Around the Petit-Chasseur Site in Sion (Valais, Switzerland) and New Approaches to the Bell Beaker Culture
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Bell Beaker in Eastern Emilia (Northern Italy)

Nicola Dal Santo, Alessandro Ferrari, Gabriella Morico and Giuliana Steffè

Abstract

This paper presents recent pre-Bell Beaker groups and other groups contemporary to Bell Beaker, such as the final stages of Spilamberto Group, the Castenaso *facies* and the Marzaglia *facies*, recently recognised after rescue excavations. New Bell Beaker settlements and some aspects of recent and final Bell Beaker Culture are discusssed.

In Emilia Romagna the final stages of Beaker phenomenon, here called Late Bell Beaker, are well documented and they are contemporary to the development of Early Bronze Age communities in the southern fringe of central Pre-Alps (Polada Culture).

Keywords: Italy, Eastern Emilia, pre-Bell Beaker, regional Bell Beaker, Late Bell Beaker.

Résumé

Le Campaniforme dans l'est de l'Emilie (nord de l'Italie) – *Nous allons présenter certains aspects récents du Précampaniforme et des autres cultures contemporaines au Campaniforme, comme les manifestations finales du Groupe de Spilamberto, le* facies *de Castenaso et celui de Marzaglia. Nous présentons aussi les nouvelles données à propos du Campaniforme et nous discutons des résultats finaux de ce phénomène. Dans la région Emilia-Romagna, ces aspects, indiqués comme Tardicampaniforme, se développent de manière contemporaine à l'affirmation des premières communautés de l'âge du Bronze Ancien des Préalpes méridionales centrales (Culture de Polada).*

Mots-clefs : *Italie, Emilie orientale, pré-campaniforme, Campaniforme régional, Campaniforme tardif.*

Introduction[1]

During the last five years rescue excavations carried out in quarries, private building lots and public infrastructures have notably increased our knowledge about the human communities between the fourth and the beginning of the second millennium BC in Eastern Emilia (fig. 1).

Analysis of archaeological findings is still in progress; at the same time we are operating a taxonomic and chronologic revision of the concept of "Chalcolithic" (Ferrari, Steffe' 2009; Ferrari et al. in press), which we argue should be considered part of Final Neolithic (different opinions are summarised in the left columns in fig. 27).

The new data now available allow us to overcome some ambiguities implicit when we approach Final Neolithic cultures as "ceramic styles" ("ceramica a squame", "a scopettato", "a cordoni", "a fori non passanti", "metopale"). This traditional approach, in fact, has shown its inefficiency in interpreting the Final Neolithic cultural segmentation, segmentation which is typical of Northern Italian Neolithic as a whole.

In Emilia both settlements and burials are known only for the Spilamberto Group and late Bell Beaker (B.B.). Thus the cultural groups and dynamics here presented will be based mainly on "domestic" material culture, emphasising associations and techno-typological traditions. Awaiting the results

Figure 1. Map of Northern Italy and investigated area.

1. In this paper the study of lithic industries is by NDS; the description of the Spilamberto Group, the Marzaglia *facies* and the Bell Beaker is due to AF and GS; the description of Castenaso *facies* is due to GM and GS. AF defined the Castenaso and Marzaglia *facies*, discussed and drew the general picture of the considered cultural groups. Graphic elaborations: R. Gabusi, V. Politi. English translation: NDS.

Dal Santo Nicola: via Cornoleda 19, 35030 Cinto Euganeo (PD) – santo-@libero.it
Ferrari Alessandro: Antiquarium di Spilamberto, via Mazzini 12, 41057 Spilamberto (MO)
Morico Gabriella: via Guerrazzi 30, 40125 Bologna (BO) – gabriellamorico@libero.it
Steffè Giuliana: Soprintendenza per i Beni Archeologici dell'Emilia-Romagna – via BelleArti 52, 40126 Bologna (BO) – giuliana.steffe@beniculturali.it

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of environmental and economic analisys, the main goal of this paper will be taxonomic[2].

The Spilamberto Group

The Spilamberto Group is characterised by *a squame* (scale decorated) pottery and jugs (Bagolini 1981). In this period it is the most north-western group with jugs. This fact represents a clear link with the Peninsula (e.g. Gaudo and Rinaldone). In its early stages, the Spilamberto Group clearly displays interactions with the late S.Ilario Group (Ferrari et al. in presse). Anyway, this problem is out of the chronological range of this paper. To date the Spilamberto Group is known by some fourty sites and four cemeteries distributed between the high plain and the Appennines in the area of Modena and Bologna and contiguous territories of Reggio Emilia and Ravenna.

The lithic industry is obtained almost exclusively through the knapping local raw materials (Cremaschi 1981). In the Cava Marchi site few pieces are made from "Alpine" flint (3%), which is more frequent in older features. Different reduction strategies are selectively applied in order to exploit each type of stone at its best (Dal Santo 2009). Flake production is the main objective, usually from polyhedric or discoidal cores and from bifacial operational chains, while blade production is rare (fig. 2). The toolkit is monotonous, generally consisting of side-scrapers and retouched flakes (occasional tools); formal tools (burins, end-scrapers, borers, sikle blades) are nearly absent, while rough bifaces and tanged arrowheads are relatively frequent. Heavy duty tools made of limestone are typical. Very finely retouched bifacial arrowheads are frequent gravegoods and in the Spilamberto cemetery one dagger and one alberd blades have been found (fig. 3).

A similar organisation of lithic technology, with little local variations, is a cross-culturally shared element between the southern Po Plain and the middle adriatic coast (e.g. Conelle: Albertini 2003), reflecting large scale cultural interactions. On the other side, morphological and dimensional characters seem to differentiate arrowheads of these Groups (e.g. Spilamberto and Conelle). This formal variability can be associated with the expression of cultural identity as suggested by the recurrent use of arrowheads as gravegood. The symbolic value of arrowheads (and daggers of course) is also implicit in the level of technological investment compared to the aforementioned occasional toolkit, which represents the majority of lithics.

The "domestic" pottery is characterised by very high percentages of *a squame* and/or rusticated pottery; other surface treatments or decorative techniques are neatly underrepresented. Striations are rare and different types of impressions are attested, usually organised in zones. In particular, the frequency of not rusticated undecorated pottery is low. Cordons are infrequent, generally but not exclusively associated with scales. Lugs and handles – although not unknown – are very rarely found; jugs are rare. Few exotic elements are documented, but no syncretic production can be recognised.

Beyond the aforementioned relationships with the Peninsula, within "domestic" pottery few examples of import/imitation have been found. These are mainly linked with the Conelle sphere (bands of impressed dots: Cazzella, Moscoloni 1999) and the Po Plain and Liguria: Metope Pottery (Bagolini, Biagi 1988). These elements are apparently the same to be found in the Castenaso *facies* (as striations are also rare but ubiquitarian); on the other hand Spilamberto receives adriatic and northern Po Plain ceramic productions and decorative types (and/or these are indexes of contacts) which are absent at Castenaso.

A preliminary chronological seriation of the Spilamberto Group material culture (as documented between Spilamberto and S. Cesario) can be traced in the Cava Marchi 2006–2007 excavations (Ferrari, Steffè 2009d, fig. 380, 381), Spilamberto site X, 1979 ditch (Ferrari, Steffe' 2009b, fig. 368, 369), Cava Marchi 1996–1997 excavations (Ferrari, Steffe' 2009 d, fig. 380, 381). Radiocarbon dates are only available for the early phases of Cava Marchi 2006–2007 and for the middle phase of Spilamberto 1979 ditch (fig. 26). At Cava Due Madonne (Bologna) a phase little earlier than Cava Marchi 2006–2007 has been recognised but the ceramic assemblage is quite similar (Bardella et al. 1980) (fig. 26). In the Po Plain the most ancient date associated with *a squame* pottery (fig. 26) comes from Cave Corradini (Reggio Emilia) (Cremaschi 1997, p. 122–123), although the ascription of these findings to the Spilamberto Group is uncertain; vessels with decoration resembling scales or properly scale decorated pottery appear since the late S. Ilario Group (e.g. Poggio Piccolo and Castenaso, Stellina level 3 in the Bologna area: Ferrari et al. in press). On the other side, a later phase can be perhaps traced at Cava S. Lorenzo (Modena) (Steffe' 1988).

We will discuss here only recent aspects, while for a general picture of the Spilamberto Group a rather vast bibliography is available (Bagolini, 1981, 1984, Ferrari, Steffè 2002, Ferrari et al. 2006, Berni 2009, Ferrari, Steffè 2009a, 2009b, 2009c, 2009d, 2009e, Berni, Mazzieri 2011, Berni et al. 2011, Ferrari et al. 2011, Berni, Crotti in press).

The final stages of the Spilamberto Group

At Cava Marchi sherds resembling the Fingernail Coarse Ware typical of the B.B. site of S. Ilario d'Enza (Reggio Emilia) come from an elongated pit, partially excavated in 1996–1997, as well as flat discoidal spindle whorls similar to those from the B.B. of Rubiera (Reggio Emilia) (fig. 4). From the surface of the same feature comes a steatite bead resembling a Montgomery type button, although perforated along the main axis. Grave 27 of Spilamberto cemetery can be probably ascribed to this phase (Ferrari, Steffè 2009b, fig. 371–373, 375). Till now, these are the only findings of Fingernail Coarse Ware in the Spilamberto Group and (as already stated: Ferrari, Steffe' 2002) they seem to testify its later aspects, chronologically parallel to the development of regional B.B. in neighbouring areas from which fingernail technique would have derived. At the same time, the Spilamberto cultural identity, as perceived through material culture and funerary practices (Ferrari, Steffè 2009b, 2009c, 2009d), is still fairly vital, but the absence of reciprocity with the contiguous rising Bell Beaker societies seems to forshadow its end[3]. It's significant, starting from the same chronological range, Bell Beaker elements

2. The picture is still fragmentary. In particular the chronological and cultural position of non Spilamberto funerary *facies* (e.g. Cumarola and funerary caves) and the state of knowledge about Scale Decorated Pottery in the Bologna area.
3. An opposite point of view has been recently proposed, which affirms that S. Ilario d'Enza Fingernail Coarse Ware would come from the Spilamberto Group (Steiniger 2008; Strahm 2008). For a discussion about this point see Ferrari, Steffè 2009b, p. 190.

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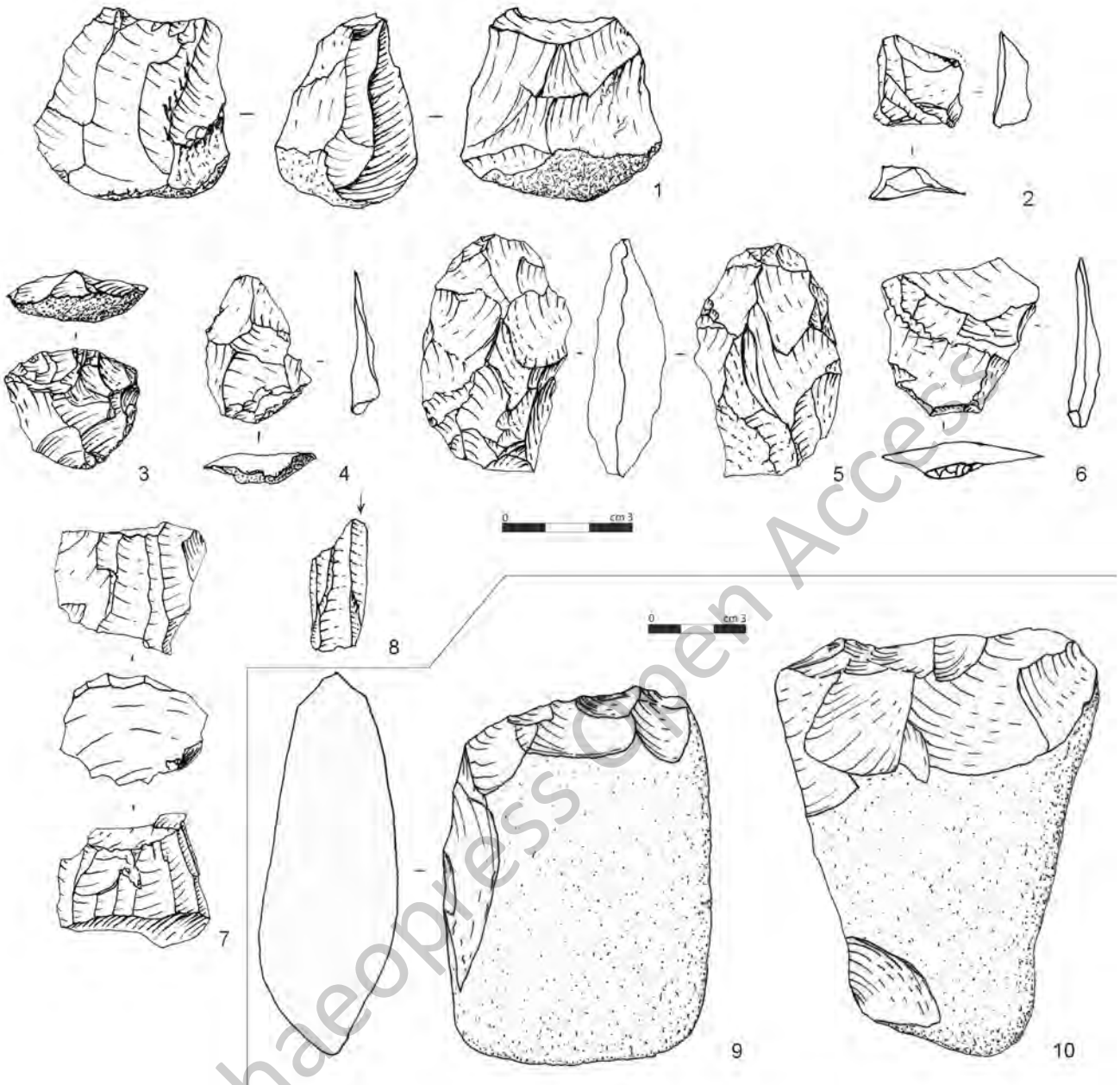

Figure 2. Spilamberto Group. Lithic industry from Spilamberto (1–8) and Cava Marchi (9,10). Flake production from polyhedric and discoid cores and bifacial operational chain (1–6). Blade core and burin (7, 8). Heavy duty tools (9, 10). (1–8 2/3 size, 9, 10 1/2 size) (Drawings: 1–8 N. Dal Santo, 9–10 after Ferrari, Steffè 2009d modified by Dal Santo).

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appear in the "Rinaldone Culture", as it can be recognised in the Fontanile di Raim cemetery in Lazio region (Negroni Catacchio, Miari 1998; Leonini, Sarti 2008a, p. 125).

After this episode, the Spilamberto Group evidences seem to fade, with the only possible exception of Cava S. Lorenzo, where a deep vessel with a segmented impressed cordon generically resembling Castenaso productions has been recovered together with a coarse ware elbow handle (Steffè 1988, fig. 131, 3, 6). Elbow handles appear in B.B. of Emilia and Tuscany starting from an advanced phase and in the Castenaso *facies* in late aspects, with B.B. elements (Casalecchio di Reno, Bologna). Anyway it must be remembered that some jugs from the Spilamberto cemetery already have elbow handles (graves 1, 4: Ferrari, Steffè 2009 b, fig. 375).

At Pescale (Modena) and at Monte Castello di Gesso (Bologna) B.B. evidences are found, stylistically following the S. Ilario settlement. Scale decorated pottery and striations can be possibly associated to these B.B. findings (this assemblages will be discussed below). If this association will be confirmed, the appearance of clear Spilamberto elements in advanced B.B. settlements could indicate that Spilamberto Group, deeply modified in its cultural set, lost the state of an

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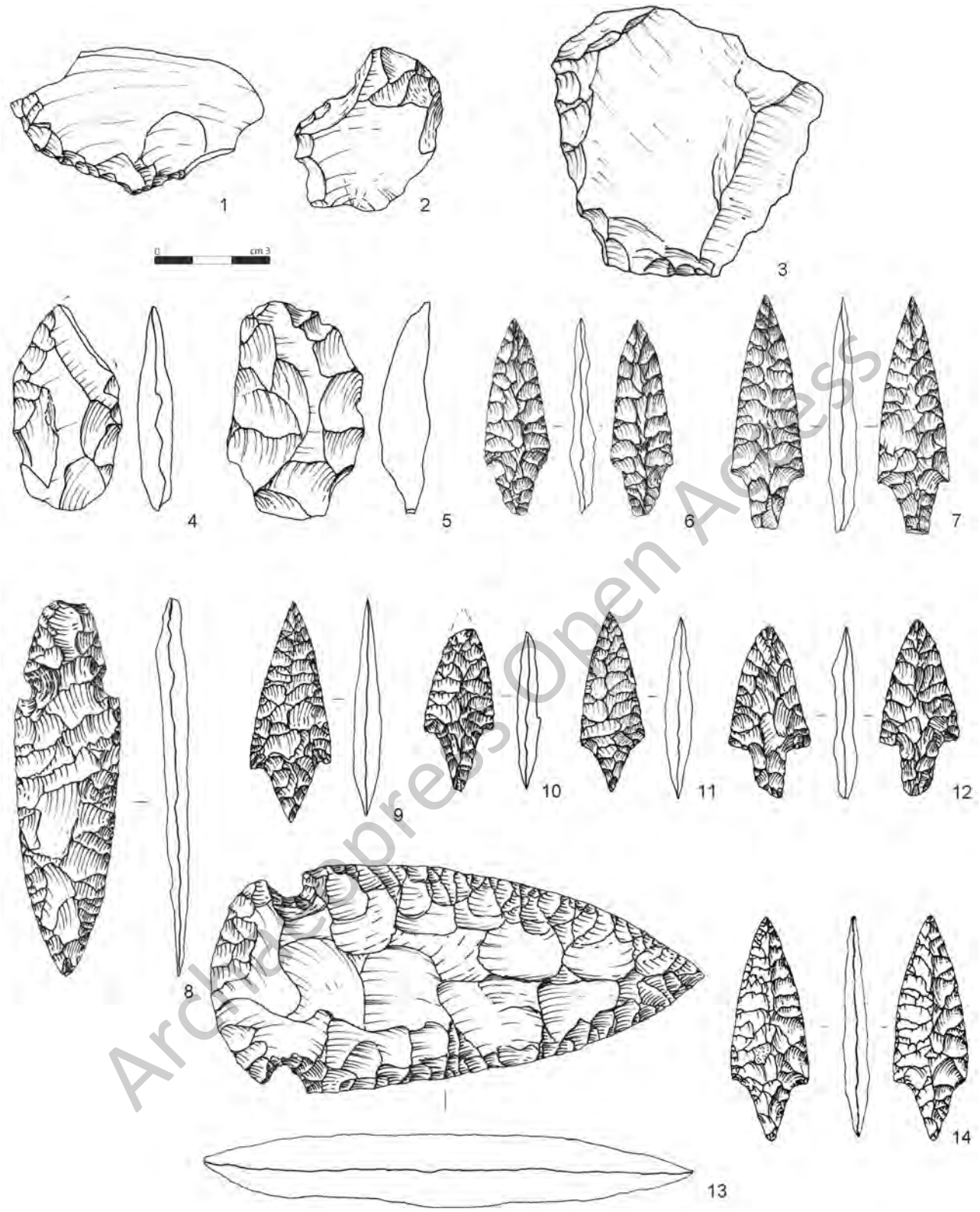

Figure 3. Spilamberto Group. Lithic industry from Spilamberto (1, 2, 4–14) and Cava Marchi (3). Flake tools (1–3). Bifaces (4, 5). Examples of arrowheads from grave 5 (6, 7), grave 9s (9–11), grave 16 (12), grave 32 (14). Dagger blade from grave 28 (8). Alberd blade from grave 2 (13). (2/3 size) (after Ferrari, Steffè 2009b, 2009d, modified by N. Dal Santo).

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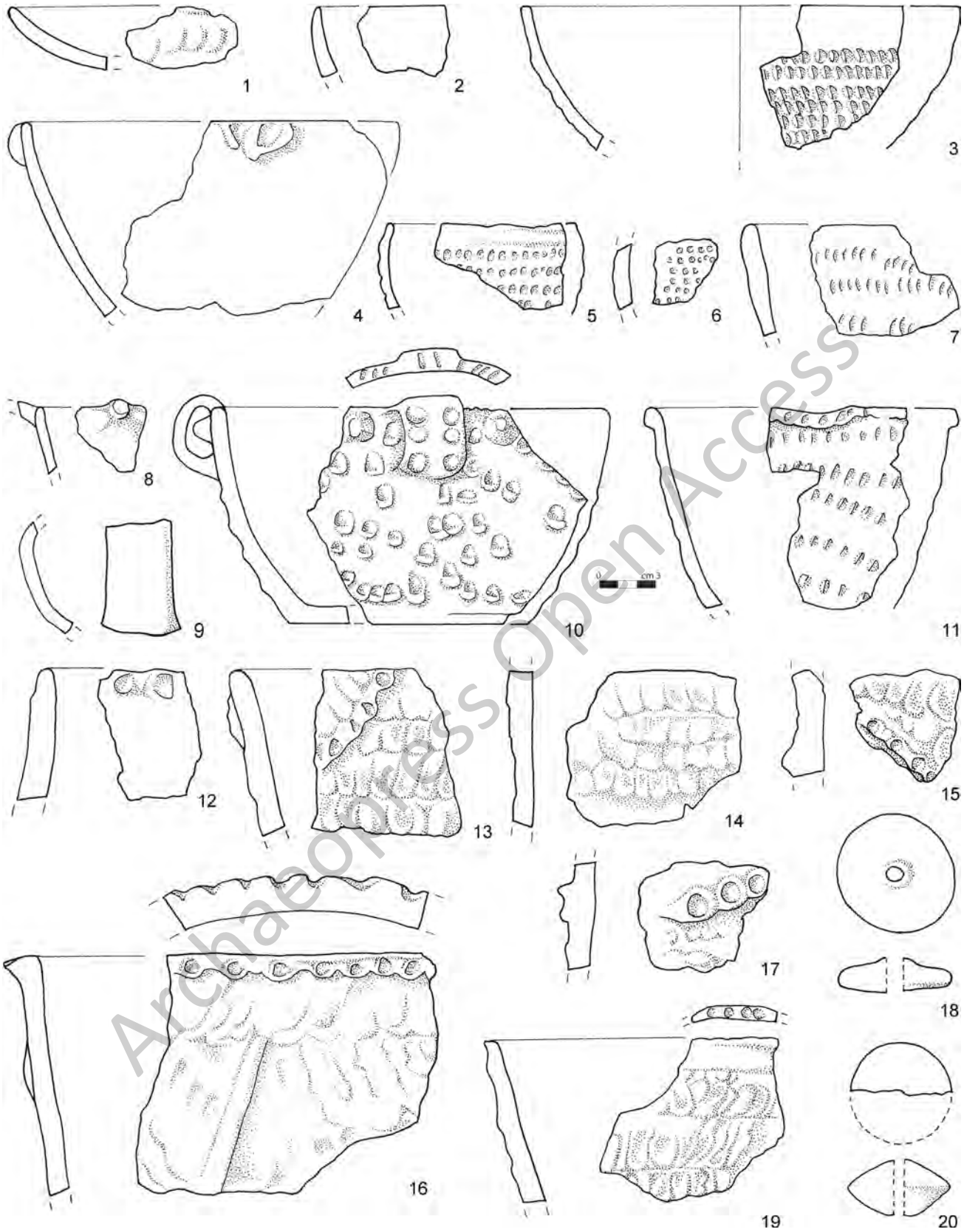

Figure 4. Spilamberto Group advanced phase. San Cesario sul Panaro (Modena), Cava Marchi: 1996–97 excavations (1/3 size) (after Ferrari, Steffè 2009d).

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independent cultural unit. In this view the end of Spilamberto would have been determined by mean of the local assimilation of new symbolic elements, within processes already known in B.B. diffusion; these processes could lead to the progressive erosion–disaggregation–disintegration of the traditional cultural base. Within this model the composition of complementary pottery would adapt itself during time, depending on the cultural groups involved in "Bell Beakerisation" (Strahm 2008, p. 210). Significantly, in eastern Emilia B.B. evindences start to increase from a recent/late phase of regional style.

The difficulty to identify the geographic distribution of the Spilamberto Group springs from the conceptual vagueness of *a squame* pottery, concept which groups together productions of a plurality of cultural entities widely spread over a large part of the Peninsula. For example, in eastern Emilia scale decorated pottery appears in assemblages of the late S. Ilario Group.

In this area it's now possible to distinguish within *squame* groups (majority of scales): Spilamberto Group; groups with *squame* (minority of scales): Castenaso *facies*; groups without *squame*: Marzaglia *facies*.

To date, the Castenaso and Marzaglia *facies* seem to be limited to the recent Final Neolithic (fig. 26, 27). On the basis of "domestic" productions, it should be stressed that these *facies* seem to be far less influenced by peninsular elements than *a squame* Groups. If the aforementioned dynamics can be extended to the ideologic world and if we look at the diffusion of Bell Beaker as the reception of linguistic, social and ritual practices (Barfield et al. 1995; Strahm 1998; Gallay 2001; Strahm 2008), the Castenaso and Marzaglia *facies* could have been more open to the Bell Beaker symbolism than societies which strongly identify themself with scale decorated pottery and jugs.

The scarce permeability between *a squame* Groups and the Bell Beaker phenomenon can be argued from the analysis of complementary pottery of the Bell Beaker sites in the Po Plain, where, at least until an advanced phase, scale decorated pottery is very rare or uncertain (Leonini 2004).

The Castenaso *facies*

The Castenaso *facies* is here defined for the first time on the basis of Castenaso via Frullo (Bologna) excavations (Lucianetti et al. 2011) and revision of Casalecchio di Reno assemblage (Steffè 1984). In the Bologna area the Castenaso via Frullo, Castenaso Novotel and Casalecchio di Reno sites belong to this *facies*, in the Ravenna area the Riolo Terme via Ripa site has been found (Miari 2007).

The lithic industry has elements in common with the Spilamberto Group, such as the use of local raw materials, the flake production from polyhedric and discoidal cores and the bifacial operational chain (as said before these elements are widely shared between Emilia and Marche). Occasional tools are common and the only arrowhead found generically resembles those from Spilamberto (fig. 5A). Anyway the morphology is quite different (in particular tang and barb shape), suggesting, althouh being an *unicum*, a different identity. Interestingly enough the best comparison from Spilamberto is found in grave a1, whose gravegoods and funerary rituals are unusual if compared to the Spilamberto cemetery (Ferrari, Steffè 2009 c). "Alpine" flint processed by an indirect percussion blade technology is found in a relatevely high percentage (20%). Retouched blades, a sickle blade and a microlithic crescent are made of "Alpine" flint (fig. 5, 1–4). As already said, after its older phase, blade production, "Alpine" flint and sickle blades are nearly absent from Spilamberto lithic technology, while these elements seem to be much more connected with northernmost groups as revealed by the introduction of "Alpine" flint.

Pottery (fig. 6–9), sometimes badly cooked, usually presents irregular surfaces; most frequent are undecorated vessels with plastic elements, sometimes provided with lugs. *Fori non passanti* (partial rim perforations) pottery is a significant component and slightly more frequent is rusticated or properly *a squame* pottery. Striations are present, as well as non circular-mouthed pottery. Plastic decoration (mainly segments of cordons, impressed cordons, rare plain cordons) is well documented; hold elements are frequent, firstly lugs (perhaps cordons could have played the same role), secondarily handles (much more frequent than at Spilamberto). In contrast with the Spilamberto Group, at Castenaso syncretic production with mixed characters are clearly identifiable.

Only settlement evidences of the Castenaso *facies* are known. Adopting the interpretative criteria commonly used during the eighties of last century (Barfield 1986, p. 401; recently Strahm 2008, fig. 6) we should infer that different ceramic traditions appear and compete at Castenaso: Conelle, *a squame*, *a cordoni* (cordons), *a striature* (striations), Civate Coarse Ware etc. The fancy for lugs and segmented/impressed cordons, the frequency of handles and the presence of non circular-mouthed pottery are clear indicators of relationships with Conelle. With regard to the *a cordoni* pottery, which in Northern Italy is mainly diffused to the north of Po River (Aspes et al. 1988, fig. 5), connections with Castenaso seem to be rather generic. The relationship with Spilamberto (and *a squame* pottery) doesn't need any remark. The *fori non passanti* component can be connected with the Civate Coarse Ware (Barfield 2007); frequency of irregular surfaces and badly cooked vessels could have been derived from there. As already said, the Metope pottery is absent from the Castenaso *facies*, while in the Po Plain it's usually associated with *fori non passanti* pottery (e.g. in the Brescia area Riparo Valtenesi: Barfield 2007 and Monte Covolo: Poggiani Keller, Baioni 2008; in Veneto Colombare di Negrar: Barfield 2007; in Piemonte Briona and Castello d'Annone: Venturino Gambari 1995). As far as we know at Castenaso dotted pottery of Conelle is also missing, suggesting that Castenaso is alien to the metope decoration trend. This fact can be understood if we do not consider Castenaso an appendix of Conelle, northern Po Plain groups or of *a squame* Groups, but the original result of a long lasting interaction (in time and space) of those Final Neolithic traditions. The balance of this cultural syntesis has few points of contact with that of the surrounding kindred groups. For example, the Spilamberto Group is essentially alien to the themes which are the base of Castenaso "domestic" production and *vice versa* (except the debts to *a squame* pottery). The same can be said for all the other "components" recognised at Castenaso.

Until a few years ago, (although to the south of Po River the cases of Casalecchio di Reno, Parma Benefizio, Parma

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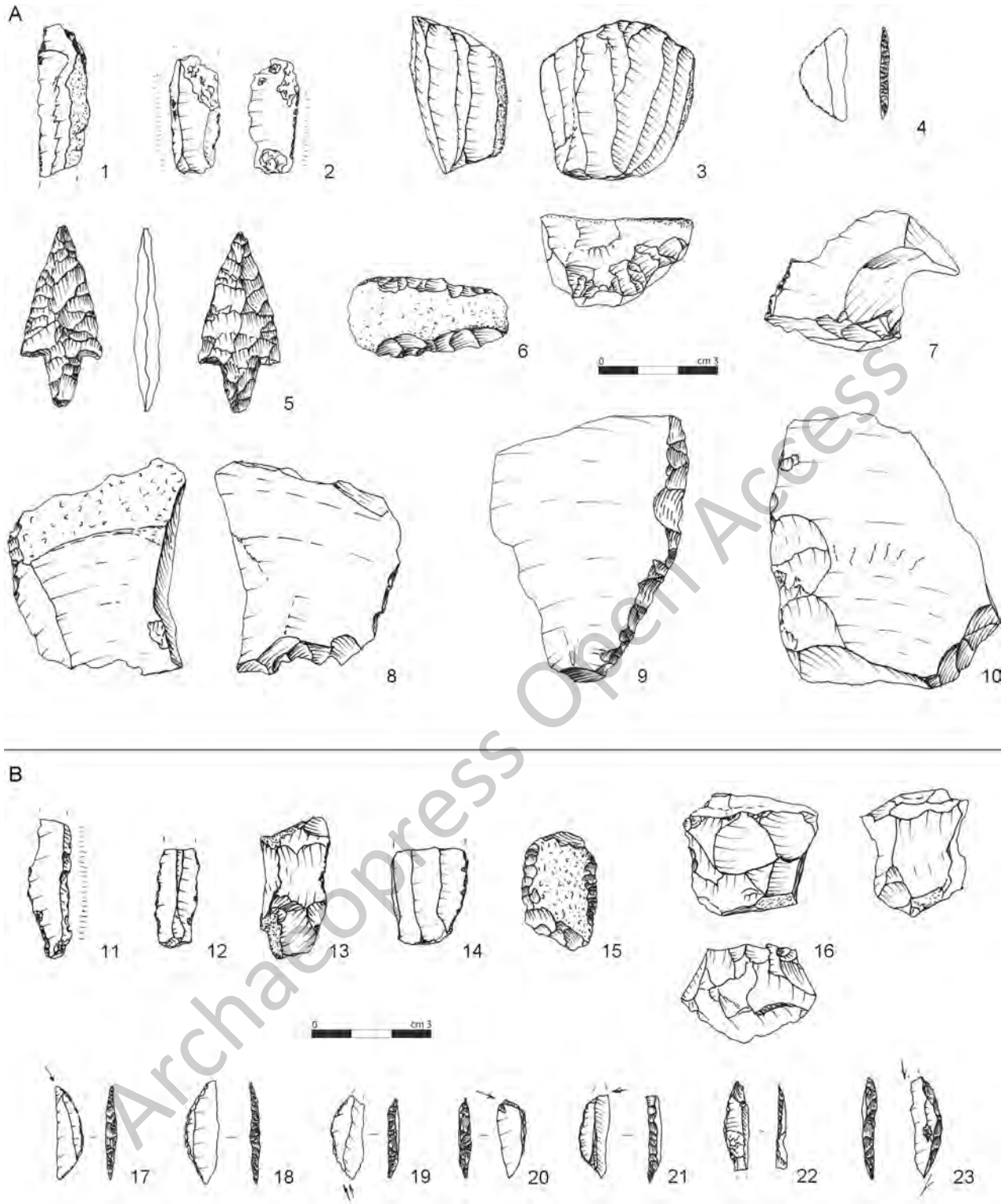

Figure 5. Castenaso and Marzaglia facies. A) Lithic industry from Castenaso (Bologna), via Frullo (1–10). B) Lithic industry from Marzaglia (Modena) Cava Areoporto 2 (level 1) (11–23) (2/3 size) (Drawings: N. Dal Santo).

Aeroporto and Castello d'Annone were already known: Mazzieri 2003), the *fori non passanti* phenomenon was considered limited to northern Po Plain (Barfield 2007, p. 206). Up to now the Castenaso *facies* seems to be the most south-eastern group characterised by this technological/formal trend. Its territory is deeply wedged into peninsular and adriatic traditions usually considered antithetic although reciprocally interacting (e.g the distribution of *a squame* vessels to the north of Po and of "Alpine" flint dagger blades to the south). The Castenaso *facies* springs from the progressive overcoming of these oppositions, as it can be clearly argued from mixed productions, above all the scale decorated with partial rim perforations pottery (documented at Castenaso and Casalecchio di Reno). This phenomenon is not isolated: syncretic productions based on *fori non passanti* pottery (with striations or scales) are known to the north and the south of

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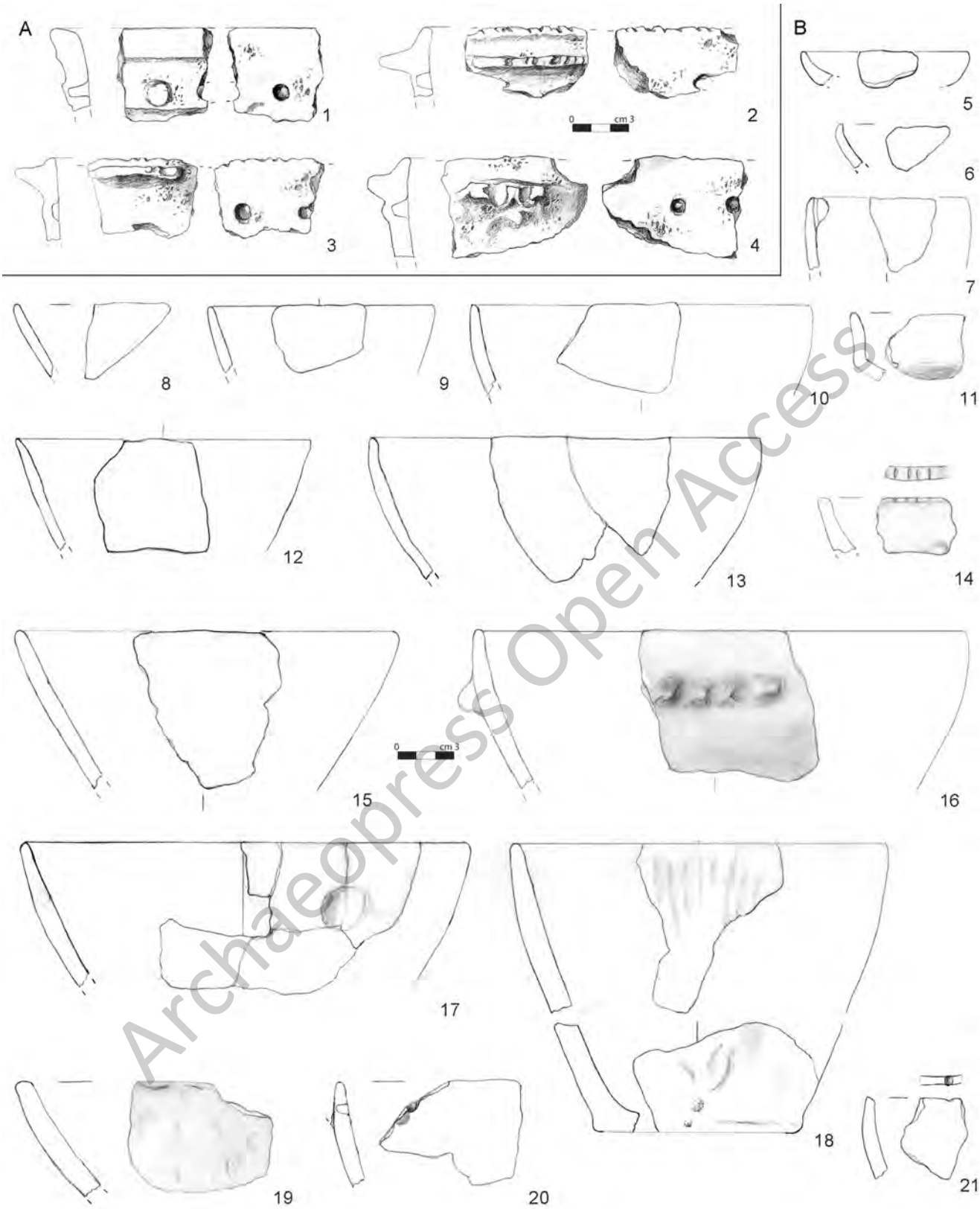

Figure 6. Castenaso facies. A) Castenaso (Bologna), Novotel (the rusticated and very rare a squame sherds haven't been represented); B) Castenaso (Bologna), via Frullo (1/3 size) (Drawings: A.M. Monaco, G. Morico). The archeological analysis of the settlement is now showing two differrent phases, which have not been separated in these figures. In general the two assemblages do not display significant differences.

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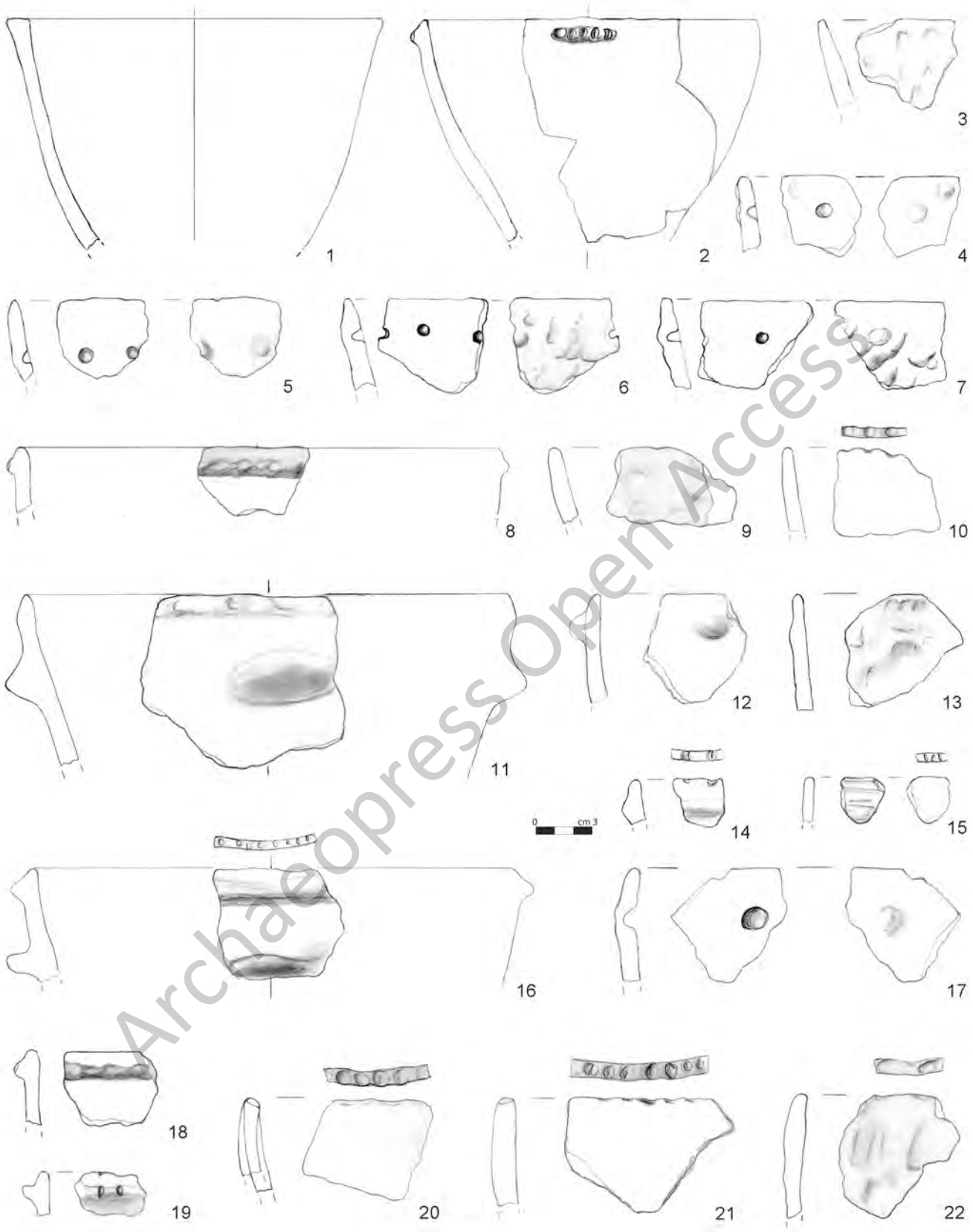

Figure 7. Castenaso facies. Castenaso (Bologna), via Frullo (1/3 size) (Drawings: G. Morico).

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Figure 8. Castenaso facies. Castenaso (Bologna), via Frullo (1/3 size) (Drawings: G. Morico).

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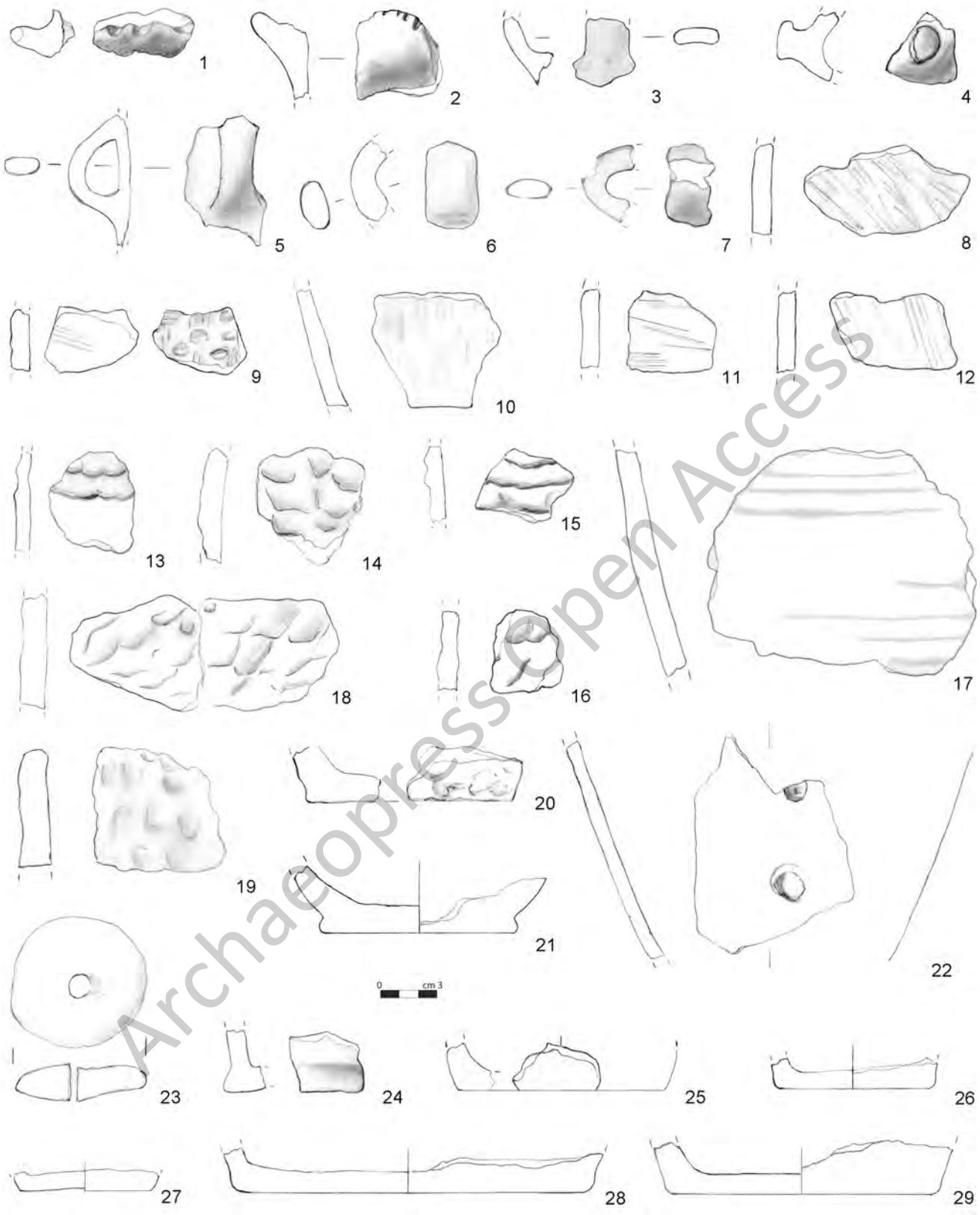

Figure 9. Castenaso facies. Castenaso (Bologna), via Frullo (1/3 size) (Drawings: G. Morico).

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Po River, for example at Parma Benefizio (Liseno et al. 2003, fig. 2. 1, 5), Castello d'Annone (Venturino Gambari 1995, fig. 5, 1), Alba Borgo Moretta (Venturino Gambari, Giaretti 1995, fig. 138, 2), Luine di Darfo–Boario Terme (Poggiani Keller 2002, fig. 3A, 1), Lovere via Decio Celeri (Poggiani Keller 2000, e.g. fig. 24, 4), Riparo Valtenesi (Barfield 2007, fig. 110, p. 86) and Monte Covolo (Poggiani Keller, Baioni 2004, tav. 10, 8).

Among these assemblages, some pre-Bell Beaker evidences from the Monte Covolo Sector 5 (Poggiani Keller excavations) present many analogies with the Castenaso industries. Two dates are available for this horizon: US 210, Rome–1231: 4220±60 BP e ES 321, GX–25123: 4160±40 BP (Poggiani Keller, Baioni 2008, p. 49–57).

Casalecchio di Reno testifies a late phase of the Castenaso *facies* (fig. 10), showing elements deriving from B.B./late B.B. How long this aspect survived in some places beside late B.B. is not clear; the dense frequentation of Castenaso and Borgo Panigale (BO) (fig. 19–24) during a recent phase of late B.B. could represent an *ante quem* term. A relatively late, rather similar assemblage is found at Parma Aeroporto.

The Marzaglia *facies*

The Marzaglia *facies* is here defined for the first time on the basis of Cava Aeroporto 2, liv. 1 excavations (Ferrari et al. 2012). Beyond this site, some similar element can be recognised in the Reggio Emilia area at Montecchio Emilia, Costa Bassa Est (Tirabassi 1997).

The lithic industry is distinctly different from that found in Spilamberto and, partly, in Castenaso. The percentage of "Alpine" flint is high (56%: all segments of operational chain are represented, from crested blade to exhausted core), while local raw materials have secondary importance. With the exception of local materials, flake production is occasional. An accurate blade technology is applied to "Alpine" flint by mean of indirect percussion and pressure flaking. The toolkit is made up of retouched blades, sickle blades and microlithic crescents (fig. 5B), while no flat retouch nor bifaces are found. Some crescents display breakages interpretable as impact fractures. The directions of blows suggest different hafting techniques as argued by Barfield (2001). Two fragments of polished axes have been recovered. The stone employed is a very fine-grained metaophiolite, similar to that used during Ancient and Middle Neolithic and probably coming from Western Alps.

The ceramic assemblage (fig. 11–13) is characterised by prevalent regular surfaces (more or less smoothed), with undecorated vessels often provided with cordons (usually plain) and/or lugs. Burnished vessels are very rare, as well as impressed decoration, and rusticated and/or scale decorated pottery is absent. Striations are almost absent. Plastic elements are common (cordons and less frequently bosses), lugs are frequent (and, differently from Castenaso, are mostly not impressed), less numerous but not irrelevant the handles. Except for a carinated bowl and a jug, which can be generically compared to types with intercultural diffusion, import/imitation of exotic elements is unknown and no syncretic production has been found.

The difference between the Marzaglia *facies* and the Spilamberto Group is evident, while some points of contact with Castenaso do exist. The available radiocarbon dates place Marzaglia next to the final stages of Spilamberto, to the recent but not terminal aspects of Castenaso and to the beginnings of regional B.B. (fig. 26, 27). The relationships between Marzaglia and Castenaso could be – partially – philetic, reflecting of cultural synthesis similar to those giving origin to Castenaso (without the partecipation of the peninsular tradition locally represented by Spilamberto and with a different calibration of northern Po Plain elements); alternatively they could reflect the partecipation to exchange networks which exclude the last stages of the Spilamberto Group. The Marzaglia *facies* could even be the expression of a partially alloctonous tradition (in contrast with the territorial and temporal steadiness of the Spilamberto Group: e.g. the nearby Cava Gazzuoli site, Berni 2009) or resulting from the rising of new international technologic trends.

More or less generic affinities with contemporary groups to the north of Alps can be recognised (e.g. Auvergner, "*Néolithique final valaisan*" and Tamins: Voruz 1991), to the west (connections with Fontbouisse: Gutherz e Jallot 1995) and their italian expressions/elaborations. In particular the Susa and Chisone valleys in Piemonte (Balm' Chanto: Bln-2358: 4090±70 BP: Bln-2838: 4010±60 BP: Nisbet, Biagi 1987), the Finale area in Liguria (upper levels of Arene Candide; for a discussion of local findings see: Nisbet, Biagi 1987; Maggi 1997) and the Tigullio Gulf (Castellaro di Uscio, level 4, dating between GrN-14935: 4490±70 BP and GrN-14934: 3900±60 BP: Maggi 1990). Plain horizontal cordons appear as a more or less secondary element in Tuscany (Vecchiano *facies*: Lauro and Ambra rockshelters: Cocchi Genick 1996), in Trentino (Riparo Gaban, Complesso C, Bln-1776: 3985±50 BP: Bagolini 1980; Bagolini, Biagi 1990), in the Verona area (Scalucce, Colombare di Negrar: Fasani 1980) and in Emilia (Parma Aeroporto). These elements are documented also in the Civate Group settlement and funerary sites of Bergamo area (e.g. Buco del Corno di Entratico: Poggiani Keller 1984–85; different pre-Beaker levels at Lovere, via Decio Celeri, US 38: GX–24942: 3930±110 BP: Poggiani Keller 2000) and in the Brescia area (e.g. Luine di Darfo–Boario Terme, Cividate Camuno, via Palazzo: Poggiani Keller 2002; Monte Covolo: Barfield et al. 1975–76; Poggiani Keller, Baioni 2004; Rocca di Manerba: Barfield et al. 2002; Riparo Cavallino, dates between OxA–5287: 4245±60 BP e OxA–3746: 3850 BP, Riparo Persi and Riparo Valtenesi: dates between Birm–1132: 4420±90 BP e OxA–4547: 4040±60 BP: Barfield et al 1995; Barfield 2007).

Moreover, as already suggested (Ferrari et al. 2012), the ceramic assemblage from Marzaglia shows some affinities with the *Domaine Méridional* of so called B.B. common ware, for example Derrière-Le-Château (Ain, France; Besse 2003). However, several distinctive types of that common ware are not represented at Marzaglia, while some of them are present in B.B. sites in Emilia (Pescale, Monte Castello di Gesso, Cave Dall'Olio). Specifically, Marzaglia lacks multi-perforated rim vessels, with or without cordon, which are present in some B.B. sites in the Florence area (Leonini, Sarti 2008b). Points of contact with S. Ilario d'Enza common ware are rather limited (rare impressed cordons, very rare impressed vessels at Marzaglia). These differences are even more evident

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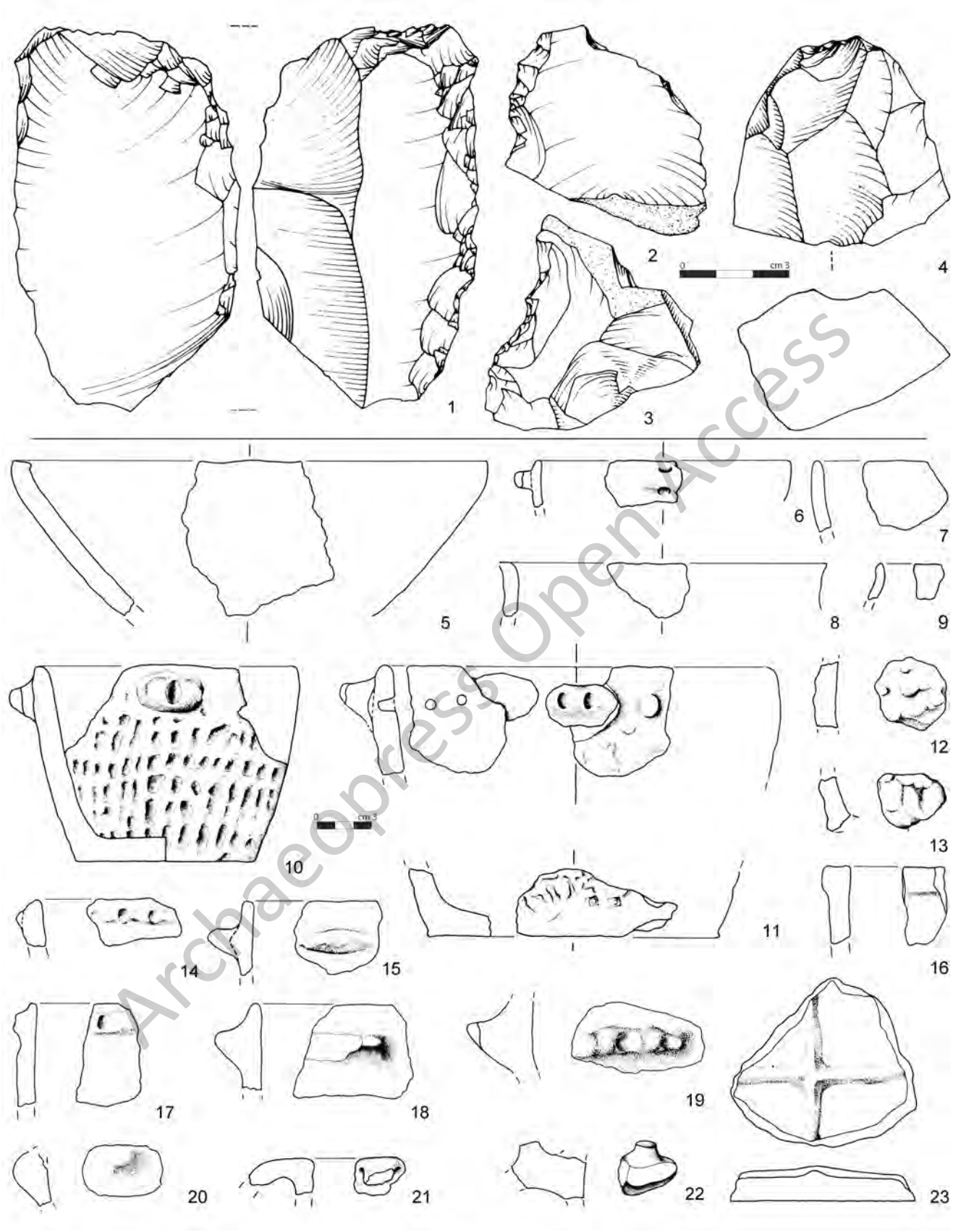

Figure 10. Castenaso facies late phase. Casalecchio di Reno (Bologna) (lithic 2/3 size, pottery 1/3 size) (after Steffè 1984).

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Figure 11. Marzaglia facies. Marzaglia (Modena), Cava Aeroporto 2 (level 1) (1/3 size) (Drawings: L. Berni). The pottery is quite repetitive, with smooth surfaces and plain cordons. Nearly all the sherds presenting impressions and impressed cordons are shown.

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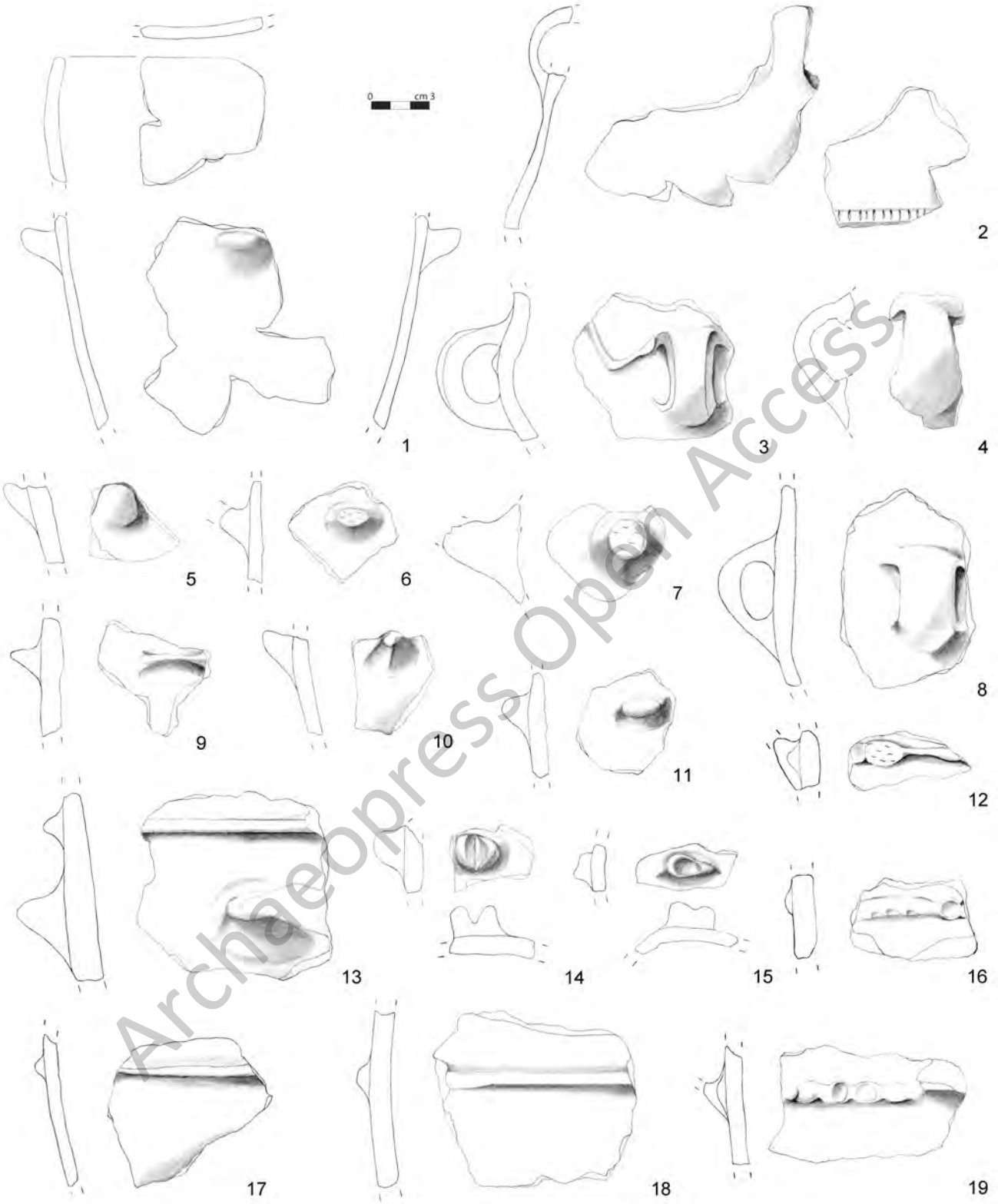

Figure 12. Marzaglia facies. Marzaglia (Modena), Cava Aeroporto 2 (level 1) (1/3 size) (Drawings: L. Berni).

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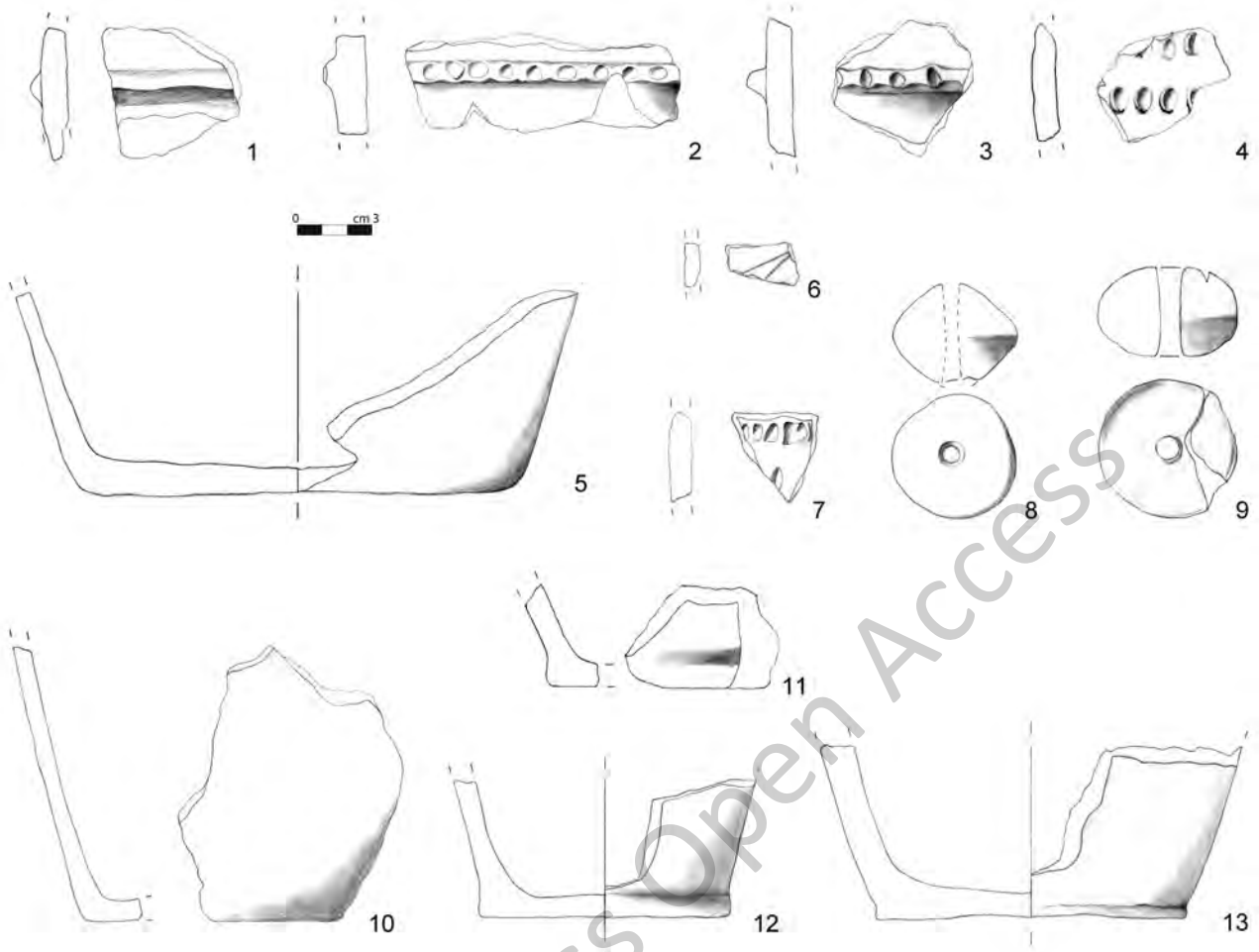

Figure 13. Marzaglia facies. Marzaglia (Modena), Cava Aeroporto 2 (level 1) (1/3 size) (Drawings: L. Berni).

if compared with the complementary pottery of the nearby Cava Busani site (Modena). Even without considering the B.B. sherds of Cava Busani, the two assemblages can be easily distinguished (fig. 14). Slightly different is the case of Rubiera, but the relation is still generic (e.g. the impressed cordons / plain cordons ratio in northern italian regional B.B.: Leonini 2004, Poggiani Keller et al. 2003–2006).

The Bell Beaker

The early stages of B.B. phenomenon are unknown in Eastern Emilia. At present, the general picture is based on small assemblages, rarely coming from archaelogical excavations and sometimes still unpublished. However, these findings increase our knowledge about population in the region, where, late B.B. included, nearly thirty sites, spreading between the Appennines and the lowland southern fringe, have been recognised up to now (fig. 15–18, 24). Keeping this in mind, it's not possible to present a detailed picture of the development of this phenomenon, thus a provisional division between regional B.B. and Late B.B., the last directly deriving from the first, will be employed.

In central/northern Italy, a general gap between the beginnings of the B.B. phenomenon and the regional B.B. does exist. Moreover, the chronologically nearer cultural groups, such as Castenaso and Marzaglia, are scarcely documented.

The regional Bell Beaker

In eastern Emilia Bell Beaker culture is mainly known from the development of regional decorative styles (Italian Style: Barfield 1994). Available radiocarbon dates indicate a relatevely advanced chronology, slightly later than the central Po Plain (fig. 25, 27).

Only the Cava Busani lithic technology has been analysed till now, consisting of an handful of flints. "Alpine" flint and blade technology are dominant, processed by indirect percussion and pressure flaking. Few flakes of local flint could suggest a flake operational chain. The only instruments found are represented by a sickle blade and a blade with possible use wear. At S. Ilario d'Enza "Alpine" flint is less important (16%: Barfield 2001) as well as blade technology, mainly applied to imported flint. Polyhedric, prismatic and in one case discoidal cores are used in flake production. The typology is characterised by occasional tools on flake and some rough biface on local flint is present (Barfield et al. 1975). Crescents and sickle blades are made with "Alpine" flint.

Several authors discussed the relationships between B.B. lithic industry and preceding traditions. In different areas of central and northern Italy raw materials, lithic technology and typology seem to be rather constant (Barfield 2001; Martini 2008; Lo Vetro 2008). This continuity can be interpreted

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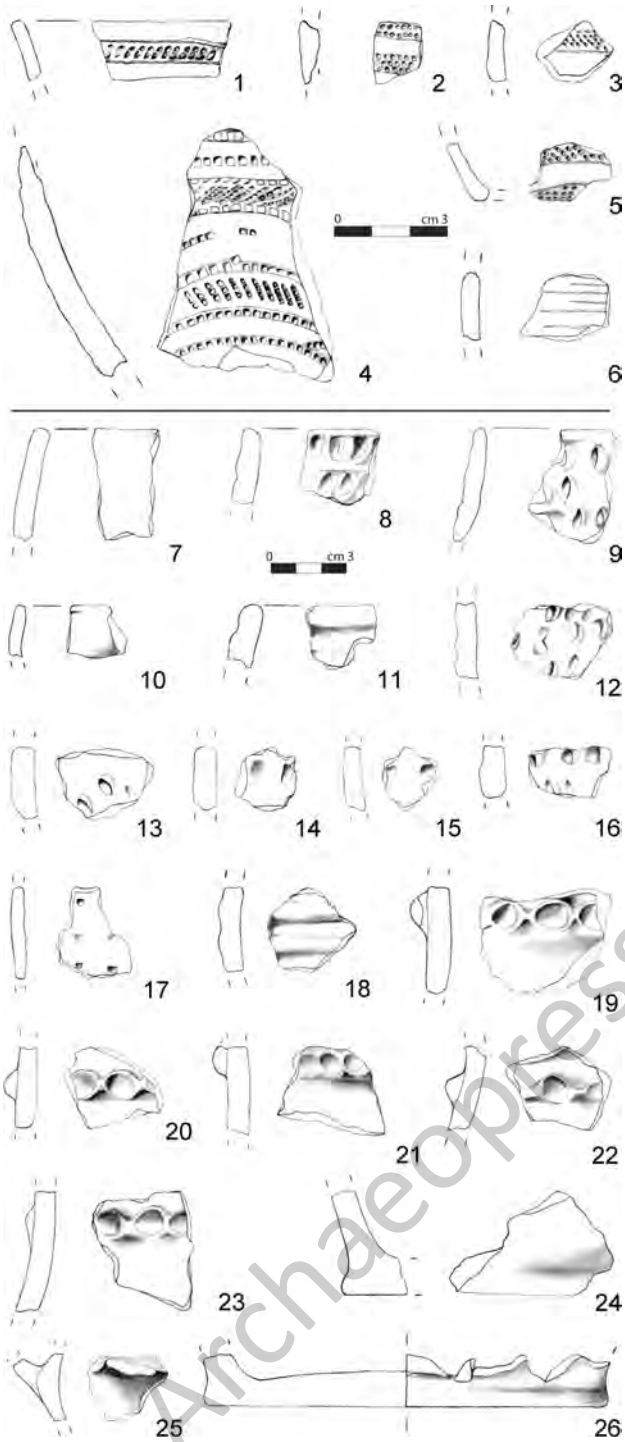

Figure 14. Regional Bell Beaker style. Formigine (Modena), Cava Busani (1–6 1/2 size; 7–26 1/3 size) (after Ferrari et al. 2012 and inedited drawings by L. Berni).

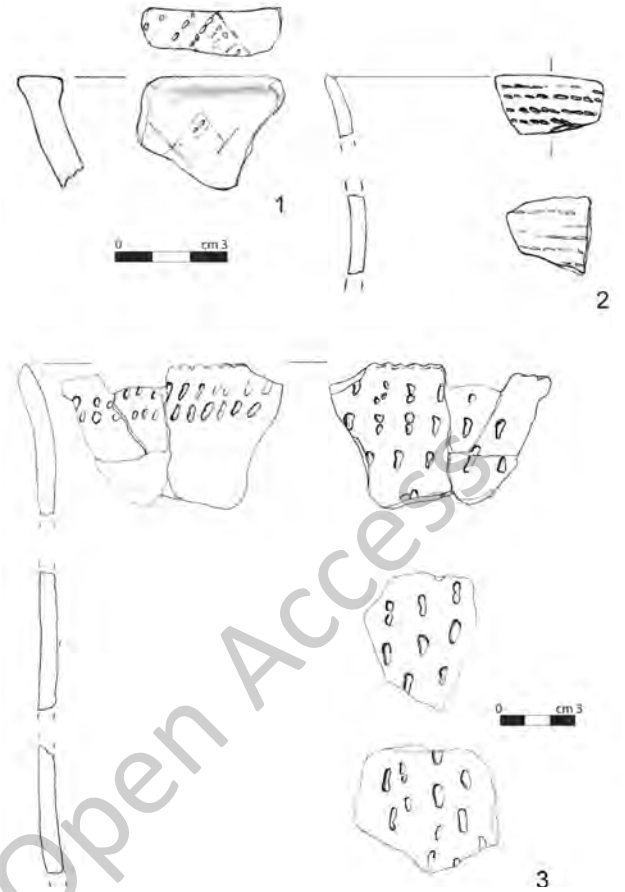

Figure 15. Beginnings of regional Bell Beaker style. Bologna, HERA (1, 2 1/2 size; 3 1/3 size) (Drawings: G. Morico).

as a – at least partial – demographic persistence. In eastern Emilia this continuity seems to be limited to the Castenaso *facies* ("Alpine" flint in similar percentages, crescents, occasional tools, blade technology performed with imported flint), while almost no relation with the Spilamberto Group can be recognised. The Marzaglia *facies* displays analogies as regards blade production and instruments obtained from imported flint, although these elements seem to be much more limited in B.B. technology. The Cava Busani site, although not representative because of the scarce material, seems to be more similar to Marzaglia. Furthermore, research and informations about the exchange networks and routes of "Alpine" flint are still incomplete and we don't have any knowledge of intermediate sites. For example Gazzo Veronese, il Cristo, where "Alpine" flint forms the whole assemblage and its position is midway between the outcrops and the Modena area, could have played a role in the distribution of "Alpine" flint to the south of Po River.

The pottery with typical B.B. decoration is characterised by high percentages of beakers (small or medium sized), while "S" profiled globular bowls are much less frequent, bowls are few and cups are rare or absent (see the assemblage of S. Ilario d'Enza: Barfield et al. 1975; Mazzieri 2003 and, partially, the Rubiera one: Bermond Montanari et al. 1982; recently Leonini 2004 doubts whether Rubiera can be considered a single phase site). The scarce materials of Cava Busani and possibly the unpublished sherds (Caironi pers. comm.)

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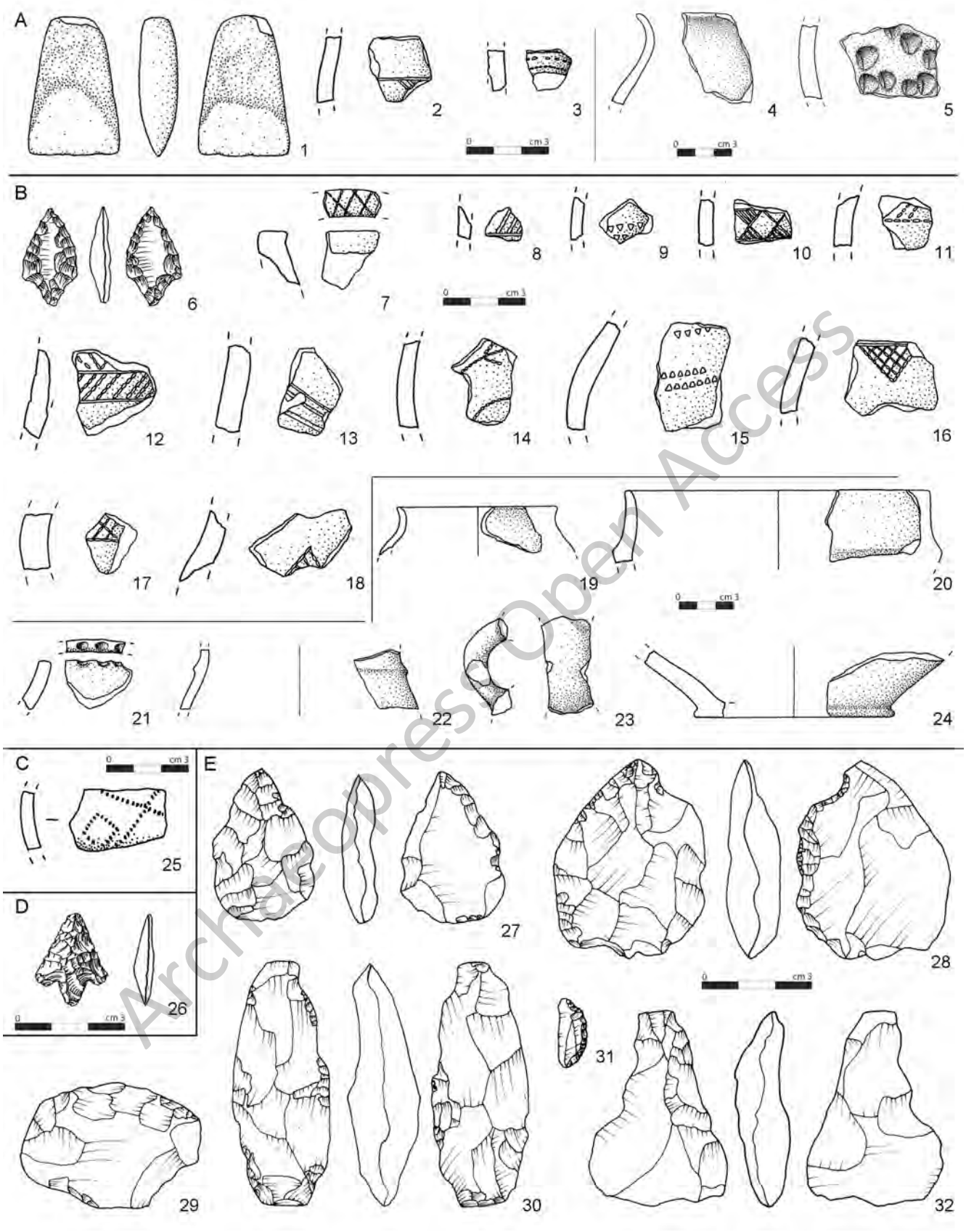

Figure 16. A) Regional Bell Beaker style. Magreta (Modena), Podere Decima, Podere Ceci, via Tampellini (1–3 1/2 size; 4–5 1/3 size) (after Mussati 2009a). B) Regional Bell Beaker style/late Bell Beaker. Magreta (Modena), Fossa del Colombarone (6–18 1/2 size; 19–24 1/3 size) (after Mussati 2009b; among complementary pottery sherds with impressed cordons haven't been drawn); C) Generically Bell Beaker. Fiorano Modenese (Modena), Cave Cuoghi (1/2 size) (after Ferrari, Steffè 2006); D) Generically Bell Beaker. Castelvetro (Modena), Solignano Nuovo, La Vallura (2/3 size) (after Berselli, Ferrari 2009); E) Regional Bell Beaker style advanced phase/late Bell Beaker. Prignano sulla Secchia (Modena), Pescale (2/3 size) (after Ferrari et al. 2006).

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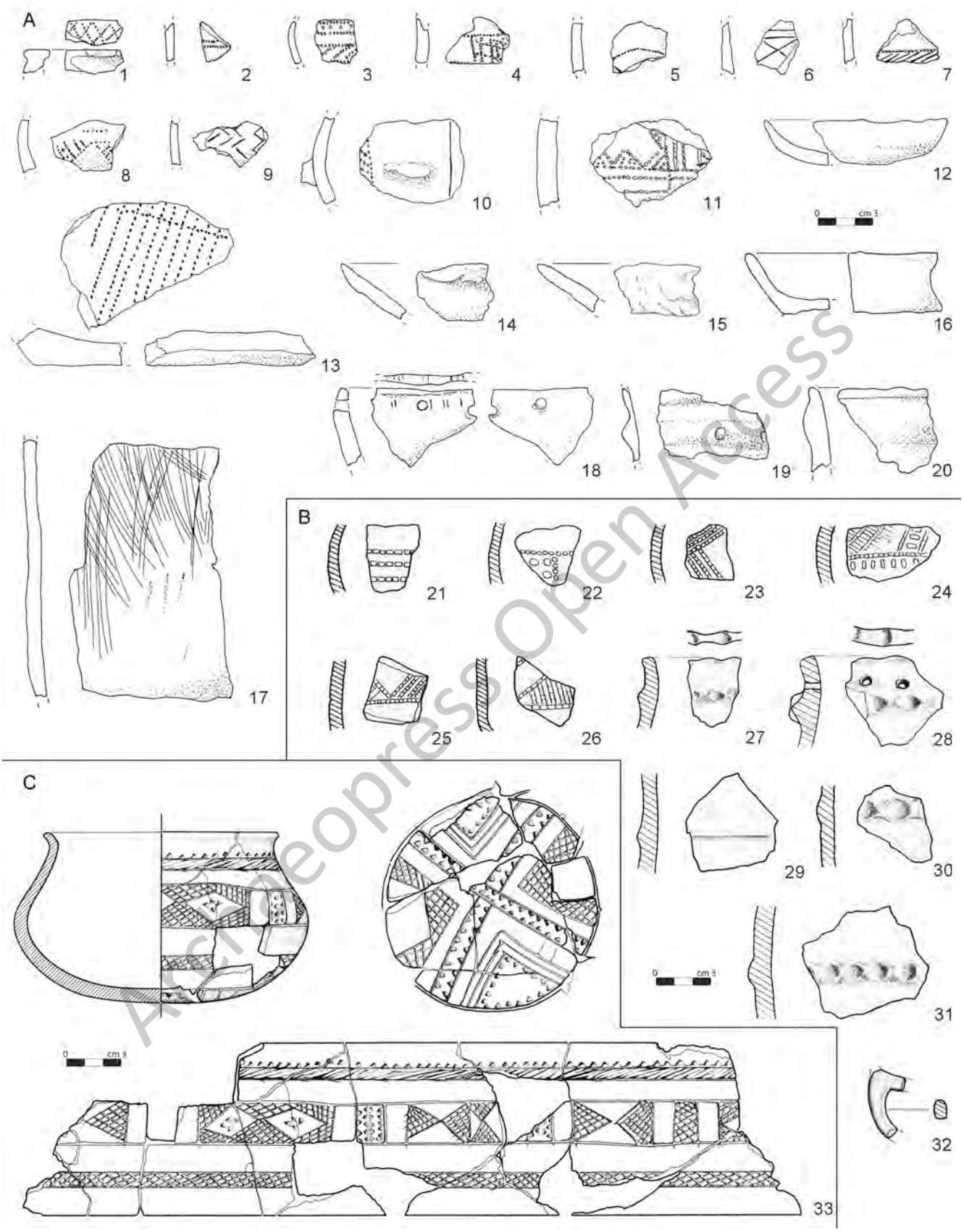

Figure 17. Regional Bell Beaker style advanced phase/late Bell Beaker. a) Prignano sulla Secchia (Modena), Pescale (1/3 size) (after Ferrari et al. 2006); b) S. Lazzaro di Savena (Bologna), Cave Dall'Olio (1/3 size) (inedited sherds by courtesy of G. Nenzioni); c) Zola Predosa (Bologna), Monte Castello di Gesso (1/3 size) (Drawings: C. Curcio).

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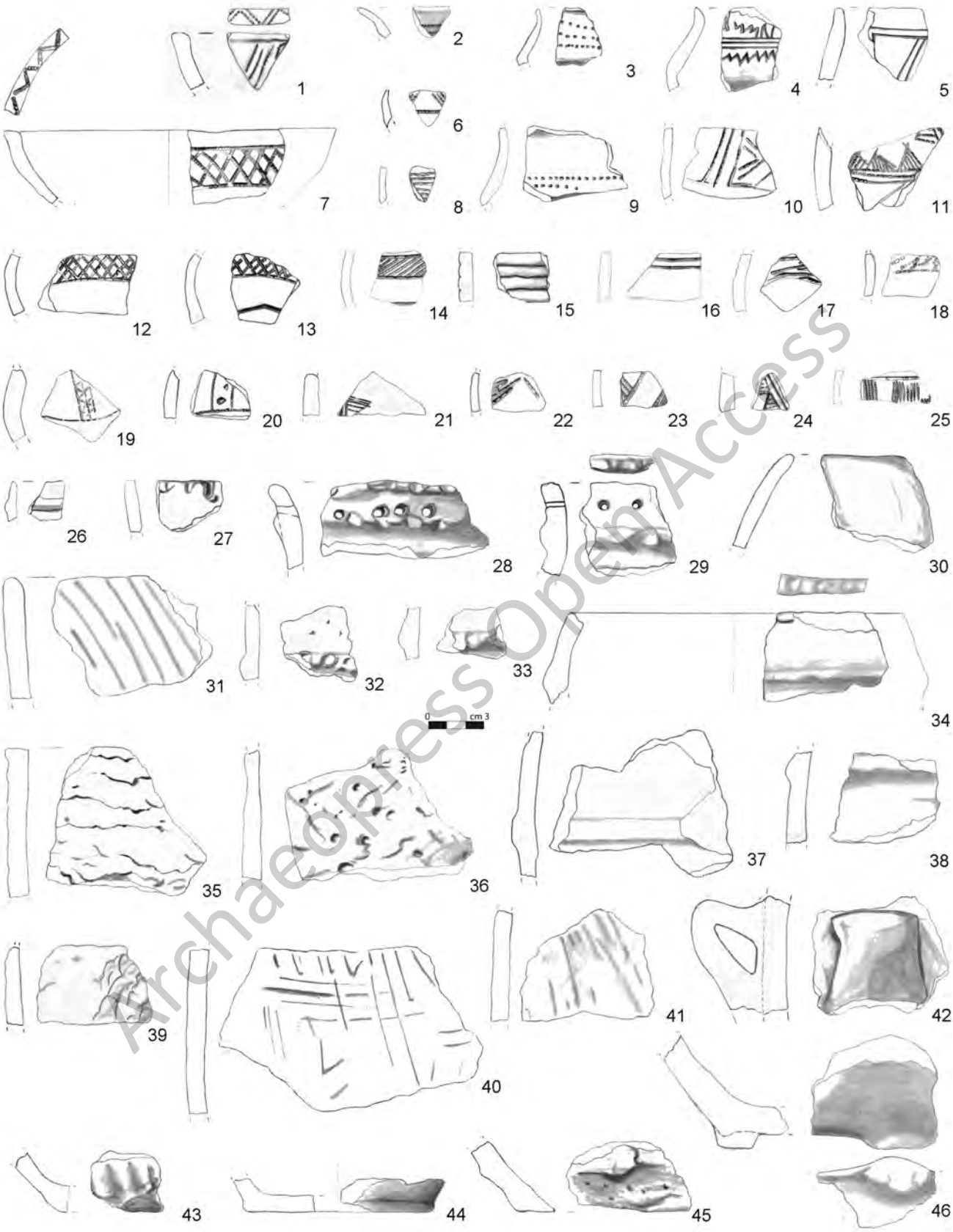

Figure 18. Regional Bell Beaker style advanced phase/late Bell Beaker. Zola Predosa (Bologna), Monte Castello di Gesso (1/3 size) (Drawings: F. Cadeddu).

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coming from the soil below the Anzola Emilia *terramara* (Bologna) can be ascribed to this phase.

Relationships with northern Tuscany are evident but not so close as they will be in late B.B. Specifically, beaker frequency and the prevailing organisation of decorative syntaxes seem to be more conservative than the contemporay step 2 of florentine B.B. (Leonini, Sarti 2008b, Leonini et al. 2008, fig. 1). Few elements of that "*Campaniforme evoluto*" can be traced at S. Ilario d'Enza (Barfield et al. 1975, fig. 9, c27; fig. 12, c60–61, Mazzieri 2003, fig. 10, 2–3).

Little can be said of the complementary pottery (see Leonini 2004). Generally speaking, points of contact with the B.B. *Domaine méridional* are well known (Besse 2003), but also marked peculiarities can be single out. At present some assemblages can be distinguished where impressed decoration is more (S. Ilario d'Enza, Cava Busani, Bologna Hera: fig. 14, 15) or less frequent (Rubiera). In a more recent period perforated rim vessels, often furnished with a cordon, appear (Pescale, Monte Castello di Gesso, Cave Dall'Olio: fig. 17, 18). Among the non stratigraphic Eneolithic findings of Pescale and Monte Castello di Gesso there are *squame* and other surface treatments (rusticated, striations) typical of the Spilamberto Group; at Bismantova (Reggio Emilia) striations have been recognised (Guidi et al. 1995). All three sites are characterised by B.B. elements which are younger than those from S. Ilario d'Enza. Thus they can be placed in a recent/final stage of regional B.B and/or in late B.B. If these findings could be considered an undisturbed context, the best comparison would be in Florence area, where pre B.B./ non B.B. elements increase in later phases of local B.B. (step 3: Leonini, Sarti 2008b, p. 101; see also the discussion about the Spilamberto Group final stages).

The Late Bell Beaker (Tardicampaniforme)

The concept of late B.B. (Ferrari 2009) has been introduced after the definition of the Tanaccia style (Barfield 1994), the results of Castenaso Stellina excavations (liv. 1: Ferrari, Steffe' 2008) and the findings of Spilamberto site XII (Ferrari 2009).

Due to lack of reliable stratigraphic sequences to the north of Appennines, the disappearing of beakers from the settlements has been provisionally seen as the distinctive feature between B.B and late B.B. (in late B.B. beakers seem to be limited to funerary context such as Parma, via Guidorossi: Miari et al. in press). Different typologies of cups, sometimes handled, seem to take beakers' place and bowls increase in number. Decorative syntaxes, already oriented toward zones with different wideness (Italian style), are frequently and perhaps exclusively organised by metope (Tanaccia style); sometimes metopes are delimited by narrow bands (fig. 19–22).

Relationships with Florence area are evident starting from step 3 of local B.B. (Leonini, Sarti 2008b). The radiocarbon chronology of Castenaso sites (fig. 26) is younger than that of Tuscany (Leonini et al. 2008) being coherent with the so called *Epicampaniforme* (Sarti, Martini 2000; the authors consider it as the first phase of local Early Bronze Age) and the succeeding Early Bronze Age "phases" with B.B. elements (Sarti 2000).

Among the common ware, undecorated elbow handled cups are typical. Deep vessels with plain or impressed cordons, often with lugs, are frequent, while surface treatments resembling pre-beaker productions are rare. Deep vessels with multiple horizontal plain cordons are typical of this phase and seem to mark the affinities with surrounding groups (for their distribution in Romagna and Tuscany and references see Cocchi Genik 1998).

Peculiarities of eastern Emilia late B.B in comparison with the tuscan *Epicampaniforme* are evident in the inverse plain cordon / impressed cordon ratio and in lower frequencies of bowls. Among pre/non B.B. groups the main comparisons are found in Marzaglia *facies* (e.g. plain cordons), while they are less evident in Castenaso, which in its late stages displays pottery deriving from B.B. tradition (e.g. bowls with flat thickened rim). Within the B.B. sphere, connections can be established with sites with low percentages of impression decorated common ware (e.g. Rubiera). Much more evident connections can be traced in multiple horizontal cordon complementary pottery from Monte Covolo (Barfield et al. 1975–1976, e.g. fig. 33–36; Leonini 2004, e.g. fig. 20, 1) or, more generically, with B.B. sites of Eastern Lombardy (Baioni, Poggiani Keller 2006).

The lithic industry is relatively abundant in the Castenaso Stelllina and via Tosarelli sites (fig. 23). In both cases "Alpine" flint is rare and mainly local raw materials are used. Blade production, obtained by indirect percussion and pressure, is accurate but very scarce, while elongated flakes are frequent, often produced from cores with one or more striking platforms. Retouched/used blades and flakes are the commonest tools, only one short end-scraper and a splintered piece have been found at via Tosarelli and from Stellina come two crescents. Their morphology and dimension are quite different from the Marzaglia and Castenaso via Frullo ones. In general, as well as in the Florence area (Martini 2008), the continuity of B.B. tradition has to be stressed.

Although with local differences the Late Bell Beaker seems to be widespread in Emilia, Romagna, central/northern Tuscany and perhaps Marche. To the north of Po River the Late B.B. development (e.g. Ponte Pier: Barfield et al. 1995) is suddendly extiguished by the rise of Polada Culture in the southern fringe of Pre-Alps. In the Po Plain the coexistence of Polada Culture to the north and Late B.B. to the south in the last centuries of 3th millennium BC reflects contrapposition / competition processes between different societies: by one hand post B.B. societies (Polada Culture, in which elements deriving from other B.B traditions can be recognised: Gallay 2001, Nicolis 2001, recently de Marinis 2003), on the other societies still deeply involved in Bell Beaker symbolism and ideology (late B.B.). The continuity of B.B. tradition (with a delimited territory and cultural definition) doesn't represent any problem, while the birth and establishment of post B.B. populations is still unclear.

Final elements of late Bell Beaker are still recognizable at Spilamberto site XII (fig. 25), although already modified and probably strongly influenced by neighbouring Early Bronze Age communities. Traits of late B.B. tradition are still recognizable at Spilamberto site XI (where the archaeological

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Figure 19. Late Bell Beaker. Castenaso (Bologna), via Tosarelli (1/3 size) (Drawings: G. Morico).

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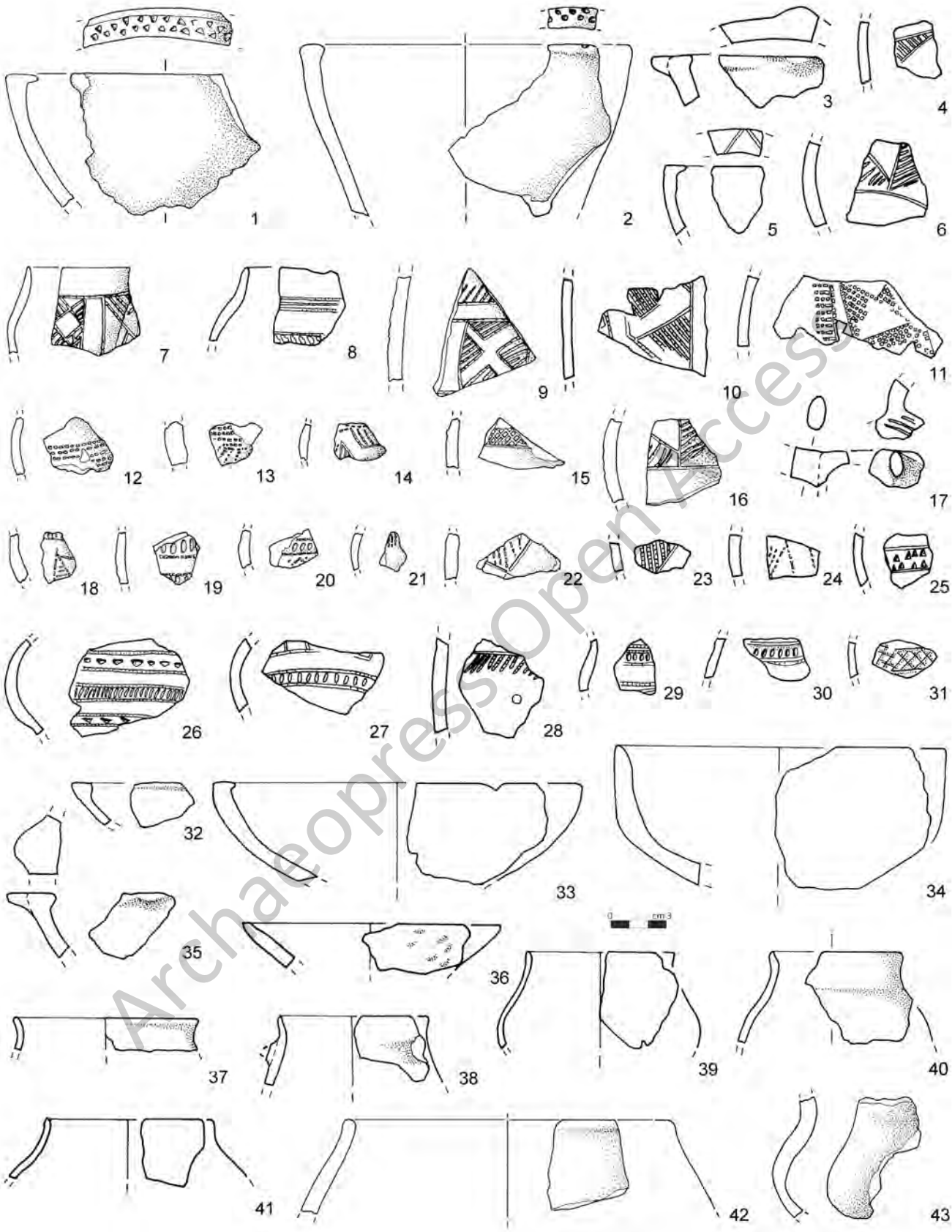

Figure 20. Late Bell Beaker. Castenaso (Bologna), Stellina (1/3 size) (after Ferrari, Steffè 2008; Cadeddu et al. 2011).

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Figure 21. Late Bell Beaker. Castenaso (Bologna), Stellina (1/3 size) (after Ferrari, Steffè 2008; Cadeddu et al. 2011).

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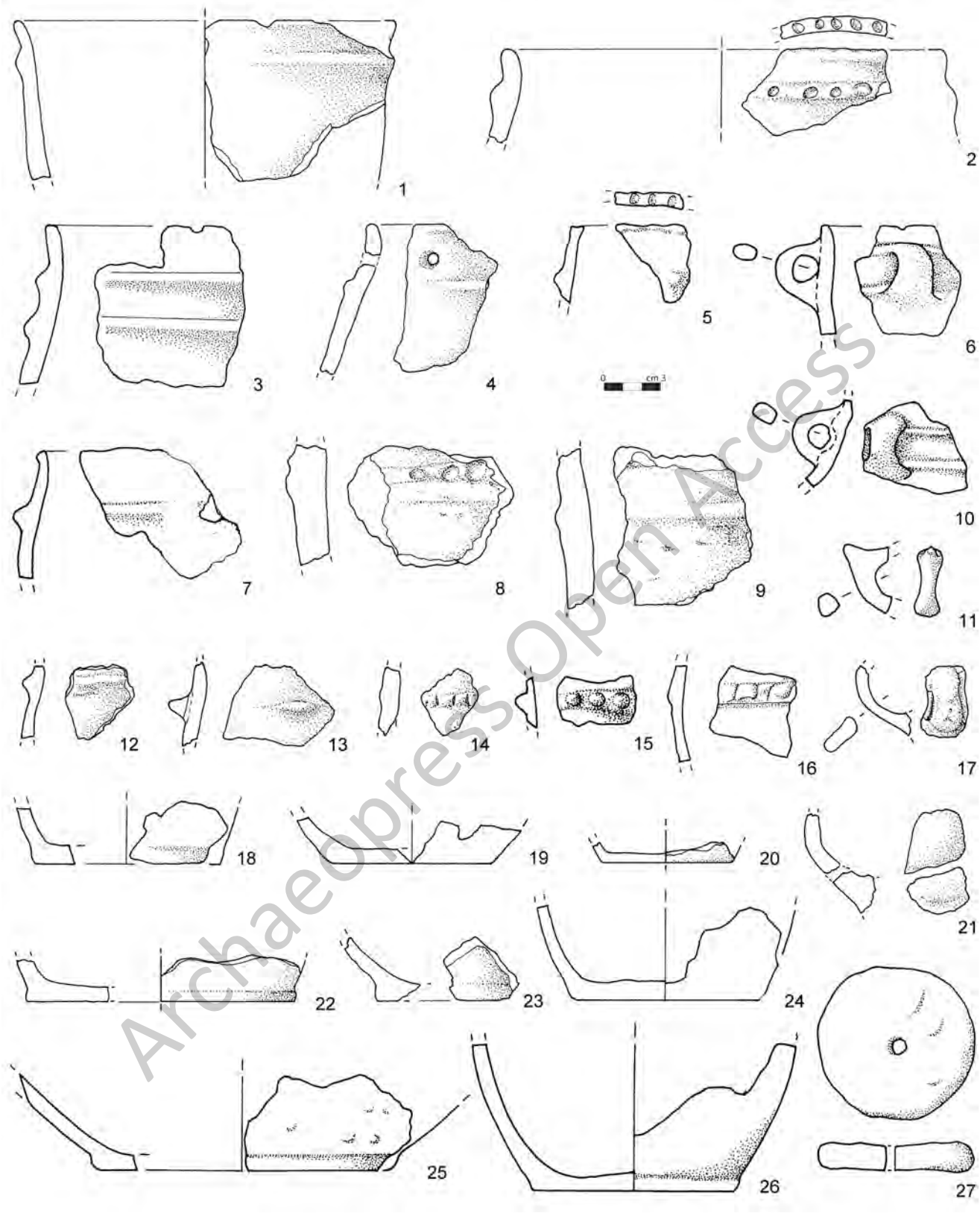

Figure 22. Late Bell Beaker. Castenaso (Bologna), Stellina (1/3 size) (after Ferrari, Steffè 2008; Cadeddu et al. 2011).

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evidences last until the Middle Bronze Age: Ferrari, Steffè 2009f) and at Sasso Marconi (Morico, Steffè 1993).

Only when the late Polada Culture starts to move southward, some northern Po Plain elements can be clearly identified in eastern Emilia (de Marinis 1997). The earliest sites (which are in some ways different from the original northern model: Cardarelli 2009, p. 38) can be dated to an advanced phase of Early Bronze Age 2, such as Rubiera (Reggio Emilia) (Tirabassi 1996), Pompeano (Modena) (Cardarelli et al. 2006) and Spilamberto site XIV (Ferrari, Steffè 2009g). In Bologna area, some of the Farneto Cave findings (Belemmi et al. 1996) and Castenaso Villa Gozzadini (Morico, Steffè 1993) evidences can be ascribed to this chronological range. At the same time, several of the bronze caches found in the region can be dated to early Bronze Age 2 (Carancini 1997 tab. 3).

With reference to Christian Strahm's interpretation of Early Bronze Age phenomenon (1996) and to his definition of *Metallikum*, it's significant that these Final Neolithic remnants come to an end in Early Bronze Age 2, when large scale bronze metallurgy outbreaks as a reflection of new social and economic structures.

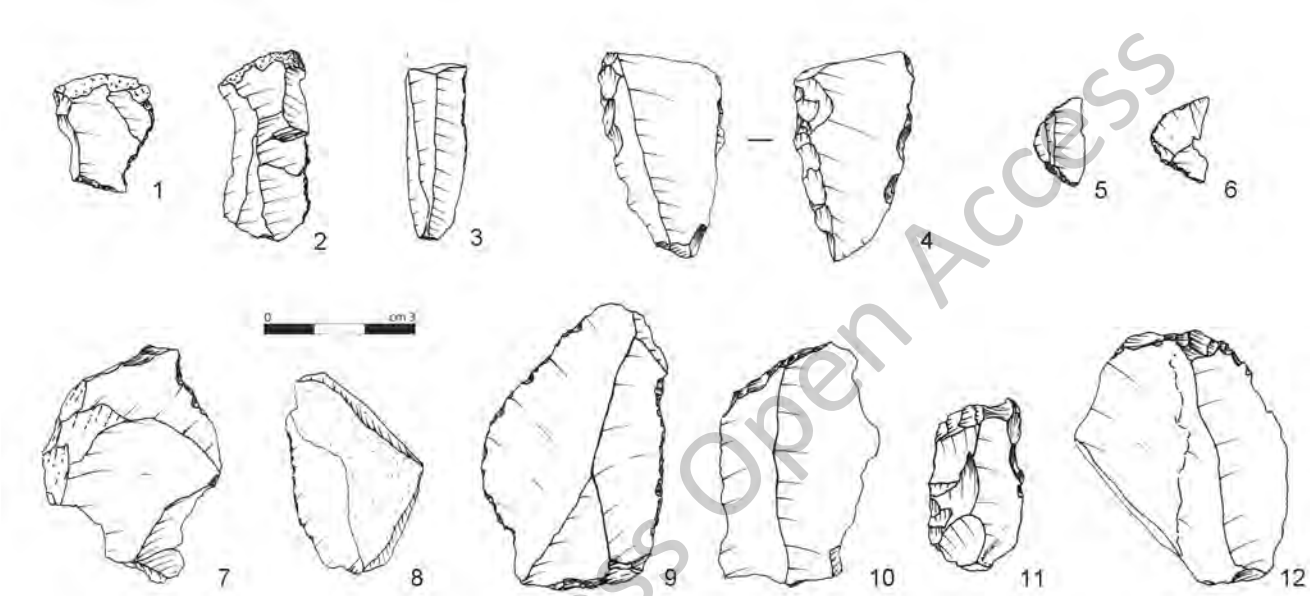

Figure 23. Late Bell Beaker. Lithic industry from Castenaso (Bologna), Stellina (level 1) (1-6) and Castenaso, via Tosarelli (7-12) (2/3 size) (Drawings: N. Dal Santo).

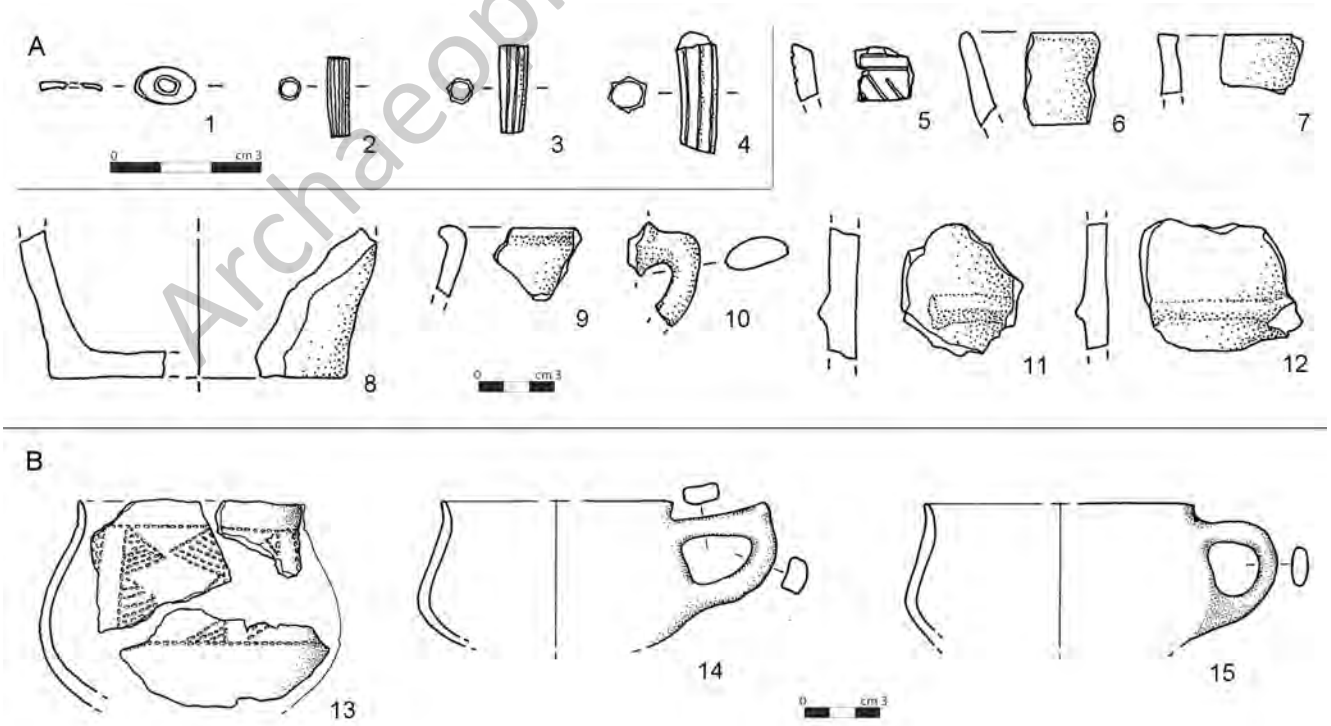

Figure 24. Late Bell Beaker. A) Borgo Panigale (Bologna), Metanodotto (1–4 2/3 size; 5–12 1/3 size; after Morico, Steffè 1993); B) Borgo Panigale (Bologna), S. Agnese (1/3 size) (after Catarsi Dall'Aglio 1997).

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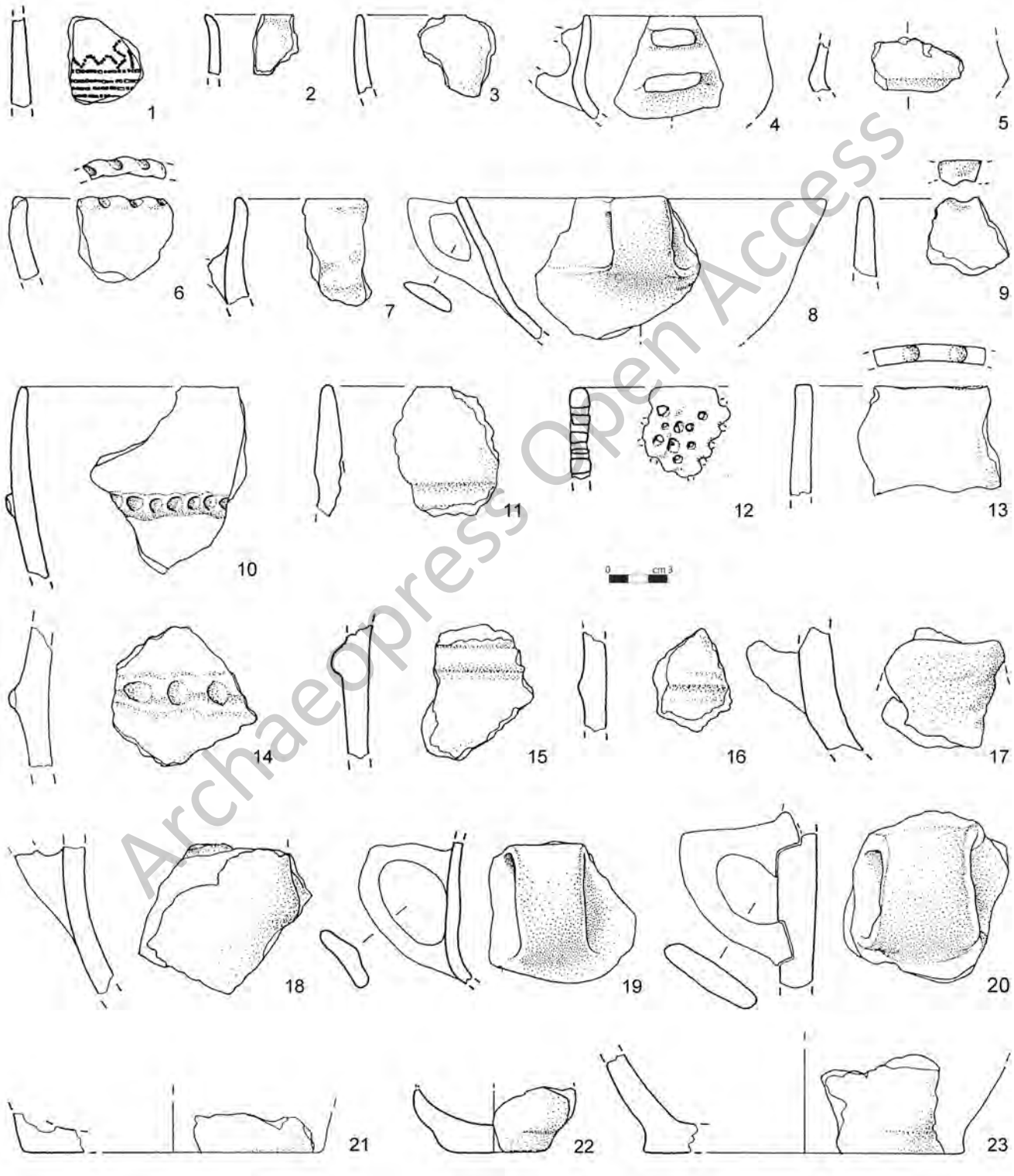

Figure 25. Late Bell Beaker final stages. Spilamberto (Modena), Site XII (1/3 size) (after Ferrari 2009).

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	Material	Lab–n	Uncal	Cal 1	Cal 2
Gruppo di Spilamberto					
Cave Corradini	charcoal	GX–19220	4725±95 BP	3634 BC (26.5%) 3554 BC 3540 BC (14,5%) 3496 BC 3460 BC (27,2%) 3376 BC	3707 BC (93,7%) 3333 BC 3213 BC (0,9%) 3189 BC 3155 BC (0,8%) 3132 BC
Cava Due Madonne	charcoal	R–720	4640±50 BP	3513 BC (55,1%) 3425 BC 3383 BC (13,1%) 3361 BC	3630 BC (5,6%) 3583 BC 3532 BC (88,1%) 3337 BC 3209 BC (1,0%) 3193 BC 3151 BC (0,7%) 3139 BC
Cava Marchi strutt. 103	charcoal (AMS)	LTL–2438A	4506±50 BP	3340 BC (10,9%) 3309 BC 3301 BC (10,6%) 3265 BC 3240 BC (46,7%) 3105 BC	3363 BC (90,8%9 3085 BC 3063 BC (4,6%) 3029 BC
Cava Marchi strutt. 115	charcoal (AMS)	LTL–2439A	4438±45 BP	3325 BC (26,3%) 3234 BC 3223 BC (0,6%) 3220 BC 3173 BC (2,8%) 3161 BC 3118 BC (38,5%) 3013 BC	3335 BC (31,6%) 3211 BC 3191 BC (7,1%) 3152 BC 3137 BC (56,7%) 2924 BC
Spilamberto, sito X canaletta 1979	charcoal	I–11816	4195±95 BP	2898 BC (18,3%) 2833 BC 2819 BC (46,0%) 2660 BC 2651 BC (3,8%) 2634 BC	3018 BC (92,6%) 2563 BC 2535 BC (2,8%) 2493 BC
Facies di Castenaso					
Castenaso, via Frullo US 1489	charcoal (AMS)	LTL–2440A	4233±40 BP	2903 BC (39,2%) 2865 BC 2805 BC (29,0%) 2761 BC	2916 BC (46,5%) 2840 BC 2814 BC (48,9%) 2678 BC
Castenaso, via Frullo US 1088	charcoal (AMS)	LTL–5258A	4110±45 BP	2856 BC (17,3%) 2812 BC 2747 BC (8,1%) 2725 BC 2698 BC (32,2%) 2617 BC 2611 BC(10,6%) 2581 BC	2873 BC (94,0%) 2571 BC 2513 BC (1,4%) 2503 BC
Facies di Marzaglia					
Cava Aeroporto 2 (liv. 1) US 2364	charcoal (AMS)	LTL–5254A	3961±45 BP	2569 BC (27,9%) 2516 BC 2500 BC (27,6%) 2456 BC 2419 BC (4,4%) 2407 BC 2376 BC (8,3%) 2351 BC	2578 BC (93,5%) 2335 BC 2324 BC (1,9%) 2307 BC
Cava Aeroporto 2 (liv. 1) US 2270	charcoal (AMS)	LTL–5255A	3928±45 BP	2480 BC (68,2%) 2342 BC	2568 BC (8,9%) 2519 BC 2499 BC (86,5%) 2289 BC
Facies regionale del Campaniforme					
Rubiera	charcoal	GrN–9828	3900±60 BP	2468 BC (68,2%) 2299 BC	2566 BC (4,5%) 2524 BC 2497 BC (90,9%) 2203 BC
S. Ilario d'Enza	charcoal	R–1291	3840±60 BP	2452BC (1,7%) 2446 BC 2437 BC (5,1%) 2420 BC 2405 BC (8,5%) 2378 BC 2350 BC (52,9%) 2204 BC	2471 BC (95,4%) 2138 BC
Tardicampaniforme					
Castenaso, Stellina, capanna 1	bone (AMS)	LTL–2431A	3663±45 BP	2133 BC (25,9%) 2083 BC 2059 BC (42,3%) 1973 BC	2196 BC (3,3%) 2170 BC 2146 BC (92,1%) 1917 BC
Castenaso, Stellina, capanna 2	bone (AMS)	LTL–2432A	3581±35 BP	2007 BC (1,4%) 2005 BC 1975 BC (66,8%) 1889 BC	2031 BC (90,3%) 1876 BC 1843 BC (3,2%) 1821 BC 1797 BC (1,9%) 1781 BC
Castenaso, via Tosarelli	charcoal (AMS)	LTL–5257A	3647±45 BP	2126 BC (16,2%) 2091 BC 2044 BC (52,0%) 1948 BC	2141 BC (95,4%) 1896 BC

Figure 26. Radiocarbon dates available for the Spilamberto Group, Castenaso facies, Marzaglia facies and Bell Beaker in the investigated area (only <100 years standard deviation have been considered; OxCal v4.1.7, by L. Berni). The Cave Corradini date could be coherent with late aspects of S. Ilario Group with a squame pottery. 100 years or higher standard deviation dates are available for a squame pottery from Cave Corradini (GX–19225: 4585±115 BP); as well as for the S. Ilario d'Enza Bell Beaker (Birm–828: 3860±100 BP e Birm–827: 3840±100 BP) and, perhaps, Monte Bagioletto (I–12687: 3790±100 BP) (after Bardella et al. 1980; Cremaschi et al. 1984; Bagolini, Biagi 1990; Cremaschi 1997; Ferrari, Steffè 2009d; Cadeddu et al. 2011; Lucianetti et al. 2011; and inedited dates).

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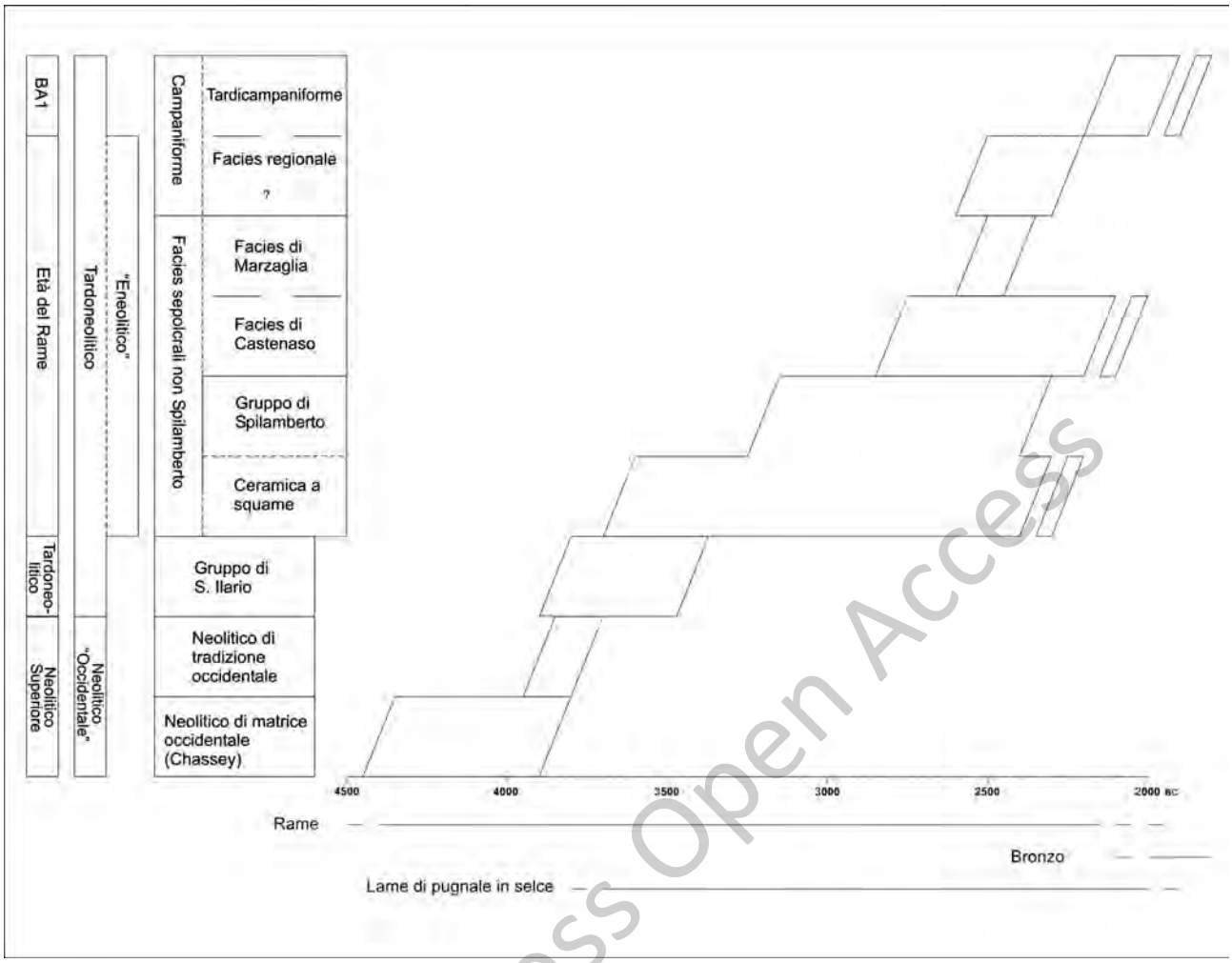

Figure 27. Chrono-cultural scheme in the investigated area. The chronology is based on local evidences integrated with the available data of similar phenomena in Northern Italy (A. Ferrari).

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