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The Cetina group and the transition from Copper to Bronze Age in Dalmatia

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Dalmatia, on the eastern shore of the Adriatic Sea, is a region of contact between the several worlds of the early metal ages — the Danube region inland, the Adriatic coasts and beyond towards the sea. New finds from caves and burial mounds, and new radiocarbon dates help tease out complexities in the region's cultural order.

In the Balkan regions, the later periods of the Copper Age (Eneolithic) and the beginning of the Bronze Age are intensely discussed topics for both terminology and chronology (*cf.* Tasić 1984; *Acta Prag* 1989; Forenbaher 1993). In the debate, the Dalmatian coastland represents an

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FIGURE 1. *Map of major sites mentioned in the text.*

important zone of contact between the Adriatic, the Danube region and the Eastern Mediterranean (Marović 1976; Maran 1987; Govedarica 1989). This paper reassesses the archaeological bases of the cultural groups involved in the Copper to Bronze Age transition in Dalmatia and presents recent issues concerning absolute chronology.

Pottery finds from the Velika Gruda burial mound

In the years 1988–90, the Department of Prehistory of the University of Zurich and the Opštinski zavod za zaštitu spomenika kulture in Kotor collaborated in an excavation on the burial mound Velika Gruda in the Boka Kotorska, Montenegro. The tumulus is situated in the wide coastal plain of Tivat (FIGURE 2), only a few hundred metres distant from the well-known Mala Gruda with its rich Late Copper Age (LCA) central grave (Parović-Pešikan & Trbuhović 1971). The plain is a traditionally agricultural area nowadays in part occupied by Tivat airport and the expanding industrial zone of Kotor.

The well-preserved Velika Gruda tumulus, 6 m high with a diameter of 26 m and a vol-

FIGURE 2. *Coastal plain of Tivat (Boka Kotorska) and location of Velika Gruda burial mound.*

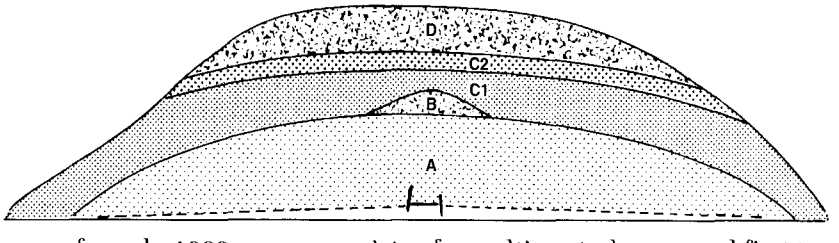

FIGURE 3. *Simplified stratigraphy of Velika Gruda burial mound.*

ume of nearly 1600 cu. m, consists of a multi-layered clay mound with a top stone covering up to 1 m thick. The simplified stratigraphy (FIGURE 3) illustrates the sequence of clay and stone tips in the mound: the primary central grave 1 — a slab cist — goes together with the first clay mound (A). Much later, grave 2 was set in a pit on top of the existing tumulus and covered with a heap of stones (B). The mound was then twice enlarged by substantial tips of clay (C1, C2) and more graves added, the ones on top of layer C2 subsequently covered by a massive stone tip (D) with again more graves placed in it.

The different periods are dated by both archaeological finds and radiocarbon. The central grave and first tumulus belong to the Mala Gruda LCA phase (Primas 1992; in press). The subsequent graves and mound tips (B–D) together form a cultural and chronological unity, a necropolis dated to the beginning of the Late Bronze Age (LBA) – Reinecke's Bz D (Della Casa forthcoming). The mound was re-used for a burial in the Early Iron Age and again probably in the Middle Ages.

I focus here on a few finds of pottery discovered in the clay strata C1–C2 outside the context of the LBA graves. A total of 638 sherds were collected in these layers together with some flint flakes. The pottery is always heavily weathered and fragmented with an average weight of 4·9 g; the sherds show random spread

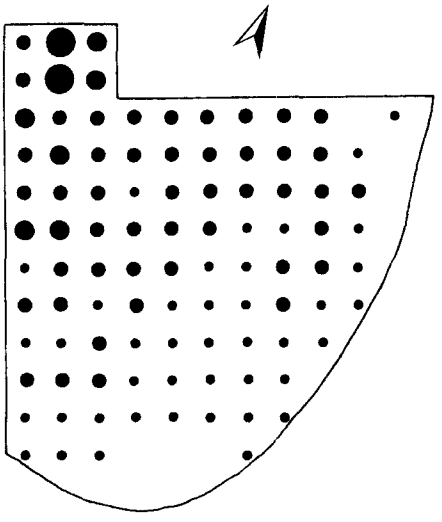

FIGURE 4. *Scatter of sherds within stratum C2 in the central and southeast sectors of Velika Gruda burial mound.*

over the surface (FIGURE 4). Analyses of the clay sediment in strata C1–C2 resulted in sub-soil material. It is most probable that displaced soil containing occupation material was used for tipping the mound; the pottery in these strata cannot be considered in the stratigraphical and chronological discussion.

This view is supported by the archaeological evaluation of the ceramics, of which only 30 fragments display characteristic elements. These include flaring rims of beakers and small jars (FIGURE 5: 1–5), thickened bowl rims decorated with impressed triangles (FIGURE 5: 11–13) as well as sherds with ornaments of indents, grooves and rippled applications (FIGURE 5: 15–20, 23–24). Some of the pottery can be paralleled with material of the 'Cetina' group, such as bowl rims with impressed triangles in the tumuli Šparevine 2, Rudine 26, Ljubomir 11 and Mala Glavica (Marović 1959: figures 2–3; 1976: plate 3; *PJZ* IV: plate 20; Batović 1989: figures 16–19), the latter assemblage bearing also indented rims, grooved ornaments and rippled applications. Similar material is found in caves (Škarin Samograd: *PJZ* IV: plate 29; Ravlića pećina: Marijanović 1981: plates 38–39). The fragment of a handle decorated with double grooves (FIGURE 5: 18) most probably belongs to a beaker of Kotorac type (Marović 1976: plates 4, 10, 12). Two- and three-fold rows of indents (FIGURE 5: 15–16) appear on pottery of the 'Adriatic type' in Vlake and Odmut (Milošević & Govedarica 1986: plates 3–4; Marković 1985: plate 29); button-like applications on handles and rim lugs (FIGURE 5: 9, 25, 28–30) can be related to assemblages of the 'Dinaric' group (Veliki Gradac: Govedarica 1982: plates 1–5; Nečajno and Sovići: Čović 1989: plates 3–4, 9, 15). The pottery finds from strata C1–C2 appear to be heterogeneous in chronological terms and their context in the mound tips fortuitous; they offer, however, the opportunity to take a closer look at the situation of the Cetina group and related phenomena.

The Cetina group: state of evidence

Four cultural groups were separated on the bases of stratigraphy and typology in the LCA (Eneolithic) and Early Bronze Age (EBA) in Dalmatia: the Nakovanj group with channelled and smoothed dark ware (Petrić 1976; Dimitrijević 1979: 367–79); the Adriatic type (of the Ljubljana culture) with excised or incised, indented and stamp-rolled pottery (Dimitrijević 1979: 321f; Govedarica 1989: 94–108); the Cetina group with grooved, impressed and rippled ware (Marović & Čović 1983; Govedarica 1989: 109–44) as well as a facies with scanty decorations of indents, carvings and cord impressions called the Dinaric or Posušje group (Čović 1989; Govedarica 1989: 145–72).

The Cetina group was first described as an independent facies in the 1960s using finds from burial mounds and cave sites (for history of research, see Govedarica 1989: 109–12). There is still uncertainty about the internal subdivision and chronology, above all absolute chronology of this group. Marović & Čović (1983) propose a threefold sub-division, starting with an early phase strongly influenced by the preceeding Adriatic type. The 'classical' phase is paralleled with Early Bronze A1–A2 according to the Reinecke system, whereas the late phase should belong to the very end of the EBA. More recently, Govedarica (1989: 112) has argued for only two phases ('Protocetina'/'classical' Cetina) with later finds being accorded to the Bronze A2 Dinaric group. Both views are based on the same cave stratigraphies and tumulus finds.

The Dinaric group again is divided into three sub-phases by Čović (1989) on the basis of *gradina* (hill-fort) finds. The time range is EBA to end of Middle Bronze Age (MBA) – Dinaric and Cetina groups being thus to a certain ex-

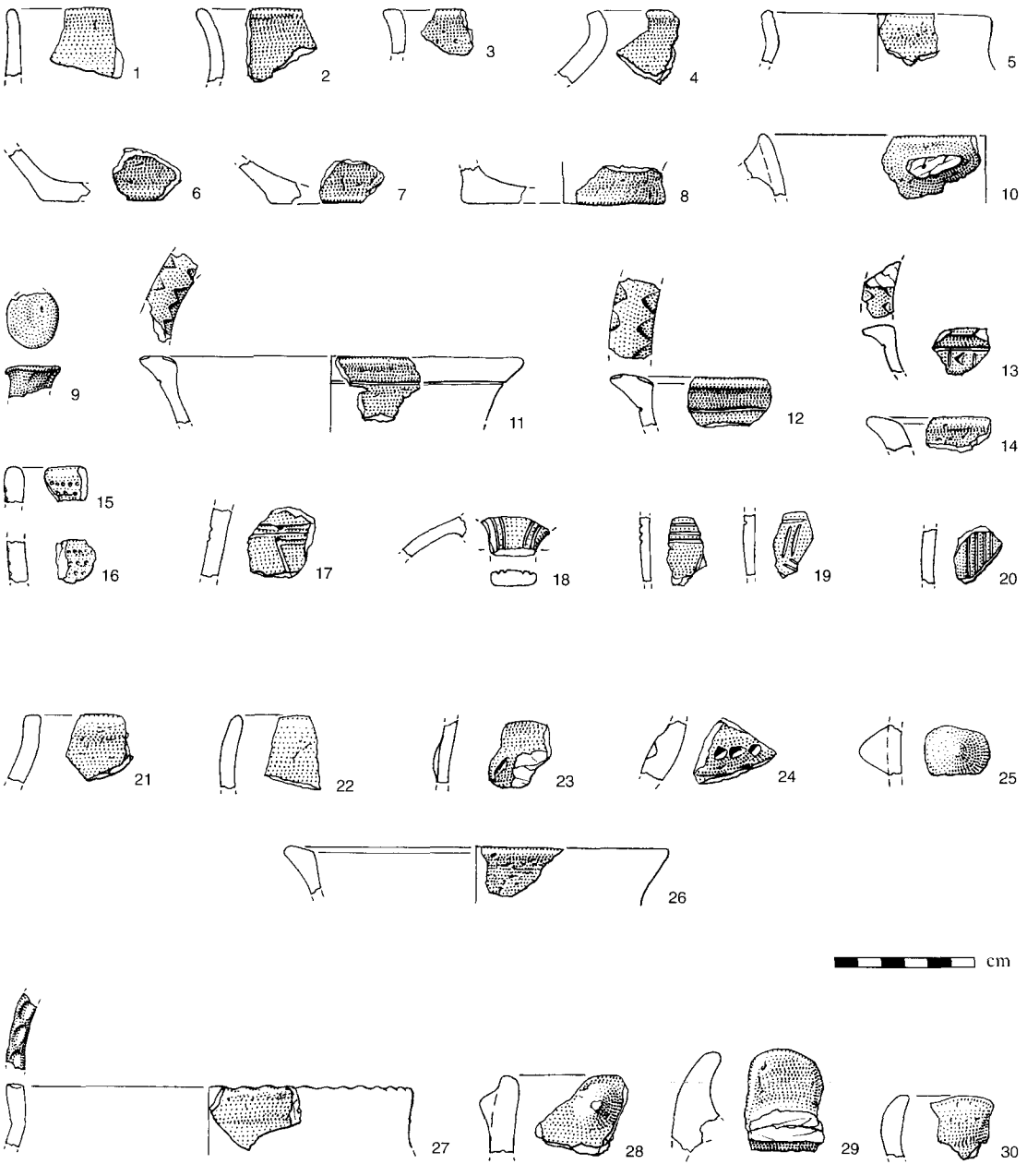

FIGURE 5. *Stray finds of pottery from Velika Gruda burial mound. 1–20: stratum C1. 21–26: stratum C2. 27–30: stratum C1 or C2.*

tent coeval. As for the LCA Adriatic type, Čović (1983) has convincingly situated it between the Nakovanj group and EBA facies according to cave stratigraphies, but its possible sub-divisions and chronological relation to the Cetina group are still being discussed (Govedarica 1989: 105, 241; Chapman *et al.* 1990: 39).

Cave stratigraphies and tumulus finds

An evaluation of the Cetina group has to start by considering the specific stratigraphical indications and find situations. On the East Adriatic coast, the sequence LCA–EBA has been observed in the following caves: Gudnja near Ston, Odmut near Plužine, Ravlića pećina

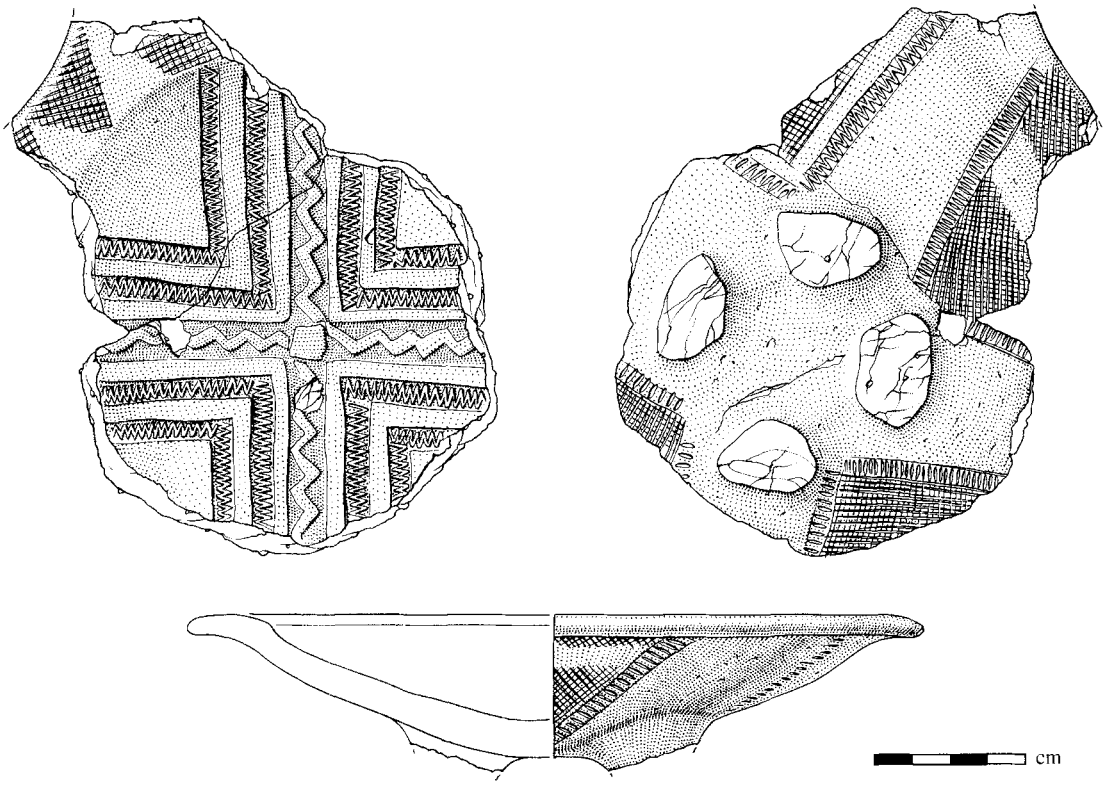

FIGURE 6. *Decorated LCA pottery of 'Adriatic type' from the tumulus of Rubeža, Montenegro.*

near Gruda, Škarin Samograd near Drniš, Vela Špilja on Korčula and Vranjaj near Herceg Novi (Čović 1983; Govedarica 1989). Of these, only Odmut and Ravlića pećina are published (Marijanović 1981; Marković 1985), while a few finds from Škarin Samograd have also been made public (Marović & Čović 1983).

Odmut
Finds of the Adriatic type are found in the upper part of horizon VI. In the overlying horizon VII, certain ceramic elements can be compared to the Maros group. No finds of the Cetina group occur, but the cave is important as both horizons are dated by radiocarbon (Marković 1985: 43, plates 28–30).

Ravlića pećina
Above a horizon with Nakovanj facies (phase IIc) there is a horizon with elements of Adriatic type and some Protocetina material (phase IIIa), followed by a Cetina (phase IIIb) and a Dinaric (phase IV) horizon (Marijanović 1981: 7, plates 28–42).

Škarin Samograd
An as yet undefined Copper Age horizon is followed by strata with Adriatic and early Cetina ware (2·7–2·0 m), classical Cetina facies (2·0–1·1 m) and first (1·1–0·6 m) as well as second phase of the Dinaric group (Govedarica 1989: 113–14; Marović & Čović 1983: 196–8, plate 29).

The sequence of Nakovanj, Adriatic, Cetina and Dinaric groups seems to be reasonably well documented in the stratigraphy of the Ravlića cave, but several critical points remain, e.g. the status of the supposed 'Protocetina' phase — based on isolated forms only — or breaks in settlement stratigraphies. The latter is of particular importance, as in different caves larger packs of LCA strata apparently cannot be subdivided with stratigraphical methods (Odmut VI, Ravlića IIIa – but also in Gudnja and Vela Špilja: Petrak & Čečuk pers. comm.). Moreover, the definition and delimitation of the cultural groups themselves cause problems as they usually rely on a selective typology with pottery key forms (*Leitformen*). The entire sequence is

seen in no one site. On the other hand, as Čović (1983: 107–9) has already noticed, some of the ceramic forms and decorations appear over a suspiciously long span of time. It is thus advisable to consider horizons with mixed material of several facies with reasonable caution.

The situation is just as difficult in burial mounds. Mala Glavica near Podvršje — according to Govedarica a typical ensemble of the 'classical' Cetina facies — is a good example. The pottery shows characteristic Cetina shapes such as bowls with turned-out and impressed rims along with beakers of Kotorac type with zonal decorations (Batović 1989: figures 15–19), but also a series of jar rims with impressed and plastic decorations comparable to pottery from the barrows 1, 3 and 4 in Ograđe (Marović 1980: figures 25, 29, 35, 39). These 'Protocetina' barrows again bear also vertical rims with incised or stamp-rolled decorations that are believed to be typical of the Adriatic facies, e.g. in Vlake near Otišić (Milošević & Govedarica 1986: pl. 1–2, 7–8).

Except for very few ceramic urns, the finds from Cetina burial mounds do not occur in the graves but are scattered within the mound tips (Marović & Čović 1983: 204; Govedarica 1989: 116–7, 134). The tumuli usually contain several inhumation and/or cremation burials, and many barrows have been re-used; the Ferizovići tumulus with mixed Cetina and MBA finds is an obvious example (Cerović 1990). The actually known assemblages from Cetina tumuli can thus not be treated as closed finds.

Stone and metal objects from Dalmatian and Dinaric barrows

A number of stone and metal finds from LCA/EBA burial mounds might help to clarify the chronology and cultural relationship of groups identified by their pottery. The metal groups from the central graves of the Mala Gruda (a gold dagger, a silver shaft-hole axe, golden rings) and Velika Gruda (arsenical and tin bronze tools, golden rings of Mala Gruda and Levkas type) are well known now (Parović-Pešikan & Trbuhović 1971; Primas 1992; 1995; in press). In both cases, the metal objects were combined with clay vessels of a local group with Vučedol affinities close to the Adriatic type also known from the tumulus of Rubeža (FIGURE 6). A singular group of finds with a dagger, a stone axe, a dinaric shaft-hole axe and a hammer adze with metal shaft comes from the tumulus of Ivankovača near Danilo (Govedarica 1989: plate 35). Besides the golden rings from Mala and Velika Gruda, we know of gold finds from Nin-Privlaka, Split-Gripe (now lost) and probably from a barrow in Čemenci (FIGURE 7) near Nikšić (Vinski 1959: plates 1–2; Govedarica 1989: 121–5).

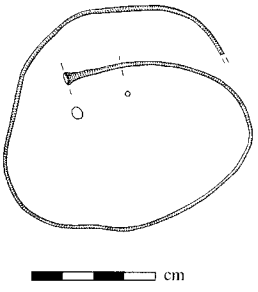

FIGURE 7. *LCA gold arm ring, probably from the tumulus of Čemenci, Montenegro.*

Mala Glavica yielded — besides some 4300 ceramic fragments — a couple of flint flakes as well as a ring-shaped bone pendant, a triangular flint arrowpoint and a stone arm-guard (Batović 1989: figure 15). Similar arm-guards are known from Gomile više lada T3 in Čitluk, Velika Gomila in Bitelić, Tumulus 8 in Ljubomir and from the central grave of barrow 1 in Obrovac near Živalji (Marović 1984: figures 10, 14, 15; *PJZ* IV: plate 20). In Čitluk, the arm-guard was apparently combined with a small metal dagger and a beaker of Kotorac type, in Ljubomir with a stone hammer-axe. Other hammer-axes were found in Tumulus 8 in Bajagić together with a stamp-decorated beaker, and in Kovačev Do T6 with a badly preserved small dagger (Marović 1984: figure 7; *PJZ* IV: plate 27). Characteristic Cetina beakers and an awl appear in Šparevine T10A (Marović 1959: figure 5).

Triangular daggers are known from barrow 1 in Bitelić and from the Jukića gomila (*PJZ* IV: plate 33; Marović 1984: figure 15), whereas daggers with two-piece hilts were found in barrow 2 in Obrovac-Živalji and in a tumulus in Prapatnica (Marović 1984: figure 15; Vinski 1961: plate 3). Another type of dagger with elaborated, carved blade and either five rivets or a metal hilt was excavated in Bajagić and Vinjani, as well as in the obviously re-used central cist grave in Obrovac (Marović 1984: 37–8, figure 15; Oreč 1977: plate 17). Finally, two flanged and socketed axes were found in Čitluk, Velike gromile T1 and Vedrine, Rarina

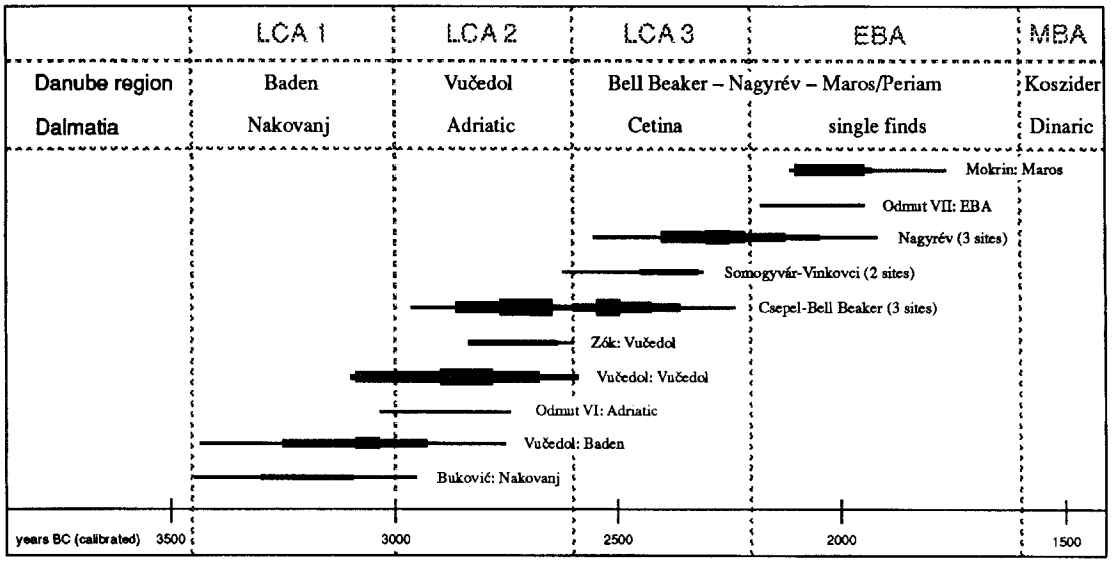

FIGURE 8. *Radiocarbon-based sub-division of the Late Copper and Early Bronze Age in Dalmatia in comparison to the Danube region (cumulated 1σ-calibration ranges: Kromer* et al., Radiocarbon *35* (1993)).

gomila (Marović 1984: figure 19; Milošević 1984: figure 2).

Though a majority of these finds were collected in unsystematic excavations, they can — more easily than the pottery — be used for typological and chronological comparisons beyond the local scale. Obviously, several periods lie between the shaft-hole axe of the Mala Gruda and the metal-hilt dagger from Obrovac. On the other hand, a substantial series of radiocarbon dates from cave, settlement and burial sites is now available for the southeast European LCA/EBA.

A radiocarbon-based chronology for the Dalmatian LCA

Chapman *et al.* (1990: 32) have published three consistent radiocarbon dates from the Nakovanj levels in Buković-Lastvine. They correlate with dates of the Baden culture in Vučedol (Srdoč *et al.* 1987; Benkö *et al.* 1989) and result in the span 3450–2950 BC at 1σ (LCA 1 in FIGURE 8).

The silver shaft-hole axe from the Mala Gruda central grave belongs to a group of Dinaric axes mostly known from hoards (Kozarac, Griča, Topolje, Vranovići) and dated to the Vučedol period by finds of casting moulds in settlements (Durman 1984; Ecsedy 1982; Žeravica 1993: 22–32). In Zók-Várhegy, such moulds were found in a pit together with Vučedol-B pottery; radiocarbon dates from this pit and the one close to it (1977/36 and 34) can be calibrated to the span 2850–2650 BC at 1σ (Bln 3310: 4120±50 b.p., Bln 3309: 4160±50 b.p.). Odmut VI late — the horizon with pottery of Adriatic type — is dated to 3036–2745 BC at 1σ (Marković 1985: 44). The radiocarbon dates from the Velika Gruda central grave belong to the same period (Primas forthcoming), so we conclude that Adriatic type and classical Vučedol are about contemporaneous at 3100–2650 BC (Benkö *et al.* 1989; Durman & Obelić 1989). It will certainly be possible to arrange the Vučedol period (LCA 2 in FIGURE 8) more precisely in terms of absolute chronology (*cf.* Bóna 1992: 11, 40).

Furthermore, the golden rings of Velika Gruda form a link to grave R15b in the Steno necropolis on Levkas dated to early EH II (Branigan 1975: 38; Primas 1995; 82–4). According to Warren & Hankey (1989), EH II covers the period 2900–2500/2400 BC and is thus partially coeval with the Vučedol phase.

There are no radiocarbon dates for the Cetina group available so far, but some of the finds look reasonably characteristic for comparison and cross-dating. The Podvršje–Mala Glavica assemblage with a stone arm-guard, a flint arrowpoint and a bone pendant has strong analogies in Bell Beaker grave finds; the same

accounts for (copper) awls and small daggers, stone hammer-axes and also the V-perforated gold buttons from Nin-Privlaka (Primas 1977; Sangmeister 1964; Hájek 1966; Kalicz-Schreiber 1976; Machnik 1984). Furthermore, the Cetina burial rites — flexed inhumations and cremations side by side, ample pottery gifts, maybe even intentional fragmentation of pottery – have parallels among Bell Beaker groups.

Cetina pottery shapes such as beakers and jugs with cylindrical necks and funnel-shaped rims or bowls with thickened rims turned inwards and outwards can be compared to material of the early Csepel group in Hungary (Kalicz-Schreiber 1984: plates 31–2, 35–6) and the contemporaneous Somogyvár-Vinkovci and Belotić-Bela Crkva groups (Tasić 1984b: plates 2, 4; Bándi 1984; Garašanin 1983: plate 99). The exact chronological situation of these groups is disputed (Bóna 1992; Kalicz-Schreiber 1989). If we take into consideration a set of Hungarian radiocarbon dates that have recently been published — yet without their archaeological contexts (Raczky *et al.* 1992) — the Csepel group might already start as early as 2800/2600 BC (for other early Bell Beaker groups see Lanting & van der Waals 1976: table 3; Gallay *et al.* 1983: figures 10–11). The later Csepel and the few Somogyvár-Vinkovci radiocarbon dates fit a 'maritime' Bell Beaker phase around 2550–2300 BC (Gallay *et al.* 1983: 64–6, figure 12), whereas the Nagyrév dates tend to be younger, 2400–2100 BC (*cf.* Neustupný 1984).

Italian LCA chronology is concerned since Cetina finds occur in the Laterza necropolis (Biancofiore 1967: figures 32, 37). The Cetina group has also been linked to a facies of pottery decorated with grooves and indents known from south Greece. The two wares show remarkable formal and ornamental similarities (Maran 1987). That pottery is stratigraphically dated to EH III in Lerna and Olympia, and belongs to early Lerna IV — thus early EH III — according to Rutter (1982). Warren & Hankey (1984) date EH III to the span 2500/2400–2100/2050 BC.

Summing up the evidence, the Cetina group can be considered as a LCA 3 facies close to the Bell Beakers and be dated around the middle of the 3rd millennium BC (FIGURE 8). These results now differ substantially from previous estimations (*cf.* also Parzinger 1993: 290–91) and might have repercussions on the EBA chronology as well. According to Maran (1987: 82) — and based on Marović's and Čović's traditional Cetina chronology — the transition to the EBA (Reinecke's A1) could be parallel to an early phase of EH III. If we accept, however, that the Cetina group and corresponding EH III facies are linked to the Bell Beaker period, the beginning of the EBA (A1 and related groups) in southeastern Europe will fall into the last quarter of the 3rd millennium BC (*cf.* Becker *et al.* 1989; O'Shea 1992; Forenbaher 1993).

EBA and MBA finds in Dalmatia

Now, the question arises: what — if not the Cetina facies — is to be considered as EBA in Dalmatia? Some other metal finds from Dal-

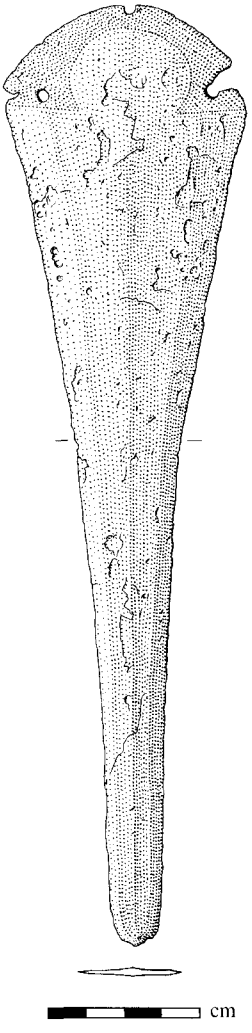

FIGURE 9. *Late EBA dagger from a tumulus in Medun, Montenegro.*

matian burial mounds which were not directly assembled with Cetina pottery. The triangular daggers from Obrovac, Bitelić and Jukića gomila have low hilt-plates with edgewise-set rivets — just as certain daggers of the Nitra and Únětice area and weapons of the Oder-Elbe type (Ondráček 1962; Vladár 1974; Gedl 1976; *cf.* also Gallay 1981: plate 16). We might seize here an early period of the EBA poorly documented with pottery, except maybe for a few four-handled, conical bowls with marked-off rims (Šustina gomila, Rupe, Rarine gomile: Milošević 1984: figures 2–3; Govedarica 1989: plate 34), similar to a shape common in the graves of Mokrin (Girić 1971). The same kind of bowl is known from horizon VII in the Odmut cave, dated by radiocarbon to 2175–1948 BC at 1σ (Marković 1985: plate 30). A set of radiocarbon dates from Mokrin covers the period 2130–1780 BC at 1σ (O'Shea 1992: 97–102).

The daggers with two-piece hilt from Obrovac-Živalji and Prapatnica resemble triangular daggers of the Italic and Rhone type (Uenze 1938: plates 10, 25; Gallay 1981: plate 10). The hilt-plates of the items with carved blades from Obrovac, Bajagić and Vinjani are much alike. These weapons — together with the dagger from a tumulus in Medun near Titograd/Podgorica (FIGURE 9) — belong to a group of long daggers of the advanced EBA (*cf.* Bianco Peroni 1970: 98; Kemenczei 1988: 12). The flanged and socketed axes from Čitluk and Vedrine finally might even be later in date as indicated by the Kórós hoard (*cf.* Moszolics 1967: 123–4, plate 30).

One has thus to distinguish clearly between LCA Cetina pottery finds and EBA metal finds in Dalmatian barrows: they represent two distinct phases of occupation, never associated but sometimes found in the same burial mounds. On the other hand, there are also hardly any associations of EBA metal types with pottery of Dinaric type (in tumulus 1 in Obrovac the co-existence of a dagger and pottery of 'Litzen' type is most probably fortuitous; see Marović 1984: 37, figure 14). It is therefore necessary to check whether the discussed EBA metal finds can be contemporaneous with the Dinaric pottery facies from cave and hill-top sites.

Of the many Dinaric hill-top settlements, only a very limited number has been archaeologically investigated. Larger series of finds are known from Velika Gradina in Varvara, Pod near Bugonjo, Veliki Gradac in Privala and the *gradinas* of Sovići and Nečajno (Čović 1965; 1977; 1989; Govedarica 1982). The Varvara stratigraphy is the most important as it ranges from the Copper Age to the end of the Bronze Age. According to Čović, the 'A' horizons belong to the EBA, the 'B' horizons to the MBA. In Pod and Privala, there are again 'A' horizons paralleled with finds in Varvara, whereas in Sovići and Nečajno no stratigraphical sub-division was possible, but the finds again were attributed to the EBA.

Among the mostly ceramical material from Varvara A-2 and A-3, one notices plastic applications on handles of cups and beakers (Čović 1977: plates 21–30). Similar handle shapes *('anse ad ascia')* appear in middle and northern Italy in various assemblages of the MBA (Ceccanti 1979; Urban 1993: 191–200, figure 108). A characteristic cord-impressed pottery called *'Litzenkeramik'* was found in Pod A and Sovići (*PJZ* IV: plates 24, 26; Čović 1980; 1989: plates 10–11). Related finds in the Danube area in Austria and Hungary can be dated quite precisely to the end of the EBA and the beginning of the MBA (Benkovsky-Pivovarová 1972; Neugebauer 1979). With a series of radiocarbon dates of the *Böheimkirchner Gruppe* published by Neugebauer (1991: 50–57) it is possible to situate this transitional phase around 1600 BC. On the other hand, many finds of the 'B' horizons in Varvara can be linked to the beginning of the LBA, e.g. shouldered cup and beaker shapes and a pin with biconical head and swollen shaft (Della Casa forthcoming).

Altogether, it looks as if the early beginning of the Dinaric group as proposed by Čović was mainly due to 'mixed horizons' with LCA material (e.g. of the Adriatic and Cetina group) that could not be separated by stratigraphy. This accounts in particular for Sovići and Nečajno (see Čović 1989: plates 6, 8). By far the major part of the Dinaric pottery finds attributed to the EBA cannot be dated before the very end of this period if we consider the possible links with surrounding areas. Several of the cave and hill-top sites might in fact be marked by a hiatus in the EBA, but the situation cannot be clarified as the materials actually published lack well-documented grave assemblages and thoroughly stratified settlement finds.

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