried out at the Edera Cave, fireplace 3a yielded a typical Castelnovian flint assemblage as well as a few potsherds of allochtonous provenance (Spataro, 2001) and remains of wild and domesticated animals (Boschin and Riedel, 2000).

This means that around the middle of the seventh millennium three different cultures were active in the Trieste Karst or in its neighbouring areas, including the Istrian coastline: the Castelnovian Late Mesolithic, the Vlaška (Danilo) Culture and the Impressed Ware Culture. At present the way these cultures interacted is difficult to specify, given the paucity of reliable archaeological data.

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