THE CIRCLE AND THE SQUARE: STEATITE EXPLOITATION FOR PERSONAL ORNAMENTS MANUFACTURING DURING THE MIDDLE NEOLITHIC IN NORTHERN ITALY

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Abstract: The paper offers an analysis of the employment of steatite in western Emilia during the Middle Neolithic connected with personal ornaments manufacturing. Steatite is a soft rock easy to work outcropping in the ophiolitic masses of the northern Apennines mountain range. The study presents the archaeological remains recovered in Square Mouth Pottery culture settlements and graves dated between 5000/4900 and 4300 BC. The steatite artefacts comprise mainly beads and pendants, as well as waste remains, rough-outs and blanks. The analysis focuses on types diffusion, manufacturing remains and working techniques.

Keywords: Personal ornaments, steatite, Middle Neolithic, Square Mouth Pottery culture.

Riassunto: *L'articolo offre un'analisi dello sfruttamento della steatite in Emilia durante il Neolitico medio correlato alla produzione degli ornamenti personali. La steatite è una roccia tenera, facilmente lavorabile, presente nelle masse ofiolitiche dell'Appennino tosco-emiliano. Il lavoro presenta i materiali archeologici della cultura dei vasi a bocca quadrata costituiti in gran parte da vaghi di collana e pendagli, concentrandosi sulla diffusione dei tipi, sui resti di fabbricazione e sulle tecniche di lavorazione; si tratta di manufatti databili tra 5000/4900 e 4300 BC rinvenuti nel corso di raccolte di superficie e di scavi in abitati e sepolture.*

Parole chiave: *Ornamenti personali, steatite, Neolitico medio, cultura dei Vasi a Bocca Quadrata.*

Introduction

Steatite, also known as soapstone, is a soft rock, suitable for processing, and this has made it a widely used material since the Upper Paleolithic, but only with the Neolithic did its use in the sphere of personal ornaments become more intense. Its use, however, remains substantially occasional throughout the Italian Neolithic except in the case of Square Mouthed Pottery (*Vasi a Bocca Quadrata*) culture, SMP hereafter. The production of steatite ornaments during the Middle Neolithic is indeed an important phenomenon that distinguishes the Emilian SMP communities from other Italian Neolithic groups. The sites with steatite objects are in fact now numerous: they feature personal ornaments and adornment manufacturing remains.

The discoveries made in recent years in Emilia have greatly increased our knowledge of the SMP culture, revealing the complexity and arising new questions about its origin and evolution (Mottes *et al.* 2010; Dal Santo and Mazzieri 2010). Emilian SMP culture develops during the 5th millennium BC in the two phases chronologically divided between 5000/4900 and 4500 BC (SMP 1) and 4500 to 4300 BC (SMP 2). One of the most interesting details is undoubtedly the widespread of decorative objects in steatite. This paper presents an analysis of the exploitation of steatite by the SMP groups in western Emilia during the Middle Neolithic.

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A soft rock to process and manipulate: some observations on the raw material

Steatite is a metamorphic rock found in ophiolitic masses which are very common throughout the northern Apennines. It consists mainly of talc and magnesite, as well as other components, in the form of impurities, in smaller quantities and variables; the presence of talc gives it a very low hardness in the Mohs scale (equal to 1) and therefore a high degree of workability. This rock, however, has several other features that make it very used: resistance to temperature, high melting point, high lubricating capacity and low thermal conductivity.

Steatite appears in many areas where there are ophiolitic masses, but these are not uniformly distributed in northern Italy. Although lesser outcrops in the central-western Alpine region are known, steatite is found mainly in the Voltri Group between Genoa and Savona, in Liguria's eastern area and in the Tuscan-Emilian Apennines. Further south, in central-southern Tuscany, large outcrops of steatite are settled inland from Livorno. In the rest of the peninsula and islands, outcrops of steatite of some significance are reported only in the Apennines of Calabria and Basilicata and the center of Sardinia.

In the Tuscan-Emilian Apennines (fig. 1) steatite is often present in discontinuous, strongly lenticular outcrops, usually not very thick and mostly concentrated on areas that are not too wide. No deposits have been found outside the context of primary formation of steatite, such as finds in river beds far from the place of origin, as the low degree of hardness of the material does not allow any storage, therefore the supply from Neolithic groups had to take place necessarily near the primary areas of outcrop in the Apennines. In western Emilia, the dominant shade of steatite is green with minor amounts of light gray, red, brown and black; colour is not always consistent in the deposits and there are various occurrences of a variety of colours in the same outcrop. These characteristics make it therefore difficult to attribute steatite to a particular outcrop only on the basis of macroscopic examination. A particular concentration of outcrop areas can be seen between the Taro and Ceno valleys.

Personal ornaments and remains of manufacturing sequence: the case of Emilia

The use of steatite in the manufacturing of personal ornaments is well documented on many SMP sites of western Emilia and is practically the only type of rock used. The employement of other rocks is still occasional. The distribution of finds and the collected data show the presence of a few centers specialized in the manufacturing of personal ornaments. Yet there are differences between centers like Benefizio, Gaione – Cascina Catena and San Ruffino – Villa Greci, where production was very intense with abundant production waste, and other sites, such as Parma – via Guidorossi and Pontetaro, where finished artifacts prevail.

Production waste of personal ornaments is generally abundant, but the discovery of materials showing the entire production sequence is uncommon, so it is particularly important in the case of Benefizio, where in features 11 and 79 production waste of microbeads was collected with diameter between 2 and 3 mm (fig. 2.1) and larger disk-shaped beads with a diameter between 8 and 12 mm. Sporadic evidence of manufacturing of microbeads is also reported in Gaione – Cascina Catena and San Ruffino – Villa Greci, while production of the second kind of bead is documented, in addition to the mentioned sites, in Ponte Ghiara. In Benefizio remains include waste flakes, polygonal rough-outs, ground, perforated and rounding blanks, many of them broken during the drilling, beads in the process of rounding and finished specimens, as well as drills and some burin spalls made of flint and used as tools in the processing of beads (Mazzieri and Micheli 2008). Finished microbeads appear in Emilia in the settlements of Rivaltella (Bernabò Brea *et al.* 2006) and Benefizio and some burials in Gaione – Cascina Catena (Bernabò Brea *et al.* 1990) and in Chiozza (Tirabassi and Macellari 1995); evidence of microbeads is also found in Trentino, in Riva del Garda (Micheli in press) and in the territory of Mantua (Daniela Castagna pers. com. 2010).

Emilian materials show a large assortment in the shape of the beads. Unlike the discoidal and cylindrical beads, usually very regular and mass-produced, all other types of beads present a large morphological and size variability, as their calibration has been carried out bead by bead and therefore not in a serial way. Beads are known in lenticular, globular, ovoid and barrel shapes.

Even the pendants show great morphological diversity: they are however nearly always small specimens. Among them, some stand out that indicate a preference for particular shapes: elongated flattened, biconical, truncated conical or imitation of red deer atrophic canine. We also have unfinished copies of these in Gaione – Cascina Catena, San Ruffino – Villa Greci and Pontetaro. Among the various forms, one of the most typical is the biconical pendant with a one-apex hole (fig. 2.2), specimens of which are known from Gaione – Cascina Catena (Bernabò Brea *et al.* 2006: fig. 3.25), from an unspecified location of the Reggio area (pendant kept in the Chierici's collection of the Musei Civici of Reggio Emilia), from Pontetaro (Micheli *et al.* in press: fig. 3.3 and 4) and Mantua (Daniela Castagna pers. com. 2010). Of all these types there is no waste indicating a precise operational chain, but only unfinished artifacts. Tests performed indicated that the fastest and easiest way to produce beads,

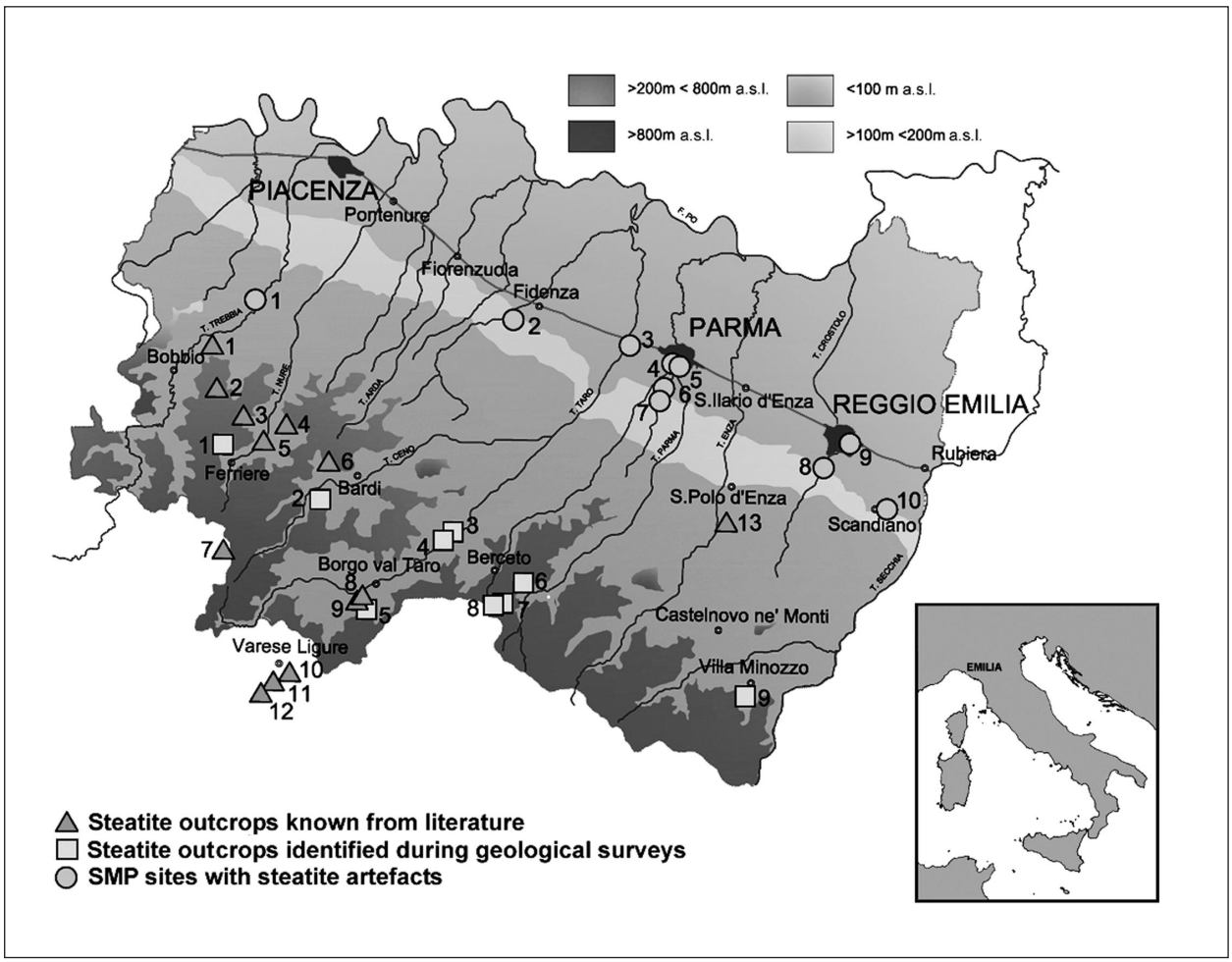


FIGURE 1. Geographical localization of the SMP sites with steatite artefacts including personal ornaments and/or working manufacturing remains associated with the steatite outcrops of the northern Apennines mountain range. Steatite outcrops known from literature: 1. Forno di Sotto; 2. Pradovera; 3. Vediceto; 4. Groppallo; 5. Bolgheri; 6. Casermone; 7. M. Tomarlo; 8. Case Casarola; 9. Case la Monta; 10. Teviggio; 11. Cembrano; 12. Salterana; 13. Rupe Campotrera. Steatite outcrops identified during geological surveys (steatite colours: B = black; G = green; R = red/brown; Gr = grey): 1. Monte Albareto (B, G); 2. Pareto (G, R, Gr); 3. Capanne di Sopra e di Sotto (G); 4. Moreschi (G, R); 5. Rovinaglia (B, G); 6. Maestà di Graiana (G, B); 7. Passo Sillara (B); 8. Groppi Rossi (G); 9. Villa Minozzo (Gr, B). SMP sites with steatite artefacts: 1. Travo; 2. Ponte Ghiara; 3. Pontetaro; 4. Benefizio; 5. Via Guidorossi; 6. Gaione – San Ruffino; 7. Gaione – Cascina Catena; 8. Rivaltella; 9. Bazzarola; 10. Chiozza di Scandiano.

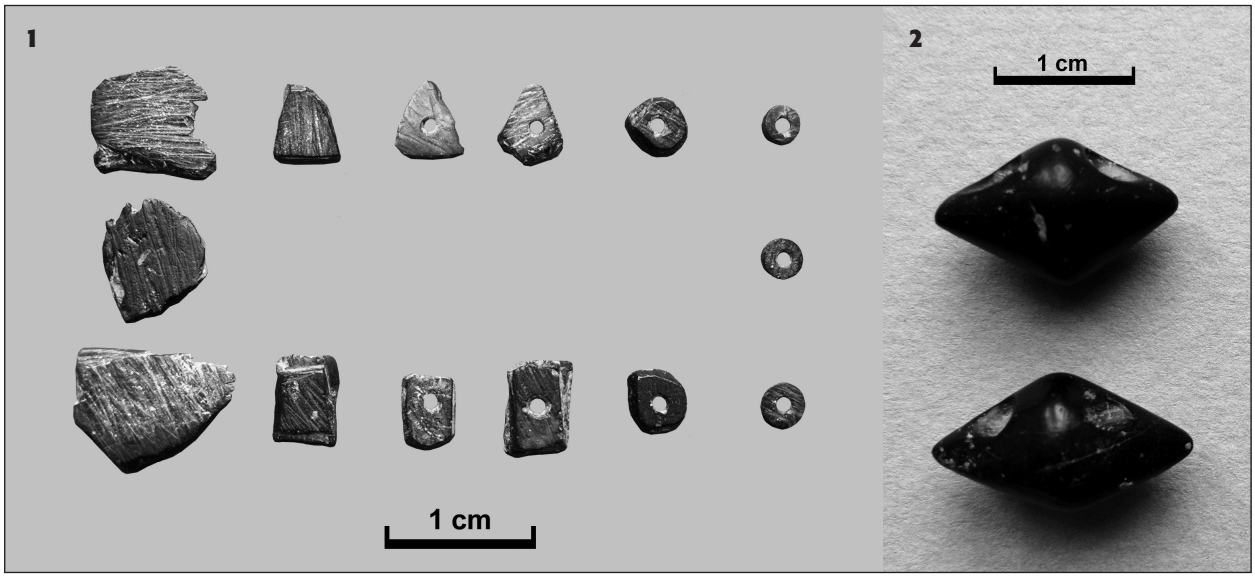
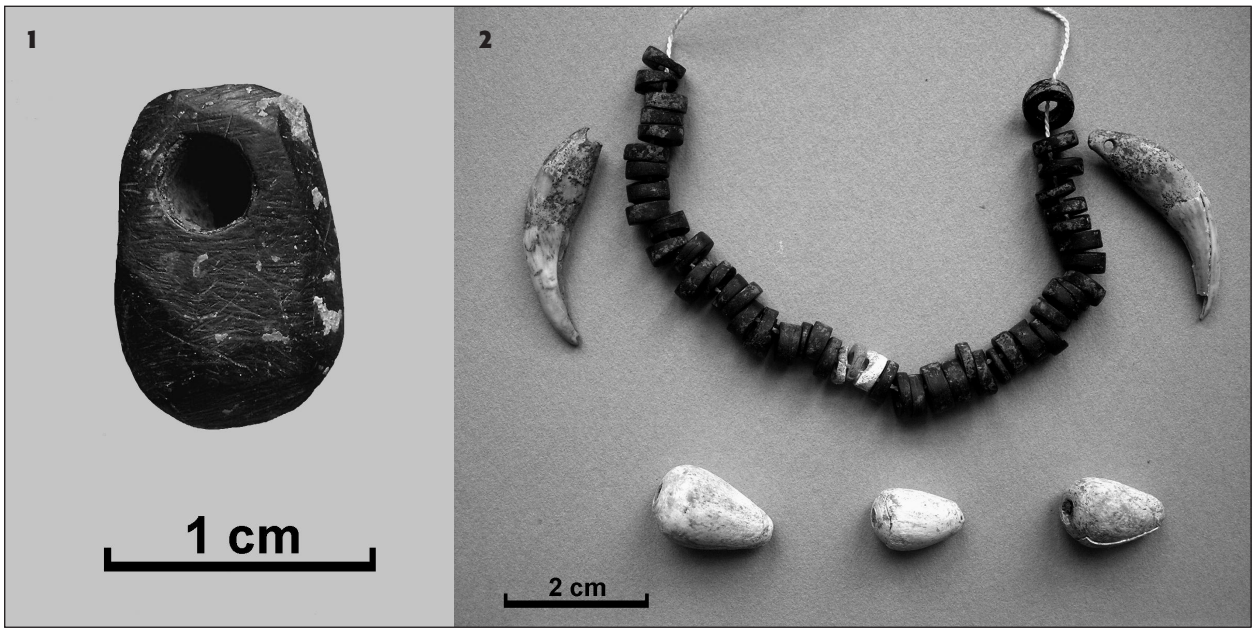


FIGURE 2. Steatite personal ornaments of Emilia: 1) Microbeads manufacturing sequence from Benefizio; 2) Biconical pendants from Pontetaro (photos R. Micheli, courtesy of *Museo Archeologico Nazionale di Parma*).

except the cylindrical or disk-shaped short ones, and pendants was to work directly a small block of steatite by removal through abrasion with sandstone pebbles and flint knives. The average time to achieve one of these items including the suspension hole is 10 to 30 minutes.
Rather interesting is the production of imitations of red deer atrophic canine (fig. 3.1) as their use in its natural state has not been documented in SMP habits so far, while it has occasionally in Liguria and Trentino (Micheli in press). There is also an imitation in bone, from a tomb in Parma - via Guidorossi (Mazzieri and Micheli in press: fig. 6). Deer hunting is still documented in Emilia by faunal remains and plays a strong symbolic value in representing dead males as deer bones or antlers are placed inside graves both in their raw state and in the form of artifacts of enigmatic type (sticks) (Bernabò Brea *et al.* 2010a and b). A steatite deer's leg from San Ruffino – Villa Greci is a very interesting case that stresses the symbolic importance of the animal. It is in fact an artifact that is not covered in the class of personal ornaments, but is influenced by it in the style, the research for detail and the pleasure of crafting small objects.

Standardization of steatite artifacts: evidence of craft specialization?

It is possible to distinguish three categories of personal ornaments in steatite according to shape, distribution and type of work: 1. Peculiar objects that cannot be classified and are often represented by a single specimen; 2. Types fairly standardized in shape and size which, however, cannot be associated to a chain operation; 3. Extremely standardized beads obtained by a specific operational chain of more complex manufacturing (short cylindrical beads and microbeads). The former are often extremely accurate pendants in the manufacturing and finishing, coming almost exclusively from the Gaione area. The second type, which includes biconical, lens and barrel shaped beads, as well as the biconic pendants and the red deer canine ones, is characterized by extreme formal and dimensional fidelity of articles to well-defined models, but whose production does not require a precise operational chain. In the third category we can include in the short cylindrical beads with diameters between 5 and 8 mm, by far the most common, obtained with a more complex operational chain. It requires the production of flat blanks that are properly shaped by abrasion and cut to achieve polygonal rough-outs subsequently drilled and rounded in series on a grindstone. The packaging of these products is not particularly complex and requires shorter manufacturing times (5 minutes for a rough-out and 10 minutes for the rounding of a series of 8-10 beads). The production of microbeads basically reproduces that of short larger cylindrical specimens and takes 2-3 minutes, but it poses some problems due to the small size of artifacts; times, compared to the larger type, are longer, and it should be remembered that for the realization of a necklace it is necessary a large number of beads. Steatite ornaments are certainly to be considered a product of high technology investment, probably packaged by expert and specialized hands.
Data show the great skill achieved by SMP artisans in handling steatite, as well as the existence of techniques for the manufacture of mass produced items and highly standardized finished products probably involving specialized craftsmanship. The spread of microbeads, all of the same size and shape, throughout many sites (fig. 4) may imply a mass production and control over their manufacturing processes that seem to indicate more manufacturing facilities and probably the existence of specific skills of the artisans. This is also supported by the diffusion of the biconical pendant whose particular type suggests the existence of a control over the shape and dimensions of the artefacts, proving a well-organized and not casual production, as well as the existence of models to follow in the production of ornaments. Another fact that seems to finally support this impression is the apparent preference for the use of dark color steatite, while the use of other color shades (beige, green, brown or dark red) is very limited. This choice is therefore not random as the green variety prevails in Emilia, but it seems to depend on a clear cultural preference for black or dark gray steatite to match other light-colored ornaments such as perforated shells or teeth (fig. 3.2). The choice of a particular kind of steatite is therefore not casual, because the colors often act as an important means to build differences which are also reflected in the sphere of personal ornaments (Jones and MacGregor 2002: 12).
The abundance of remnants and their distribution suggest a major production that transcends the mere domestic sphere. However, even in the event of such a widespread production, the impact of the remains of processing is variable; it is possibly to see differences between sites where the remains are very numerous and diversified, and other sites where the production seems more limited. The available data, unfortunately incomplete because none of the considered settlements has been fully investigated, shows some discrepancies in the data assessing the manufacture of steatite ornaments within settlements. The only evidence of a certain importance comes from the area of Gaione, peculiar site in the SMP landscape and generally interpreted as a kind of "emporium" for the redistribution of various raw materials (Bernabò Brea *et al.* 1990) and from two individual features in the ample site of Benefizio (investigated for 16000 square meters). It is therefore difficult in this scenario to determine whether there were different levels of production (individual, family and group members, village, etc.). What is certain is that the manufac-



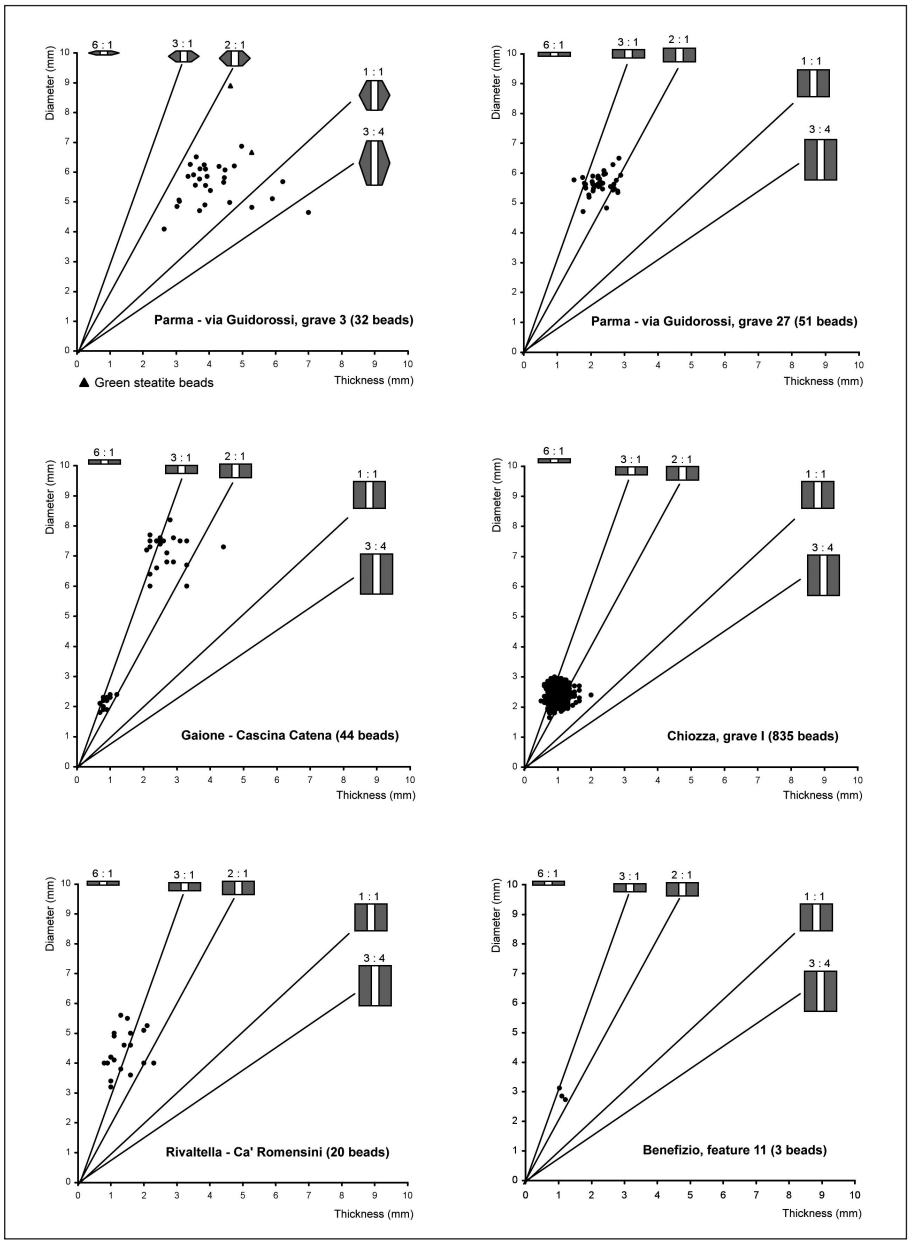


FIGURE 3. Steatite personal ornaments of Emilia:
1) Rough-out of a pendant reproducing a red deer canine from Pontetaro;
2) Composed necklace formed by different beads (steatite, calcite, bone and shell), some *Conus* shells and two perforated fox canines from a female burial (grave 27) found in Parma – via Guidorossi (photos R. Micheli, courtesy of *Museo Archeologico Nazionale di Parma*).

FIGURE 4. Dimensional ratios and lengthening indexes of steatite beads from some SMP sites of Emilia.

ture of steatite ornaments was so important for Emilian SMP groups to have undoubtedly had considerable economic and social implications. It is likely that at least in the Emilia region such objects were used as elements to emphasize the status of certain individuals or, perhaps, of particular social groups, since, despite being fairly common in many settlements, they are not evenly distributed among the SMP dead so far identified in Emilia. It could also be possible that these artifacts were brought by those who were in somehow in connection with the procurement of raw materials and the manufacture of ornaments.

Many styles for a few raw materials: the case of necklace beads

Emilian SMP ornaments count fossil shells such as *Dentalium* and *micro-Dentalium*, calcareous tubes of sea worms and various pierced specimens (mostly *Cardium* and rarely *Conus*) (Micheli 2006). Also perforated canine teeth are present. More elaborate ornaments, apart from steatite artifacts, are rare: a discoid bead in valve of *Cardium* from Benefizio, a button in Spondylus from Le Mose (Mazzieri and Micheli in press: fig. 1) and a cylindrical bead of *Spondylus* from Cave Gazzuoli in the area of Modena (Ferrari *et al.* 2008). On the one hand, perforated teeth and shells and beads of *Spondylus* are characteristic of SMP groups respectively from Liguria and Trentino (Micheli in press).

Personal ornaments in steatite and burials in the central Po Plain

The large number of Neolithic graves recently discovered in Emilia have increased the data available so far on SMP funeral practices, highlighting their complexity. The information now available makes it possible to establish a framework of elaborate rituals, modes of treating of the bodies, the choice of funerary objects and, finally, the elements of the habits of the dead (Bernabò Brea *et al.* 2010a and 2010b). The graves identified so far between Piacenza and Reggio Emilia are more than 230 and this is a good sample for the study of Neolithic burial practices and their variability (Bernabò Brea *et al.* 2010b). The incidence of ornaments is generally low and equal to about 10% of the total: these objects, when present, appear frequently in burials of female adults (with grave goods) or children (for which only the use of small *Dentalium* is known); only in recent years have been excavated some tombs with male ornaments that stand as a new aspect within the SMP habits to be understood and studied (Mazzieri and Micheli in press). The rarity and the constant association in the burials of adults to elements of the grave-good seems to denote a certain importance in the representation of the personal ornaments of the SMP dead, especially in those of highly ranked individuals. The steatite ornaments in western Emilia are among the most important according to the most recent findings, although there are other types including perforated animal teeth (canines), a human tooth and some fossil shells. In Gaione – Cascina Catena, the burials with steatite ornaments are relevant to two cremations and one burial and relate to both genders. The jewelry includes short cylindrical beads and microbeads. In Parma – via Guidorossi, the two graves with steatite objects are of the inhumation type and belong to an adult male and an adult woman (Mazzieri and Micheli in press). It is well known, on the other hand, the female burial of Chiozza with the rich necklace of 835 microbeads (Tirabassi and Macellari 1995: 220). Steatite ornaments were also found in graves of the area of Mantua (Daniela Castagna pers. com. 2010). The employement of steatite personal ornaments is not yet testified in other graves in the rest of northern Italy and seems to be peculiar to the burial customs of the SMP groups of Parma, Reggio Emilia and Mantua.

The circle and the square: some final observations

The use made of steatite by Emilian SMP people is relevant and has no comparison with what has been documented throughout the Italian Neolithic with regards to both the exploitation of this rock and the use of ornaments. At a first glance the case of SMP groups could resemble the much more famous one of the beads of *callaïs*, made from green rocks and minerals, including the variscite, turquoise and malachite, and typical of the Catalan cultural sphere of the *sepulcros de fosa*, but which also appear in several Neolithic sites in France, certifying the movement of adornment objects with value of prestige goods, through medium and long distances in Catalonia and southern France between the 5th and 4th millennium BC (Villalba *et al.* 1991; Villalba 2002; Baldellou and Utrilla in this volume; Borrell and Bosch in this volume; Odriozola *et al.* in this volume; Querré *et al.* in this volume). The Spanish case could therefore be used to understand the phenomenon of steatite personal ornaments in the SMP world, but between the two cases several differences are detected: the Italian case is

more limited geographically, it has a narrower chronological development and is peculiar only to Neolithic groups of northern Italy as part of one prehistoric culture. The Catalan variscite, in addition, has been quarried systematically from underground mines and this proves the existence of the technological knowledge necessary to plan an exploitation in the tunnel; instead, steatite was collected directly from the surface outcrops in the Apennines. It should be noted, finally, that the ornaments in variscite constitute a component of homogeneity and social cohesion within the regional differences in the Catalan groups, representing one of the most significant traits of the cultural identity of the *sepulcros de fosa*. Steatite ornaments are rather a very particular aspect of the SMP culture. Even in the same area of Emilia, however, you can notice differences: it is clear that there is a particular preference for steatite by the SMP people allocated in the territories of the present provinces of Reggio Emilia and Parma, while the evidence is significantly reduced in the area of Piacenza and have been so far absent in the area of Modena.

With regard to chronology, the dissemination of steatite ornaments in Emilia, although attested since the earliest phase, seems to increase at a more advanced stage of SMP culture; this phenomenon, however, is not documented among SMP groups in Liguria. The intensification of steatite processing in Emilia still goes hand in hand with the emergence during SMP 2 of different types of rocks of exotic origin (obsidian, hyaline quartz, French silex blond, different alpine rock types) and is due to the intensifying of wide-ranging cultural relations between SMP groups and other contemporary cultures, among which relationships with Serra d'Alto seem to be particularly supportive. Alongside the extension of exchange networks is also a strong intracultural characterization of the various SMP populations, which tend to identify themselves with the raw materials present in their territory (Dal Santo and Mazzieri in press). Steatite is therefore a component of these exchanges, as confirmed by the substantial presence of manufactured finished and unfinished goods in several production and redistribution centers such as Gaione – Cascina Catena. However, personal ornaments made in steatite do not seem to circulate outside the area of Emilia, and anyway, when they leave the region of origin of raw materials and production, they remain in the SMP world, as shown by the recent discovery of Trentino; this proves the close connection between steatite artefacts and SMP people and how the former have been used mainly as elements to mark the habits and identity of Emilian groups.

The reason for the success of steatite between SMP groups is to be found in the massive presence of outcrops in the Apennines of Parma and Reggio, but it should not be underestimated, beyond the well-known characteristics of the material including the aesthetic qualities and ease in processing, that it also had a symbolic value that steatite may have had as its deposits are located close to the limits of the territory of SMP culture. It is not possible to determine whether the collection of steatite was collateral to other activities in the Apennines as no SMP settlements are known in the mountain area. The presence of SMP people in the Apennines for activities related to the migration of herds is likely, but we cannot exclude that the presence was related to other reasons such as the management and control of the land for the exploitation of raw materials along the border with the sphere of influence of the culture of Ripoli. To precisely define the forms and modalities of such presences in the Apennine is not yet possible, but the available data are certainly interesting and challenging, because they can define the strategies of exploitation of the mountain area and its resources by SMP people and serve as starting points for further research to verify some of the observations presented in this work.

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