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The beginning of the Neolithic era in Central Italy



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ABSTRACT

This paper presents the general profile of the first farming communities of Central Italy in the Early Neolithic Era. Data shows the spread of early Neolithic cultures in the Italian peninsula at the beginning of the VI millennium B.C. The first Neolithic groups appeared in the southern regions of the peninsula and moved northwards following two trajectories along the Tyrrhenian and Adriatic coasts. The process of Neolithisation was initiated by peoples who probably came from different areas and traditions creating, over time, two distinct areas within the Italian peninsula, each with its own specific cultural features. Finally the article looks at how intensive exchanges both of complex knowledge and raw materials occurred between these two distinct cultural worlds.

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1. Foreword

From the beginning of the VI millennium B.C. Cal., the Neolithisation of the Italian peninsula is the outcome of the maritime diffusion of human groups producing impressed ware over the North-western Mediterranean.

The Po Valley and the Alps are excluded from this process given that the Neolithic era only started in these areas several centuries later. Radiometric dating indicates that the earliest evidence of the Neolithisation process is found along the Italian coast of Apulia, between the Tremiti islands and the gulf of Taranto, as well as along the Northern Ionic coast of Calabria. The maritime diffusion of Neolithic culture along the Tyrrhenian coast occurred very rapidly, as suggested by the impressed-ceramic levels discovered in the Arene Candide cave which, when dated, indicated a small gap in time with respect to the slower chronologies of the south east of the Peninsula (Radi, 2010).

The penetration into the hinterland was fast, following rivers or skirting the borders of marshy areas. The coastal villages of the Ionic bow, such as Favella della Corte (Cosenza) in North-eastern Calabria and Torre Sabea (Lecce) on the western coast of Salento (Tinè V., 2009; Guilaine and Cremonesi, 2003), have been dated to the first centuries of the VI millennium B.C. Cal. In Apulia, several

settlements have also been dated to this period, from the Gulf of Manfredonia (Foggia) and the Tavoliere, down to the province of Brindisi (Radina, 2002), and probably also other sites further inland, such as Trasano, in the Matera territory, or Rendina, on the middle course of the Ofanto river (Potenza). It is worth noting that the datings of these last two sites have to be carefully re-evaluated, due to their high approximation. (Tinè V., 2002; Guilaine and Cremonesi, 1987; Cipolloni Sampò, 1977–82).

In this first phase of settlement, while most of the datings indicate that several villages had been established by about 5900 B.C. Cal., the arrival of the first foreign settlers in this part of the peninsula might rather have happened towards the end of the VII millennium, as attested by the few datings available (Pulo di Mol-fetta: Fiorentino et al., 2013). Having said that, the mine in Defensola in Gargano (Foggia: Galiberti, 2005) should also be considered. Given that the extensive exploitation of the area has been dated to the beginning of the VI millennium, it is almost certain that the search for a site where the flint could be mined, and the opening of the mine itself, must have happened during an earlier period.

Of the various sites, the open air villages played a special role in the cultural definition of the first Neolithic phase. Nevertheless, some cave stratigraphies undoubtedly contributed to the recognition of successive use and to sketch a general cultural picture, providing different views from that of villages being seen as generally related to temporary occupations and/or ideological practices. At present, it is possible to delineate a general picture of Early Neolithic thanks to the recent research carried out on several

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sites. The analysed villages reveal all the typical Neolithic features: organized settlements with specialized structures for different functions; ceramic production and smoothed-stone artefacts; and tools and remnants of productive activity such as agriculture and animal husbandry.

2. First farmers and late mesolithic groups

Some elements of the Neolithic chipped stone industries could also be attributable to Late Mesolithic tradition: such as laminar *débitage* (in general, as well as that obtained by pressure), microburin technique, geometric instruments, particular denticulates together with the choice of the *Columbella rustica* for ornamental objects. However, in most of the territories of dense Neolithic settlement, there is no evidence of Castelnovian groups (Grifoni Cremonesi and Radi, 2014). Indeed, the only evidence available is at the southern Italian site of Latronico 3 and that of Tuppo dei Sassi, in central-western Basilicata (Potenza) (Dini et al., 2008; Borzatti, 1971). The notion that Stratigraphic Unit 5 in the Terragne site or the artefacts collected on surface at Laghi Alimini (Gorgoglione et al., 1995; Milliken and Skeates, 1990) are of Castelnovian origin should not be taken into account.

It is reasonable to assume that the new Neolithic settlers landed in regions that were not entirely unpopulated. Furthermore, the scarcity of evidence of Castelnovian activity can be explained by the thinness of the original deposits, in addition to the depletion by later occupations or erosion (Berger and Guilaine, 2009).

Conversely, the Tuscan-Emilian Apennines show a different situation as they do include some Castelnovian sites. In this area the referential stratigraphy for Castelnovian is given principally by the Lama Lite site (6.624 ± 45 BP, R-394: 5.630–5.480 BC Cal.; Fontana et al., 2013; Dini and Fioravanti, 2011; Castelletti et al., 1976) along with as other settlements, though less rich, such as Passo della Comunella (Reggio Emilia: Fontana et al., 2013; Cremaschi and Castelletti, 1975), Corni Piccoli (Reggio Emilia: Biagi et al., 1980), and Piazzana (Lucca: Notini, 1983; Martini and Tozzi, 1996).

The chronology of these last sites is not so very different from those of the oldest Neolithic deposits, like Pian di Cerreto (Lucca, [R-548] 6.680 ± 80 BP and [R-2702] 6.447 ± 56 BP: 5716–5486 BC Cal. and 5492–5315 BC Cal., using OxCal 4.2-IntCal13, Ramsey and Lee, 2013; Moriconi, 2008) and Monte Frignone II (Lucca, [LTL2653A] 6.624 ± 45 BP and [LTL2656A] 6.168 ± 50 BP: 5626–5487 BC Cal. and 5231–4988 BC Cal., using OxCal 4.2-IntCal13, Ramsey and Lee, 2013; Dini and Fioravanti, 2011). Data collected from these sites reveals a mixed area, occupied by different groups with their own economies and cultures, and the datings suggest that these communities may actually have been in contact with one another.

3. The central regions of the peninsula

The occupation of the central regions occurs on both sides of the Italian peninsula (Fig. 1) in different ways, by human groups probably coming from different areas and traditions, yet belonging to the same impressed-ceramic world.

At the dawn of the VI millennium B.C. Cal., pioneers sailed the Adriatic Sea, leaving traces all along the eastern coast, and settled in the southern areas of Italy. Even though we do not have data to prove they might also have landed on the Abruzzo and/or Marche coasts, we cannot exclude the hypothesis that they actually did.

The discovery of obsidian artefacts (from the islands of Palmarola and Lipari) along the Tyrrhenian coast suggests the movement of seagoing pioneers from South to North.

The Apennine range lies along the North/South axis of the peninsula and, in the central regions, separates two zones with different cultural features which are particularly evident with

regard to pottery complexes. Even so, the Apennines do not represent an impenetrable barrier between both areas, and the speed of this exchange is evidenced by several findings at various sites that attest to the trade of raw materials as well as the exchange of knowledge.

3.1. The Middle-Adriatic province

It was already well documented in the 1970's that, in these regions, the Early Neolithic was thought to be a relatively homogeneous and late phenomenon (Radmilli, 1974; Bagolini and Von Eles, 1978). Later research has, however, revealed elements of innovation and highlighted a more complex and dynamic situation, and in the process, actually anticipated the beginning of the Neolithic phase (Cremonesi and Tozzi, 1987; Radi, 1995; Pessina, 2002). Indeed, the Middle-Adriatic region is now divided into two differentiated areas with respect to their ceramic productions. In Northern Abruzzo and Marche, up to Romagna, the pottery is poorly decorated, with very simple techniques and motifs. The ceramic complexes found in Southern Abruzzo and Molise, on the other hand, show technical and stylistic features that echo the Early Neolithic period of Apulia and, in particular, the Guadone facies (Tinè S. and Bernabò Brea, 1980). Proceeding northwards from Molise to Abruzzo, these southern features decrease. One of the most typical features of Southern Italian complexes is the abundance of decorated ceramics (accounting for up to 80 or 90%); but while in Monte Mauro (Campobasso, Molise) the amount is still high (about 50% of the whole), in Abruzzo it decreases significantly (Barker, 1995; Fabbri et al., 2011). At present, we can posit that groups of farmers coming from Tavoliere-Gargano, moved northwards in a period corresponding to the Guadone phase of the local impressed ware, dated to 5900–5800 years B.C. Cal.

The location of the sites, on river terraces, a few kilometres from the coast, testify to the farmers' progress along a coastal axis: Monte Mauro, on the lower course of the Biferno river (Barker, 1995), Torre Sinello (Chieti: Ceruleo and Giacci, 1988), Villaggio Rossi, Marcanese (Chieti: Geniolo, 1982), Tricalle (Chieti) and Fontanelle (Pescara), south of the Pescara river mouth (Ducci et al., 1986–87).

But the important and widespread archeological evidence found in the inner Abruzzo region (Marsica area: L'Aquila), suggest the hypothesis of a northward transfer along an inner path too. A few traces found in Lago di San Lorenzo (Civitanova del Sannio, Isernia: Fontana, 2010), close to a historical transhumance path from the Abruzzo National park to the Tavoliere, support this hypothesis. These seasonal paths follow trajectories naturally adapted to the passage of men and animals in mountain regions; it is reasonable to think that these same paths might also have been suitable for those prehistoric human groups moving inland from the south east, following the rivers and stopping at springs and natural shelters.

Evidences found in Marsica, particularly in Fucino (L'Aquila) where a large tectonic depression indicates that it was once occupied by a lake, testify to a widespread settlement of Early Neolithic peoples.

Villages were located on terraces overlooking the sides of the lake, on the north-west as at the Paterno site (Pessina, 1991) and on the southeast as at Colle Santo Stefano (Radi and Wilkens, 1989; Radi et al., 2001), Rio Tana (D'Ercole et al., 2001), and Ortucchio-Laghetto (Angeli and Ventura, 2011). Furthermore, the data yielded by the southern mountain caves completes the picture of stable and culturally homogeneous communities.

The results of the Southern Abruzzo study, and in particular that of the Colle Santo Stefano village, allow for the defining of the so-called "southern affinity" facies, as well as additional considerations about the local diffusion of Neolithic culture.

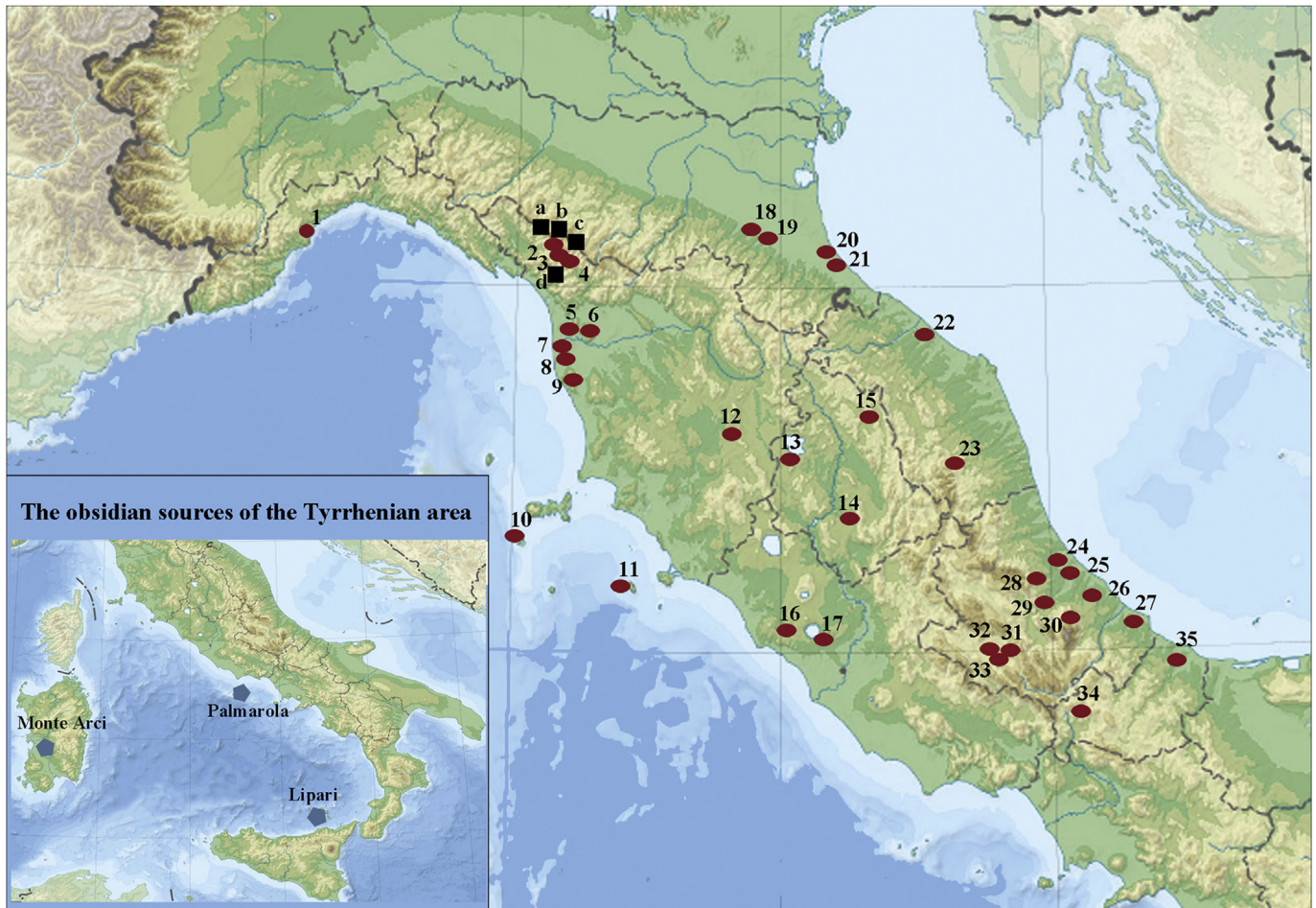


Fig. 1. Geographic Distribution of the Central Italy Sites Mentioned in the Text: Late Mesolithic sites: a) Passo della Comunella; b) Corni Piccoli; c) Lama Lite; d) Piazzana Early Neolithic sites: Liguria: 1) Arene Candide; Tuscany: 2) M.te Frignone; 3) Pian di Cerreto; 4) Muraccio; 5) La Romita di Asciano; 6) Grotta del Leone di Agnano; 7) Le Dune di Poggio di Mezzo di San Rossore; 8) Coltano; 9) Casa Querciolaia; 10) Pianosa island: La Scola, Cala Giovanna Piano; 11) Giglio island: Le Secche; 12) Cava Barbieri di Pienza; Umbria: 13) La Lucciola di Panicarola; 14) I Pozzi della Piana; 15) S.Marco di Gubbio; Lazio: 16) La Marmotta; 17) San Pietrino; Emilia Romagna: 18) Ospedale Nuovo di Imola; 19) Fornace Cappuccini di Faenza; 20) Miramare; 21) Misano; Marche: 22) Ripabianca di Monterado; 23) Maddalena di Muccia; Abruzzo: 24) Fontanelle; 25) Tricalle; 26) Villaggio Rossi di Marcianese; 27) Torre Sinello; 28) Grotta dei Piccioni; 29) Villaggio Leopardi; 30) Fonti Rossi di Lama dei Peligni; 31) Colle Santo Stefano, Rio Tana, Ortucchio-Laghetto; 32) Paterno; 33) Grotta Continenza; Molise: 34) Lago di San Lorenzo; 35) Monte Maulo.

At Colle Santo Stefano, ceramic production is clearly connected with the world of the southern Early Neolithic. Its claymaking techniques, manufacture, vessel morphology and, most of all, the scheme and technique of the decoration (the use of cardium decoration; the rocker; geometric patterning, particularly stripes and triangles; anthropomorphic protomes), all represent a clear connection to the South-East of the Peninsula (Fig. 2A) (Fabbri, 2006).

Quantitative studies of pottery materials with respect to their stratigraphic location have highlighted that the ceramic complex changed over time, by means of a progressive reduction of the southern elements and the production of more specialized ceramics with reduced and simplified decorative elements (Fabbri et al., 2011). The use of the ridged cockle shells, decorative motifs such as the rocker, and techniques such as sequences, are reduced to only a few units. Only those decorations impressed digitally, by generic tools or engraved, are preserved. It is probable that these communities, once firmly settled in the new territory of Fucino, did not persist with the decorative elements inherited from their ancestors.

Radiometric dating carried out on samples of coal and a caryopsis of *Triticum* sp. show that the time span of Colle Santo Stefano

ranges between 5800–5600 and 5700–5400 years B.C. Cal., whose first values correspond to the same phase determined by the nearby site of Rio Tana (Fabbri et al., 2011; D'Ercole et al., 2001). These are the earliest known dates for the Early Neolithic of the Middle Adriatic eras and anticipate the Neolithic peopling of this area by about two centuries earlier than was previously assumed for Abruzzo and Marche (Radi, 1995).

Starting from the first arrival of these new settlers and for the entire existence of the village at Colle Santo Stefano the settlements became more stable and the communities more organized throughout Marsica. The improvement of economic and manufacturing activity brought with it interaction with neighbouring communities by way of the exchange of raw materials along with an assimilation of new customs and behaviour patterns.

The introduction of foreign raw materials in the late phases of the village, such as very large amounts of obsidian and lithotypes for smoothed-object products and larger quantities of mollusc shells from the coast to produce ornamentation, indicate that the area was part of in a complex network of trades. The Colle Santo Stefano village played a central role as both a collection and distribution site. The transfer of obsidian towards Marcianese and Maddalena di Muccia northwards, up to Romagna, may have passed



Fig. 2. Adriatic Impressed-Ware Culture. Pottery: A. Colle Santo Stefano; B. Fornace Cappuccini (Ravenna, Emilia Romagna, adapted from Bermond Montanari et al., 1994).

by through Fucino. The recurring association of volcanic glass from Lipari and Palmarola with the impressed-ceramic sites, at least in the central areas and in the immediate surroundings, raises questions about its means of supply and distribution. Traders arriving at the peninsula probably used the same routes, supplying raw materials to those centres situated in favourable positions and/or the better known ones, as possible main distribution centres of surplus material to minor sites (Pessina and Radi, 2006).

Basic economic activities are well documented in Colle Santo Stefano. A notable amount of very well preserved animal remains, has been examined but is still under observation. These show that breeding was the prevailing activity, especially that of sheep, goats, and cattle for meat. Some goat bones show the presence of individuals with morpho-dimensional characters transitional between wild and domesticated (Pino Uría et al., 2014). A quantity of about 10% wild remains indicates a general exploitation of naturally available resources: activities such as hunting, fishing and fowling reveal a good knowledge of their surroundings and their ability to

make full use of them (Radi and Wilkens, 1989). Breeding also provided secondary milk products, these being more digestible and storable. This is suggested by the results of chemical analyses which identified the presence of animal fats and milk lipids in the ceramics (Salque et al., 2011).

Several sickle inserts, whose numbers increase over time, along with several fragments of large limestone grinding stones that are worn from intensive use, show that agricultural activities and the processing of primary sources was a substantial part of the economy.

It is worth noting that instruments were accurately made from hard animal material (Fuggi, 2016). Some of these instruments were created for specific tasks such as the weaving of vegetable fibre collected from lakeside plants (Legrand and Radi, 2008).

All the results revealed by the study of materials clearly show the changes that occurred in the settlement over time which, taken together, are evidence of the evolution of a complex culture, distinct from that of earlier phases.

Furthermore, the structures of the site reveal that in an intermediate phase, the settlement was reorganized with the erection of an enclosure whose construction occurred along with the expansion of the inhabited area itself. The sector investigated suggests an area three times the size of the original habitation, corresponding to the beginning of the modification of the cultural complex.

During this reorganisation, the probably symbolic act of a ritual of foundation is evident with the remains of a small circular pit, surrounded by stones and in contact with the structure of the enclosure, containing a zoomorphic vase (Radi, 2004).

It is likely that, in this period of fully established Neolithic groups in Marsica, new northward migrations happened in order to settle new communities, such as Villaggio Leopardi (Pescara; Cremonesi, 1966) and Maddalena di Muccia, (Macerata: Lollini, 1965, 1991; Silvestrini et al., 2005), whose chronologies correspond to the recent phase of Colle Santo Stefano, at the middle of the VI millennium B.C. Cal.

In this same phase, the movement of Neolithic settlers into the regions of the Middle Adriatic begins, penetrating the inner regions (Umbria), as well as northwards to Romagna.

In Umbria, San Marco di Gubbio (Perugia: Malone and Stoddart, 1992) and I Pozzi della Piana (Terni: Passeri, 1979) are located in an intermediate area between the cultural regions of Tyrrhenia and The Adriatic. Ripabianca di Monterado (Pesaro Urbino: Lollini, 1965, 1991; Pignocchi and Silvestrini, 2002), Misano and Miramare (Forlì: Bagolini and Ghirotti, 1980; Bagolini et al., 1992), Fornace Cappuccini of Faenza (Fig. 2B) (Ravenna: Bermond Montanari et al., 1994), and Ospedale Nuovo of Imola (Bologna: Bagolini and Von Eles, 1978), however, are close to the cultural area of the Po valley.

Northern Marche and Romagna's contact with the Po Valley, can be attested not only in the form of exchange of raw materials which is very rare, but more importantly with the circulation of a small number of vase types and lithic instruments. The flasks found in Ripabianca di Monterado are globular in shape: with long narrow necks; incised decorative bands and small, perforated handles placed under the rim. These are comparable to similar forms found in sites with Vho di Piadena facies (Bernabò Brea, 2004). Undoubtedly, a particular element of the northern lithic industries is the so-called 'Ripabianca burin' (Broglia and Lollini, 1963). Northern Marche and Romagna's contact with the Po Valley, can be attested not only in the form of raw material exchange, which in any case is very rare, but more importantly with the presence of similarly shaped vases and lithic instruments found in some of the site.

Starting from the last centuries of VI millennium B.C. Cal., there is a marked difference in the regions of the Middle Adriatic. While in Abruzzo, fine painted ceramics of the southern world spreads (bichromic at the beginning, in the culture of Catignano, and later trichromic, in the culture of Ripoli), this particular development doesn't occur in Marche and Romagna.

3.2. The Middle-Tyrrhenian province

At present, available information to help better understand the peopling of the Tyrrhenian area is very scarce. In large regions of the western Peninsula, there are no findings, either due to lack of research carried out or because of the actual difficulty of finding deposits buried under thick layers of sediment, as is the case in Campania and Southern Lazio. In Northern Lazio and Tuscany, many sites are attributable to the Early Neolithic, but even these are often only identified through scattered findings and preliminary surveys, and hence exhaustive publications are rare.

In particular, the findings indicating the settling of these areas during an Early Neolithic phase are rare and lack stratigraphic collocation. Only the cave of Arene Candide, on the western coast of

Liguria (Savona: Bernabò Brea, 1946, 1956; Maggi, 2002), gives compelling enough evidence of human presence in a slightly later phase with respect to the peopling of the South-eastern regions. In this instance, a detailed chronology has been reconstructed using a number of radiometric datings, carried out on more reliable short-life samples (Maggi, 1997; Tiné S., 1999). Nevertheless, in comparison with the seventies, when only the 'Basi Pienza' facies was known, findings of the recent decades have led to the distinction of further phases in the Early Neolithic of these regions.

Le Secche, on Giglio Island, is the only site that provides a relevant complex of materials, datable to an earlier phase, which even if not stratified, is nonetheless accurately studied and adequately published (Brandaglia, 1985, 1987, 1991). The pottery is mostly homogeneous, with respect to manufacture, technique and decorative style. The foreign elements are easily identifiable and can thus be excluded: they are represented by only a few fragments decorated with carved lines and some vessels probably ascribable to the occasional presences of successive Late Neolithics phases. The ceramics, datable to the Early Neolithic, are well manufactured, fine, with 86% of the whole set being decorated.

The extensive use of decoration covering the entire surface area of the ceramic, the frequent use of ridged cockle shells for single impressions (70%), the presence of flat-bottomed forms and of horizontal ribbon-shaped handles, represent elements of the cultural world of the impressed ware groups (Fig. 3A).

It must be said, however, that the distribution of the impressions in thick parallel stripes that cover the vase walls, which is specific to the southern region, is replaced by sparse strips or metopes, testifying to an awareness of the layout of decorative elements.

Interestingly, the rocker motif, while absent from the Early Tyrrhenian Neolithic, characterizes a large part of the Adriatic world, as well as, to a lesser extent, the Early Neolithic of Sicily and Calabria. At present, it seems that this motif is specific only to some impressed ceramic groups.

Traces of a human presence, which could be seen as proof of early arrivals in Tuscany, are found in the few fragments discovered in Coltano, close to Pisa, decorated with cardium impressions (Fig. 3C) and associated with obsidians from Lipari and Palmarola (Bagnoli and Panicucci, 1986; Bigazzi and Radi, 1998). Furthermore, some of the fragments found in the lower layer of the site of Cava Barbieri in Pienza decorated with cardium impressions (Fig. 3B) (Calvi Rezia, 1971, 1972, 1987) are similar to the materials found on Giglio.

These rare finds suggest the northward movement of pioneer groups as far as the southern coast of France (from Provence to Languedoc). The Abri Pendimoun, near Arene Candide, and the Portiragnes sites (Pont de Roque-Haute and Peiro Signado) point to the presence of cultures strictly connected to the Tyrrhenian area (Binder et al., 1993; Binder and Maggi, 2001; Guilaine et al., 2007; Manen, 2002). Consequently, as with the Cardial facies in France, the "linee dentellate" facies, or Basi Pienza, is now considered an evolved phase of the Early Neolithic.

The area where it is most evident is between Southern Tuscany and Lazio, with only rare attestations appearing in Northern Tuscany and in Arene Candide (Liguria). The characteristic features of these ceramic materials reveal significant differences from the previous phase, so much so as to leave the question of the formation of these facies open, leading to the need for an analysis within a larger context that includes the Western Mediterranean region. Ceramic forms are globular, convex-based, with horizontal handles, and decorated with stripes and partitioned bands (sometimes with triangles) on the upper part of the vase. The preferred decorating tool was a shell: the thin toothed edge of the mollusc valve (*Levocardium* or *Glycymeris*) was more common, but *Cerastoderma/Cardium edule*, was also used (Fig. 4A and B) (Fugazzola Delpino,

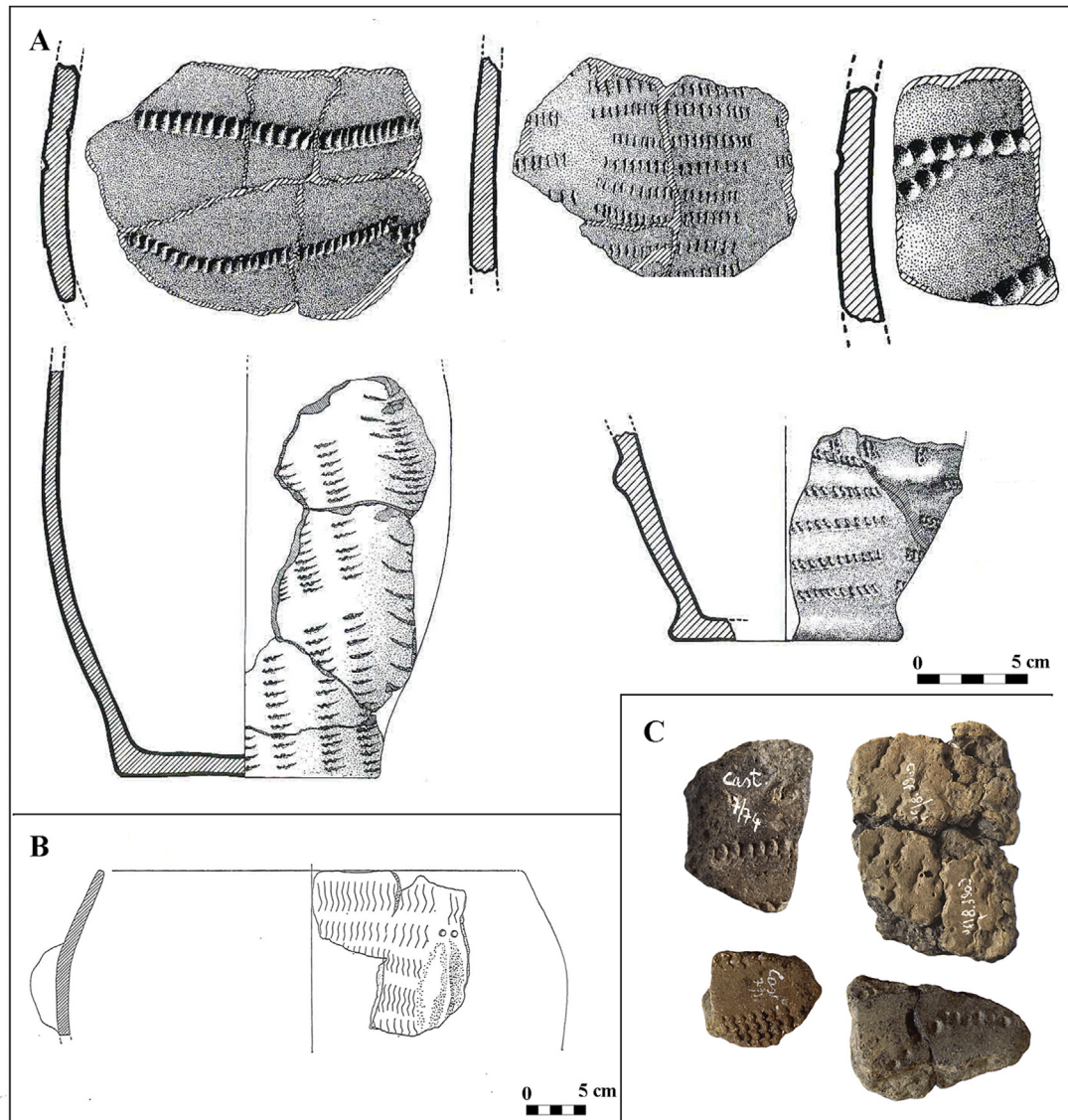


Fig. 3. Tyrrhenian Area. Archaic Pottery: A. Le Secche (Livorno, Giglio island, Tuscany, adapted from Brandaglia, 1991); B. Pienza (Siena, Tuscany); C. Coltano (Pisa, Tuscany).

2002a). A special local feature is found at La Scola, on Pianosa Island (Livorno), where *Columbella*, and perhaps also *Conus* gastropods, were used to obtain dot- and/or comma-like impressions (Ducci et al., 2000).

A very interesting site has been discovered and subsequently explored in Lake Bracciano, La Marmotta (Anguillara Sabazia, Roma). Given that this site is submerged, a large quantity of organic remains along with wooden instruments, such as whole sickles and pirogues (Fugazzola Delpino et al., 1993), has been preserved. Here too, the ceramic artefacts show particular features: some simply shaped containers bear a sort of 'stencilled' decoration that is completely absent from ceramics attributable to the "linee dentelate" facies (Fugazzola Delpino, 2002b).

On Pianosa Island, the Cala Giovanna Piano site (located in the promontory saddle, looking towards the rock of La Scola) provides evidence of a settlement dating to the last centuries of the VI millennium B.C. Cal. During the Neolithic era, rock and promontory were connected, and probably hosted a single settlement. Cala Giovanna preserves a few fragments of the toothed-line pottery style, associated with vessels with simplified decorations,

represented by carved lines and impressed dots, or with plastic string decoration (Caponi and Radi, 2007).

It is worth remembering that in these last centuries of the VI millennium the "linear pottery" facies begins and spreads in the same areas as the Tyrrhenian cardial, from which it probably originates, but to whose creation northern elements have also contributed. Indeed, in Northwestern Tuscany, the culture of Fiorano is attested, not only by ceramics, but also by raw materials and symbolic artefacts, such as the large stone arm ring, both in caves (Grotta del Leone of Agnano and Romita of Asciano, Pisa: D'Eugenio, 1990; Peroni, 1962–63), and in open sites (Dune del Poggio di Mezzo of San Rossore, Pisa, and Casa Querciolaia, Livorno: Bagnone, 1982; Iacopini, 2000).

In the mountainous areas of Northern Tuscany (Garfagnana) the small number of known Neolithic sites with few and badly preserved ceramic complexes indicate, nonetheless, the introduction of groups belonging to the northern culture of Fiorano by the middle of the VI millennium B.C. Cal. Data collected from Pian di Cerreto and Muraccio (Lucca) suggests a movement across the Po valley towards the Tuscan plains and coast via the Apennines

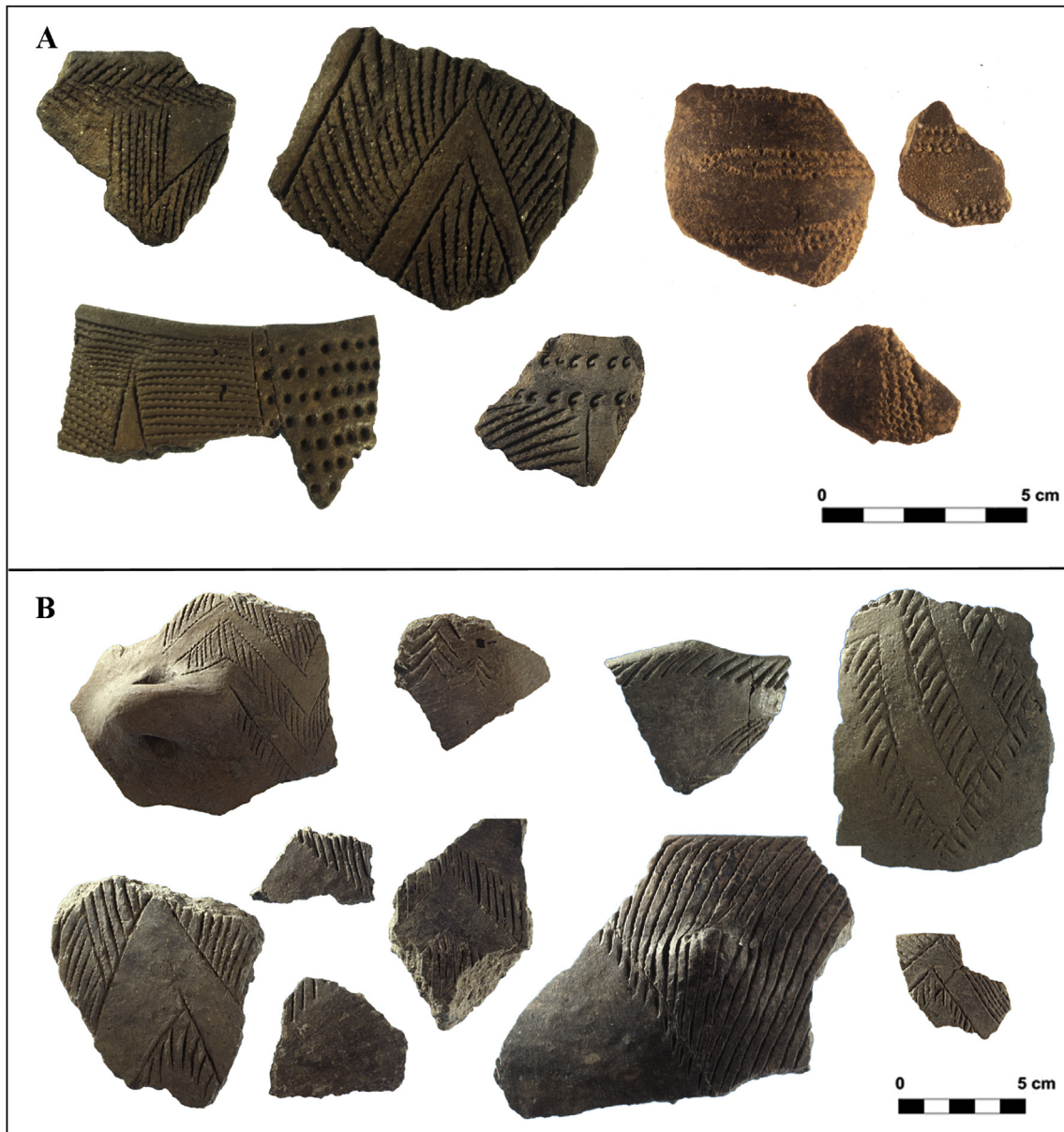


Fig. 4. Tyrrhenian Cardial-Ware Culture. Pottery: A. La Scola (Livorno, Pianosa island, Tuscany, adapted from [Ducci et al., 2000](#)); B. S. Pietrino (Roma, Lazio, adapted from [Fugazzola Delpino et al., 2000](#)).

([Bonato et al., 2000](#)). An example of this is the groups attested in the Florentine plain in Mileto ([Sarti et al., 1991](#)), who must have come directly from a different route, via an Apennine pass, rather than from the coast along the course of the Arno River.

The lack of documentation between Northern and Southern Tuscany raises the question about the transfer from North to South of elements of Fiorano culture that must have contributed to the formation of the facies of Tuscan-Latial “linear pottery”.

The carinate cup, grooved decoration, the stone arm ring, and the flint rhomboid artefacts can be all attributed to Fiorano culture. We cannot yet ascertain a trail across Central Tuscany, due to the lack of archeological evidence, but an investigation into the Mount Amiata cinnabar deposits would certainly help to identify its route, given that cinnabar was a dye used in the Tuscan-Latial facies.

4. A focus on the chipped stone industries

The subdivision of the Italian peninsula into cultural provinces, on the basis of different local ceramic productions, is not entirely supported by the study of the stone industries.

In a first attempt to synthesize the Early Neolithic stone industries, [Radi and Ronchitelli \(2002\)](#) divided the sites into two large sets, on the basis of the scope of the *débitage* technique and on the basis of some technological and typological features, such as ratio of burins and end-scrapers, index of backed tools, presence of geometrical elements, presence of sickles elements, knowledge of the microburin technique and presence of obsidian. A third group should include all the Tyrrhenian industries, characterized by less homogeneity. After data analysis, the blade-complexes were attributed to a Mesolithic tradition, while the lithic flakes complexes showed a new aspect, probably attributable to foreign elements.

Available data has increased only slightly in recent years, and information about the initial phases of the Early Neolithic is still lacking. At present, we can only sketch a picture of moderate cultural differentiation, probably influenced by environmental conditions, along with a site's location and specific activities.

Le Secche (Brandaglia, 1985, 1987) can be dated as amongst the oldest Neolithic outposts of the Tyrrhenian area (around 5800 B.C.). We can therefore consider the Le Secche complex as bearing the first original features of the new settlers' stone industry. These new inhabitants of Giglio Island used mainly quartz, quantitatively followed by obsidian, while flint usage was very rare (Fig. 7A). An interesting aspect of this site is the large quantity of obsidian (9,5%) which came almost exclusively from the island of Palmarola, apart from the small amount from Sardinia (Tykot, 2007). This material indicates that a shift occurred along South/North axis, suggesting that the obsidian arrived on the island in the hands of its new settlers. Indeed, the choice of quartz seems to derive from an unfamiliarity with the surrounding area and with the large provisions of jasper and flint in Tuscany. The stone industry here consists mainly of microlithic elements, including several non-retouched artefacts. Furthermore, several artefacts are irregularly, partially or non-accurately retouched: the retouch is therefore often described as hardly distinguishable from wear traces (Brandaglia, 2000). Among the category of retouched elements, scrapers and denticulates are abundant, while the backed pieces are less frequent, comprising mainly backed blades and truncations. Other typologies, such as burins, splintered pieces and geometric products, are rare. Of these last, the trapezes are represented by elements with two straight edges obtained by abrupt retouch. In this site, there is no trace of microburin technique. In general, this stone complex shows a large use of bipolar-percussion technique for the *débitage* of all raw materials. This technique has strongly impacted the dimensions and morphologies of the artefacts which are so carelessly shaped as to suggest opportunistic production.

On the Adriatic side, the oldest phase of Colle Santo Stefano (L'Aquila, in the Fucino-Abruzzo) dates to around 5800 BC. The characteristics of the Colle Santo Stefano stone complex (Fig. 5A; Pistoia, 2005) are easily comparable with those of other settlements with the traditional facies of Adriatic impressed ware (Fig. 5B) (Maddalena di Muccia: Radi et al., 2005) and, at the same time, with the stone production of some of the sites belonging to an evolved phase of the Early Tyrrhenian Neolithic: La Lucciola (Perugia: Moroni Lanfredini, 2003) and La Marmotta (Fugazzola Delpino et al., 1993) (Fig. 6B and C). Here, the most frequently exploited raw material is flint, usually collected in the surrounding areas, quantitatively followed by a high percentage of obsidian (Colle Santo Stefano-about 10%; La Marmotta- 12%). Analyses carried out in Colle Santo Stefano reveal that the supply areas of the volcanic glass were Palmarola and, to a lesser extent, Lipari (Pessina and Radi, 2006). These lithic productions are characterized by microlithic industries, mostly consisting of laminar or lamellar supports. The raw material is exploited using different techniques: from the simplest (direct percussion), mostly aiming at obtaining flakes or laminar-flakes; to more complex ones (pressure or indirect percussion), used to obtain long and thin supports. Retouched elements are mainly represented by blades and flakes, with simple retouch often denticulated, and by a large percentage of artefacts with abrupt retouch. Among the backed tools, found in all the mentioned industries, we can observe a high quantity of trapezoidal geometric elements, with straight sides and, to a lesser extent, with concave sides. The techniques employed for the fragmentation of supports, often applied in order to obtain geometric elements, show a frequent use of microburin.

In these industries, artefacts used to create sickles are abundant, showing the agricultural activity of all these sites, except in La

Lucciola, where they represent 2,3% of the whole (Moroni Lanfredini, 2003). As revealed by the sickles found in La Marmotta, a series of flint elements was grafted onto a handle, forming a serrated (Colle Santo Stefano, La Marmotta, Maddalena di Muccia), or in rarer cases, a straight cutting edge (La Lucciola). Inserts of sickles vary quite a lot. In Colle Santo Stefano, in the first phase, we observe non-retouched, simple-retouched and abrupt-retouched blades, in similar quantities. Subsequently, the abrupt-retouched blades prevail. The situation at La Marmotta and La Lucciola is similar to the earlier phase of Colle Santo Stefano, while in Maddalena di Muccia the choice is almost exclusively oriented toward retouched artefacts which, for the most part, are represented by obliquely truncated elements (Radi et al., 2005).

Characteristics of the Mesolithic sphere, such as the presence of blades and bladelets, microburin technique, and trapezes, probably attest to the persistence of the Mesolithic tradition as has already been hypothesized (Radi and Ronchitelli, 2002). In Colle Santo Stefano, a study of the vertical distribution of materials revealed the presence of evolutionary trends (Fabbri et al., 2011). The industry shows a scarce laminarity in its early phases, despite a still prevailing choice of long supports to obtain retouched artefacts. Laminarity increases noticeably in subsequent phases and the industry is enriched with new types over time. Among the geometric elements, scalene trapezes are in a larger number than isosceles trapezes, especially in the lower levels. The quantity of these two types of trapeze becomes more balanced over time. New rectangular forms appear along with new forms of geometric elements, such as rhomboids and triangles. In La Lucciola and Maddalena di Muccia geometric elements include similar forms.

This variety is echoed in Castelnovian sites, where, among the geometric elements, trapezes have asymmetrical forms that are quantitatively similar to symmetrical ones (Latronico III: Dini et al., 2008) or slightly larger (Lama Lite: Dini and Fioravanti, 2011), even though typometries are different and often with at least one of the sides being concave. Concavity appears to be a regular feature of some other sites of the Early Neolithic, whose typology seems to be almost exclusively that of the isosceles trapezes (Favella, Torre Sabea: Fuolega, 2009; Barbaza and Briois, 2003).

Industries such as those described thus far are found on much of the Adriatic coast in Romagna (Fornace Cappuccini, Miramare, Misano Adriatico: Bermond Montanari et al., 1994; Bagolini et al., 1992; Bagolini and Ghirelli, 1980). Similar trends are also recognisable in some Early Neolithic complexes in Southern Italy (Torre Sabea, Favella).

Furthermore, in Central Eastern Abruzzo, some roughly contemporary industries differentiate themselves because of the presence of more tenuous characters and a *débitage* primarily aimed at producing flakes. The stone complex found in Marcanese (Fig. 5C) (Moroni Lanfredini and Ronchitelli, 1997), despite the scarcely laminar production, is not markedly different from that of Colle Santo Stefano. The typological indexes and the (albeit scarce) presence of geometrics, confirm affinities with the "blade-sites" (Radi and Ronchitelli, 2002). Differences are found in the industries of Tricalle and Fontanelle. Regular features of these sites are the minimal presence of obsidian, the scantily laminar *débitage* and the poor quantity of sickle inserts. The typological indexes show abundant scrapers and denticulates but few backed tools. Among these last, geometric elements are very rare and the use of microburin technique is almost completely unknown.

Further north-west, around 5600 B.C. Cal., along the Tuscan Apennines, the lithic assemblages of Pian di Cerreto (Fig. 6A) and Monte Frignone (Bonato et al., 2000; Moriconi, 2008) show features similar to those of Colle Santo Stefano and La Marmotta. Here, the industry is prevalently laminar, with several simple instruments, quantitatively followed by backed pieces. Some of these site

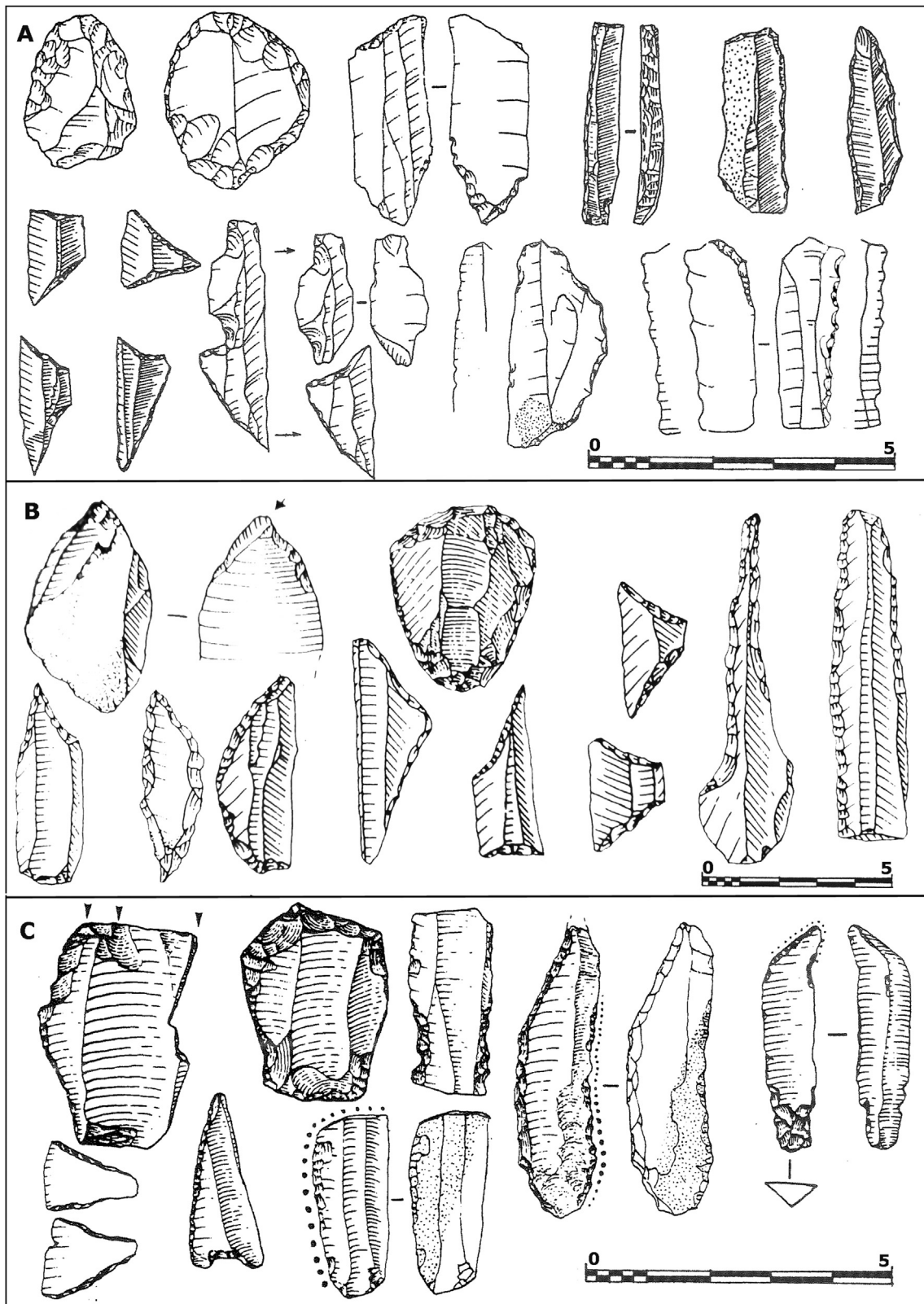


Fig. 5. Lithic Industries from the Adriatic Area: A. Colle Santo Stefano (AQ, Abruzzo); B. Maddalena di Muccia (MC, Marche, adapted from [Pignocchi and Silvestrini, 2002](#)); C. Villaggio Rossi di Marcanase (CH, Abruzzo, adapted from [Moroni Lanfredini and Ronchitelli, 1997](#)).

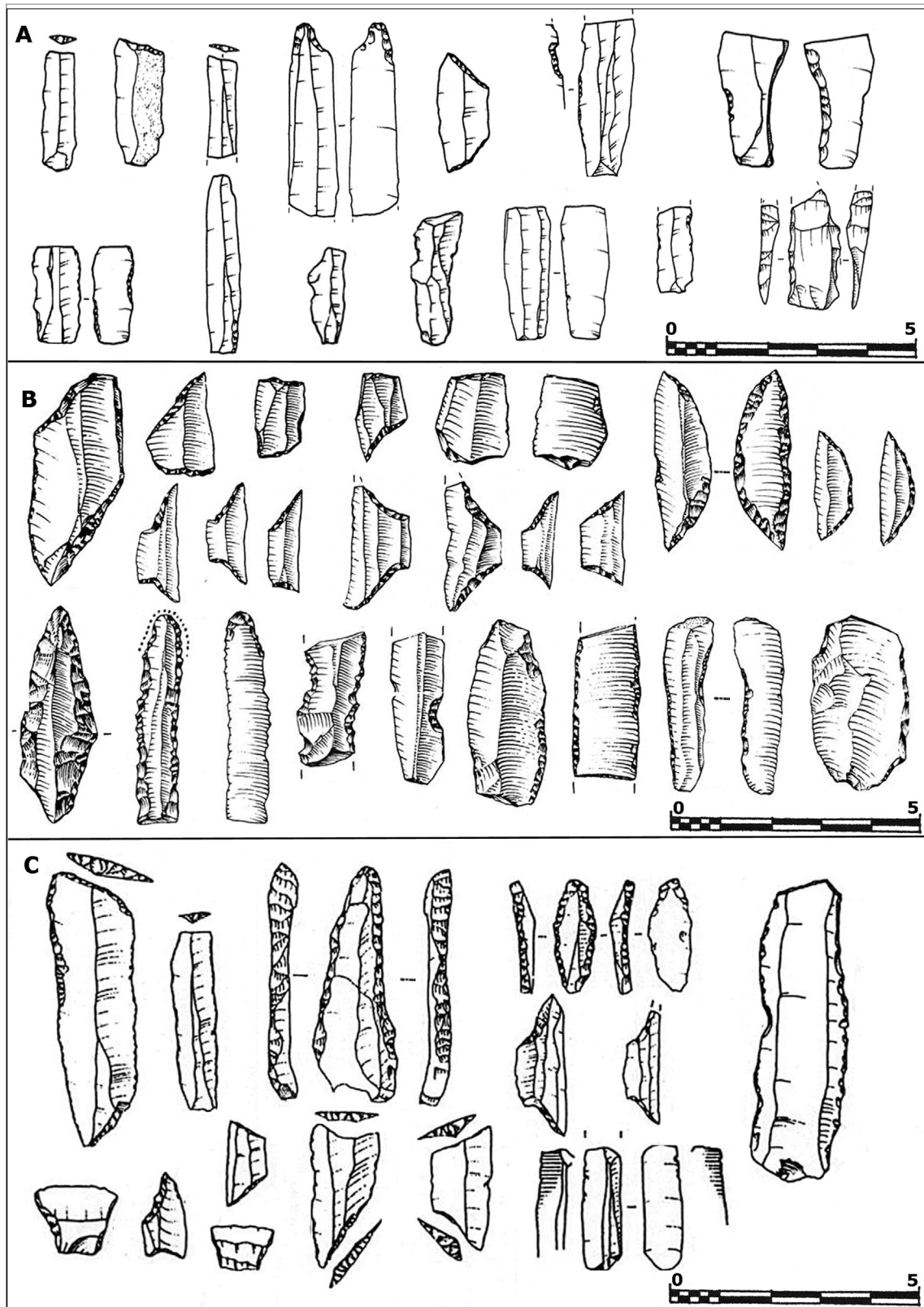


Fig. 6. Lithic Industries from the Tyrrhenian Area: A. Pian di Cerreto (LU, Tuscany; adapted from [Bonato et al., 2000](#)); B. La Lucciola (PG, Umbria, adapted from [Moroni Lanfredini, 2003](#)); C. La Marmotta (RM, Lazio, adapted from [Fugazzola Delpino et al., 1993](#)).

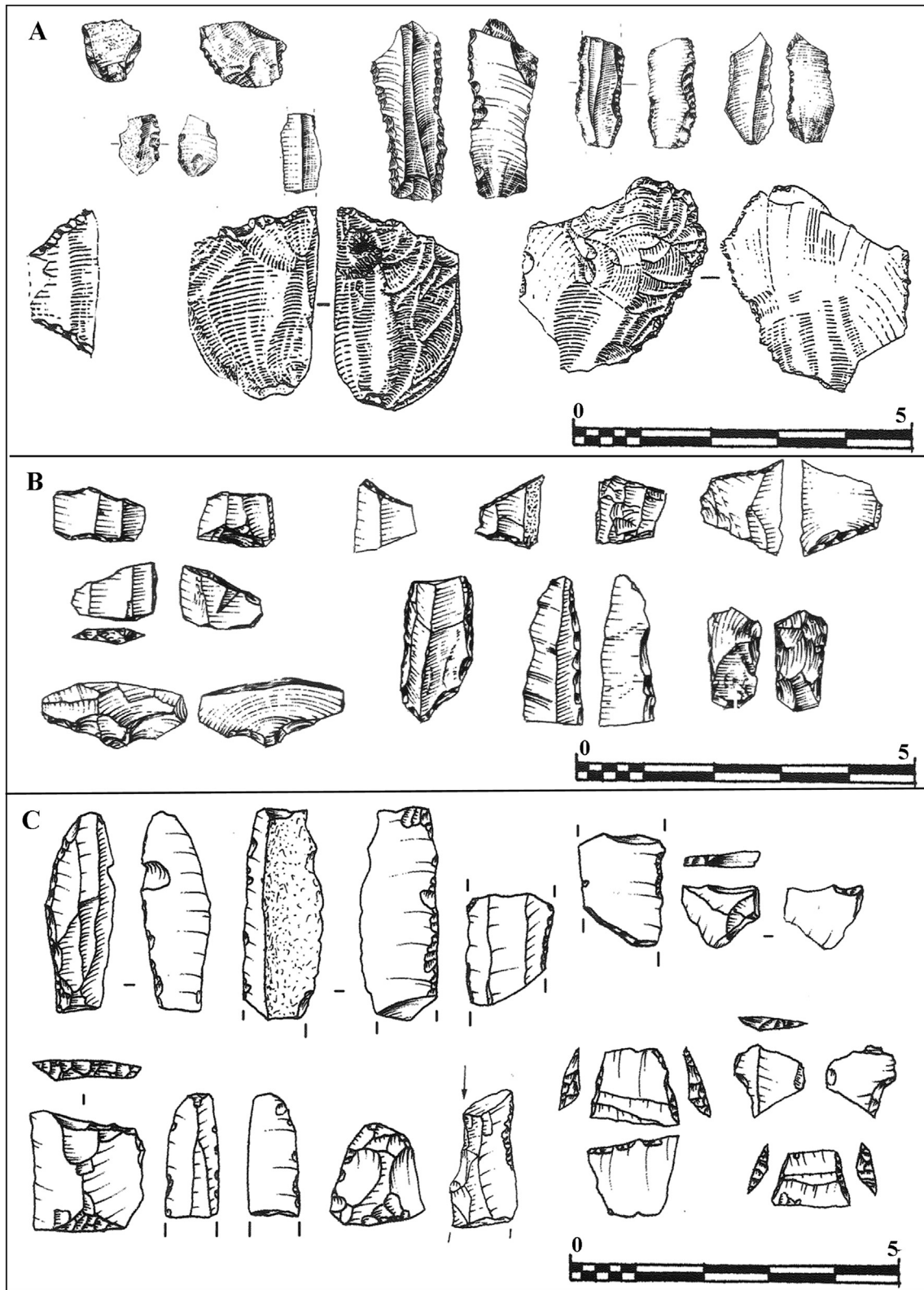


Fig. 7. Lithic Industries from Tuscan Archipelago: A. Le Secche (Giglio Island, adapted from Brandaglia, 1985, 1994); B. La Scola (LI, Pianosa Island, adapted from Ducci et al., 2000); C. Cala Giovanna Piano (LI, Pianosa Island, adapted from Serradimigni, 2007).

elements also reveal similarities to local Castelnovian industries, especially with respect to artefact typometry and geometric elements, which are more frequent and more typologically

differentiated in Monte Frignone.

The specific choice of location of both Pian di Cerreto and Monte Frignone suggests that these sites were part of a settlement system

related to the temporary supply of natural resources. This is particularly supported by the absence of inserts for sickles, which would more frequently be found in permanent settlements.

In the Tuscan archipelago, a settlement from the middle of the VI millennium B.C. Cal. is found in the site of La Scola, on Pianosa Island (Fig. 7B). The island has no raw material suitable for knapping; therefore, the materials used there must all have been imported. The lithic materials used show a human group well aware of the surrounding areas, who imported all the raw materials they needed from different areas. In fact, these settlers used mostly quartz, coming from the island of Elba; while elements in flint and obsidian show that they also had wider trade connections. Analyses carried out on the obsidian (De Francesco et al., 2006), which was chosen as a secondary raw material (about 20%), attribute its provenance to Sardinia and to a lesser extent, Palmarola. Obsidian from Lipari is merely attested.

Most of the industry is represented by non-retouched elements, largely made of quartz. Among the retouched elements, those with abrupt retouch are many, represented mostly by truncations, geometric elements and backed blades. Geometric pieces are almost exclusively represented by trapezoid and sub-rectangular forms. La Scola's industry is mainly composed of flakes; as has already been mentioned with relation to the Giglio industries. The prevalence of short supports seems to be due to the use of quartz: its choice characterizes the whole of the Tuscan archipelago up to the end of the Early Neolithic, as confirmed by the site of Cala Giovanna Piano (Fig. 7C) (Costa, 2000; Bonato et al., 2000; Serradimigni, 2007), which belongs to a later phase. In this last phase, raw materials coming from afar appear, even if in small quantities. Studies of their provenances suggest that obsidian came primarily from Sardinia and secondarily from Palmarola and Lipari, with flint coming from the Central Apennines (De Francesco et al., 2006). Raw material and ceramic products show influences from distant areas. The choice of quartz in Cala Giovanna in late phases witnesses both its easy supply from nearby Elba as well as the continuation of a cultural tradition. In the stone complex, scrapers and denticulates are dominant. However, more specialized elements are also found, such as backed tools, among which are trapezoid elements, prevalently isosceles, with straight edges, and a large number of microburins (12), first found in Pianosa].

In the Tyrrhenian area, in the last centuries of the VI millennium, as has already been mentioned, some settlements are connected to human groups coming from North Italy.

As is the case with their pottery, specific characteristics that are connected with the Fiorano facies can also be seen in their lithic industries. Specifically, the *débitage* is mostly laminar; rhomboids are found among the geometric elements; and raw material is evidence of the exploitation of alpine flint, particularly abundant in Casa Querciolaia (55%).

4.1. Discussion and conclusion

The Neolithic era in the Central Italian regions established itself in different ways through the workings of different groups of people.

Recent research confirms the hypothesis that, in the Eastern part of the region, the first Neolithic phase was brought about by groups of southern peoples during an evolved phase of settlement. This, notwithstanding the as yet unsubstantiated notion that the arrival of the first explorers from the Adriatic Sea, cannot be excluded from the picture.

Regarding the western areas of the peninsula, evidence is scant and supports the idea of the arrival of seagoing pioneers from the islands and the nearby coasts travelling north-west towards Liguria and the South of France.

In material culture, ceramic production from the earliest sites from both coasts show striking similarities that suggest a world of common origin characterized by impressed decoration. Above all, the absence of homogeneity regarding decorative layout spanning the Adriatic region and the Tyrrhenian 'metopale', or the presence/absence of motifs like the rocker and anthropomorphic protomes, suggest specific and identifiable characteristics despite their common origins.

This initial disparity is further accentuated in the successive evolutionary process of the early Neolithic period, with each area having its own peculiarities: decorative refinement in the Adriatic region and the development of complex toothed-line decoration in the Tyrrhenian coastal slopes, both within the wider context of the Western Cardial phase.

In successive Neolithic phases too, this movement towards a total diversification continues. Along the western coast, there is an influx of foreign peoples, while on the Adriatic side, experimentation in chromatic decoration begins. The Fiorano culture accounts, at least in part, for the development of linear Tuscan-Latial ceramics along the Tyrrhenian coast while the *figulina* ware of the Central Adriatic reappear in the Italian meridian.

The synthesis of the stone industries shows thus the existence in the Early Neolithic of a number of cultural entities, each with its own specific features: the Tuscan archipelago, the Tuscan Apennines and the central areas of the Peninsula. And, although quantitative and typological variability is attested within each set, similarities are also found across the assemblages (laminarity of the industries, presence of geometric elements). The following statement, written by Franco (2011), with reference to the Mesolithic area can equally be attributed to that of the Neolithic: "It has been often demonstrated that sets of instruments coming from contemporaneous sites, thus different only in their structure, may reflect heterogeneous functional attitudes, strategies and periods of settlement as well as technical conditioning, imposed by the raw material and by the splintering techniques".

With respect to technology, features found across different settlements can both converge and diverge, due to similarities and differences in the economies as well as in strategies of subsistence and raw material supply.

Such Early Neolithic industries show characteristics (mainly laminar assemblages, good quantities of microlithics, knowledge of microburin technique) similar to those spread over the peninsula in the final Mesolithic period. Nevertheless, it cannot be ignored that these techno-typological features may already have existed in the industries of new settlers (Tozzi, 1996).

In Le Secche, a colony that can probably be dated amongst the oldest settlements, geometric elements and methods of stone knapping do not conform to the Late Mesolithic tradition of the Peninsula. But other sites on both coasts of the peninsula and in South Italy, show mainly flake production even though their geographical position is not always that distant from outcrops of good raw materials. In some cases we might be confronted with the first moment of the beginnings of the life of a new colony where people don't yet know their surrounding areas (Le Secche). In other cases, we may be able to assume an arrival in the peninsula of groups originating from different areas, with different techno-typological traditions (Fontanelle, Tricalle).

In the central area of the Peninsula, data reveals several settlements with similar stone industries in different ceramic contexts (Colle Santo Stefano, Maddalena di Muccia, La Marmotta, Miramare, La Lucciola). Surely, economic and ecologic factors (i.e. good raw material availability, the geographical position and specific activities connected with the environmental context of the site: Colle Santo Stefano, La Lucciola, La Marmotta near a lake; Maddalena di Muccia along a river) have played an important role in the

formation of such similar lithic complexes. Alongside these factors, exchanges of technologies and raw materials, encouraging exchange of models and ideas, have a crucial importance as well. The presence of obsidian artefacts provides a detailed picture of the trade routes that would have crossed the Tyrrhenian Sea and the whole Italian peninsula from the earliest Neolithic phases. The obsidian coming from Palmarola Island is present in the oldest Neolithic sites of both Italy and France. On the Tyrrhenian side, in Le Secche on Giglio Island, the majority of obsidian is of Pontine origin, whilst in Pont de Roque Haute it is the only type found (Tykot, 2007; Radi and Bovenzi, 2007; Guilaine et al., 2007). We can hypothesise that this supply source was the first to be discovered and exploited and may be interpreted as an indicator of the world of impressed ceramics, which started its diffusion. This type of volcanic glass has the same importance in the Central Adriatic area, as the huge quantity found at Colle Santo Stefano, interpretable as a possible re-distribution site of a well organized trade network, may well testify.

The impressed-ceramic communities quickly began to exploit the volcanic glass of Lipari too. However, progressively over time, in the northernmost areas of the Tyrrhenian coast, the usage of this type of obsidian decreases, while that coming from Sardinia increases during the subsequent Cardial phase. That said, this raw material from Sardinia is distributed mostly northwards and rarely appears in Southern Tuscany. The obsidian found in the site of La Marmotta does indeed seem to have a southern provenance, but further analyses in this regard are required (Bigazzi and Radi, 2005).

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