A BRONZE AGE CULTURAL SEQUENCE FROM MONCIN, BORJA (PROV. ZARAGOZA)

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Excavations on the site of the Bronze Age settlement at Moncín, (Borja) between 1979-1987 revealed a deep stratigraphy within which a sequence of cultural material can be documented for the period 2600-1300 BC. The aim of this study is to summarize the sequence of decorated pottery from the site, illustrate the chief components and give an indication of its absolute chronology.

The site of Moncín is located on the Muela de Borja, a limestone region about 18 km square, overlooking the Ebro river in its middle reaches. Its siting at an altitude of about 720 metres, orientated to the northeast in the face of the chilling *cierzo* winds, is explicable by its economic base; this relied not only on dry farming cereals and raising mixed livestock, but also upon extensive hunting of wild animals for their pelts. For these purposes its position at the base of a low cliff, near freshwater springs, was ideal (fig. 1). The location has no defensive or strategic importance, nor does it command access to any important mineral resources. Nevertheless, it was occupied from the late Eneolithic until the Final Bronze Age.

The methodology of the excavation emphasized the need to obtain large, consistent samples of data from which to reconstruct economic and cultural modes of the second millennium. This was done by excavating all deposits by following the natural stratigraphy strictly, and sieving virtually all deposits through standard 0.25 inch (5.5 mm) screens. More than 450 cubic metres of fertile deposit were excavated in this manner. As a result, over 300 separate contexts were recognized, correlated into stratigraphic matrices, and then organized into successive phases (HARRIS 1979). These phases provide a relative chronology, and form the building blocks for the generalizing level of analysis followed in this study.

The absolute chronology is based upon radiocarbon determinations from the Radiocarbon Laboratory of the British Museum (London). Seven determinations from Moncin are being analyzed again after a systematic error was detected in the laboratory. This affects phases IIC, IIB and IIA, so their absolute chronology is still provisional: older phases are more securely dated.[1] All dates are recalibrated using the high-precision tables published by the Belfast-Seattle laboratories, now adopted as the international standard (STUIVER and KRA, 1986). These recalibration tables replace all previous ones, and are now used as the basis for absolute prehistoric chronologies. The Moncín cultural stratigraphy can be dated approximately as the table at the bottom shows (HARRISON, MORENO LÓPEZ and LEGGE, 1987; HARRISON, 1988).

Primary stratigraphic contexts for the decorated pottery are scarce, but there are enough from each cultural phase which allow a sequence to be buit up. However, most of the site was subjected to geomorphological processes which had been active throughout the period of its occupation, but which ceased with its abandonment. These processes attended the decay and rebuilding of timber and clay structures above ground, as well as the erosion of subsoil features like storage silos and trash pits. The result was the accumulation of relatively thick layers of clayey soil rich in broken artefacts, charred plant remains and animal bone. Strictly

Phase	Main pottery style	Recalibrated date BC
I	Roman	
IIA	Excised & Boquique	1500-1300?
IIB	Boquique & Incised	1600-1500
IIC	Incised	1700-1600
IID	Incised & Arboli	1950-1700
IIE	Arboli	2100-1950
III	Arboli & Epicampaniforme	2200-2000
IV	Ciempozuelos & Epicampaniforme Bell Beaker	2550-2200?
V	Maritime Bell Beaker	2650-2550?

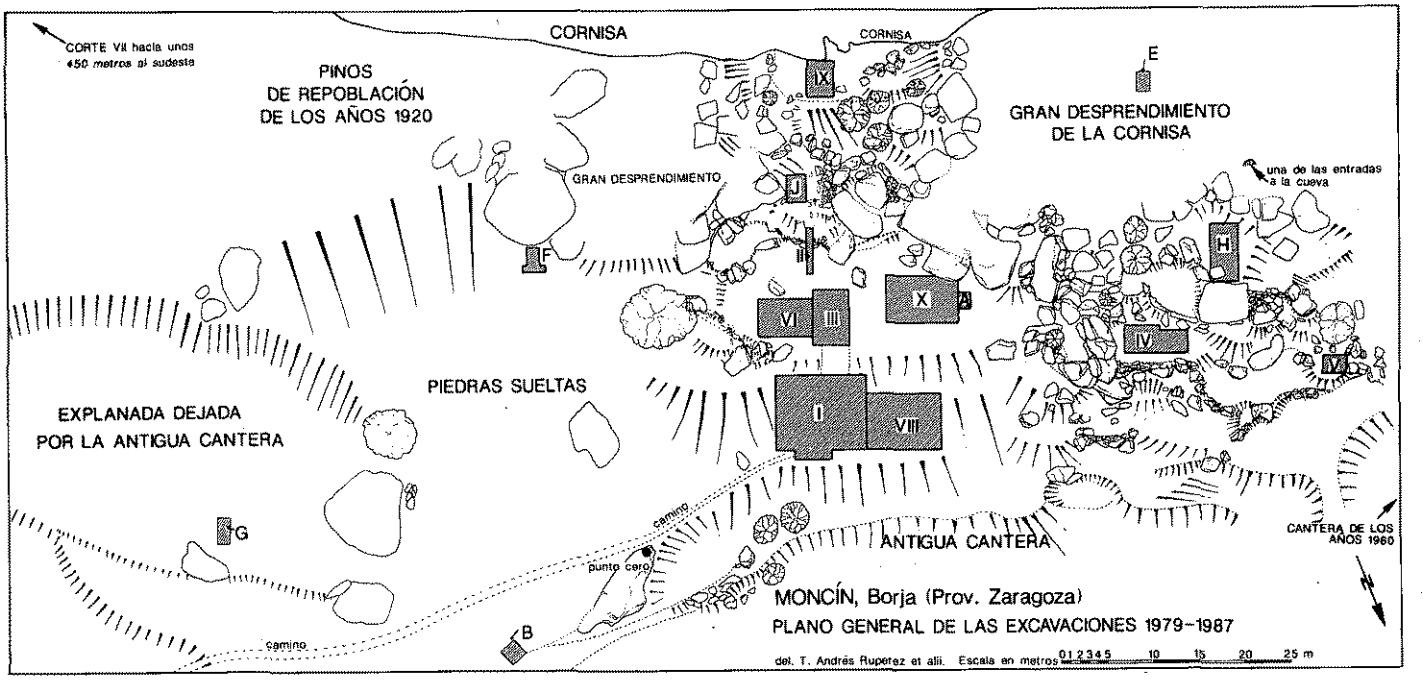


Figure 1. – General plan of the site of Moncín, with the excavated areas shown by shading.

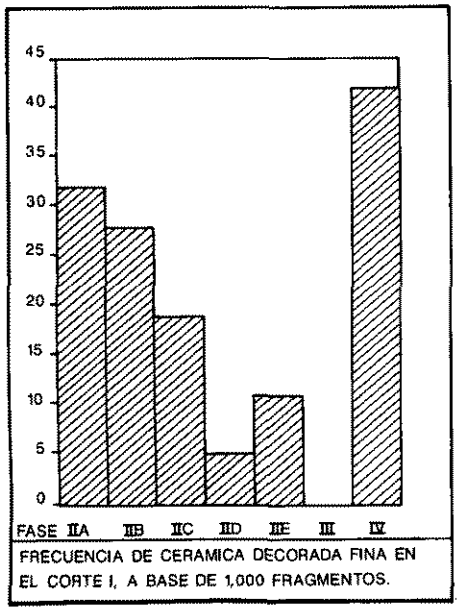


Figure 2. – The frequency of decorated pottery at Moncín expressed as a percentage of total pottery for the chronological phases IV to IIA.

speaking, these contexts are secondary ones.

Once this was recognized, it became imperative to know if there was contamination between layers, and if so, how much. The degree of contamination was measured by using the decorated pottery, since it changed more rapidly and obviously than any other category of artefact. Pottery is also the most abundant cultural material on the site, making it especially suitable for this task. A total count of all rim sherds was made, then tabulated by layer and phase for each excavation trench. The percentage of decorated rims to plain rims was then calculated for each context and phase, giving the relative frequencies illustrated in figure 2. Once these proportions were known, it was easier to count the number of "paired" sherds: that is, sherds from the same decorated pot which were excavated in different stratigraphic contexts. By counting the number of "paired" rims from *decorated pots in different stratigraphic contexts*, and comparing it to the number of plain rims from the same contexts, a direct measure of mixing between layers could be obtained. The sample size was adequate to allow this to be expressed. It was found that, while the degree of vertical movement of artefacts between layers was quite low in the earliest and latest phases of the site's occupation, it was much higher for the intermediate phases, especially IIE, IID, IIC and IIB. This significant degree of artefact movement was a consequence of the frequent excavation of storage silos, and the levelling and construction work for timber buildings that were built throughout the second millennium BC at Moncín.

Figure 2 reveals another characteristic of the decorated pottery sequence; its changing relative frequencies. There are two periods when decorated ceramics are relatively common; in the late Eneolithic (Ciempozuelos and Epicampaniforme styles of Bell Beakers), and again in the Later Bronze Age (Boquique and incised wares of Cogotas I). In the intervening period, their popularity declines by a factor of 9 or 10. These different frequencies of decorated pottery have important implications for surface surveys, since many sites are assigned to a period or

phase on the basis of a few diagnostic artefacts-usually decorated pottery. Those periods where such wares are scarce will be underestimated automatically, producing apparent "peaks" for the Eneolithic and Later Bronze Age, and "gaps" for the Earlier and Full Bronze Age phases, which are less visible to the archaeologist. These are not new problems, but the data from Moncín allow them to be recognized and measured. The relative lack of diagnostic artefacts for the period 2000-1500 BC may be one reason for the blanks in the archaeological record over much of the Ebro valley.

A proposed sequence of Bronze Age decorated pottery styles

The collection is composed of sherds from a mininum of 617 decorated vessels. There are usually very small sherds, since the collection as a whole is badly fragmented and comminuted, and has suffered heavily from post-depositional processes. Consequently, emphasis has to be given to designs and motifs rather than vessel forms.

The oldest decorated pottery at Moncín is the Maritime Bell Beaker complex (fig. 3). A small quantity was found in primary contexts in pits cut into sterile subsoil in the area below the rock shelter, Corte IX (fig. 1). Directly above it were layers with Ciempozuelos Bell Beaker sherds. The Maritime complex is represented by 39 fragments of different vessels. Nearly all belong to the simple Maritime styles of the AOO (Lined variety), CZM, and Herringbone varieties, with

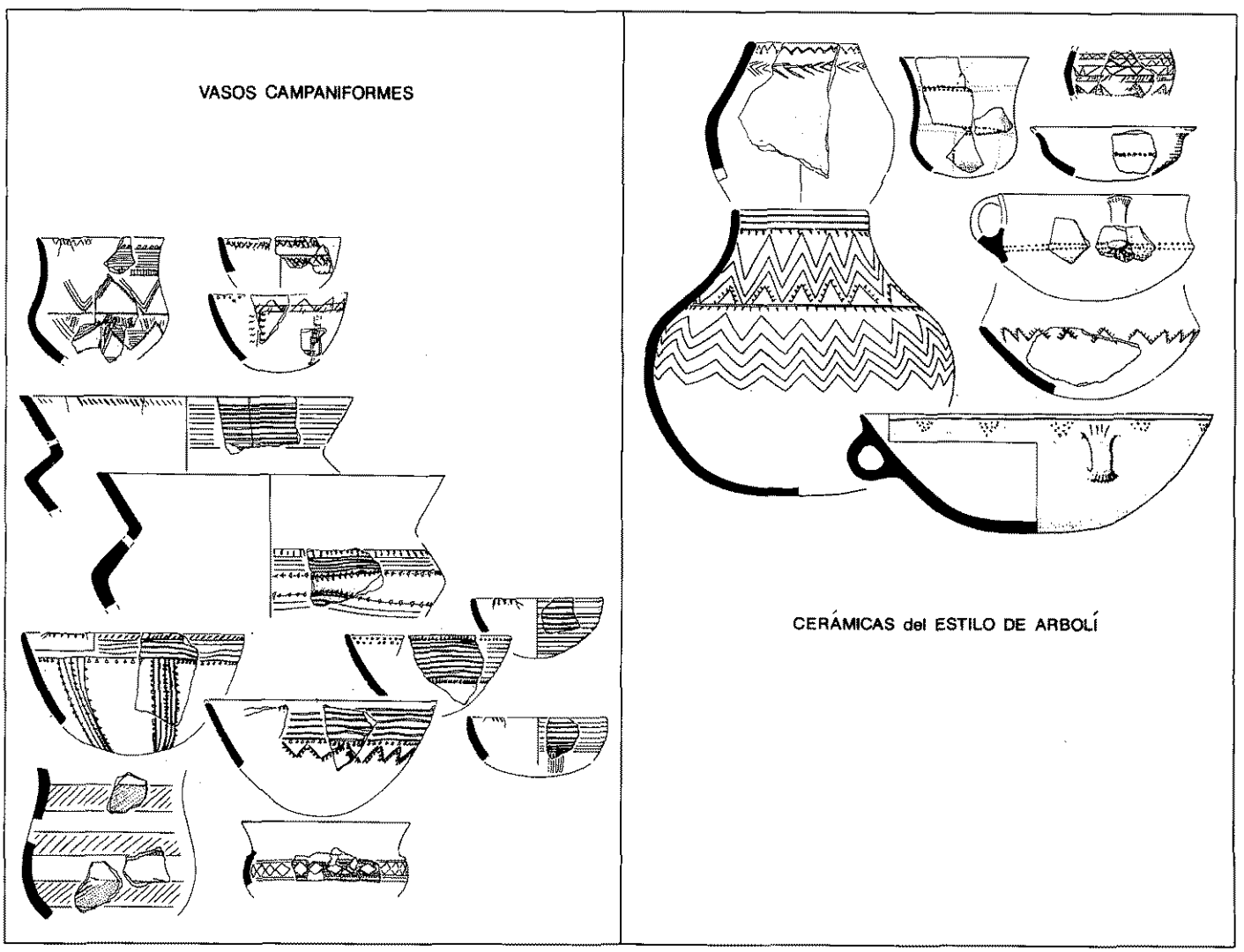


Figure 3. – Chart of decorated pottery from Moncín phases V, IV and III, arranged so that the Bell Beaker and Arbolí complexes can be seen separately. Note the overlap in phase III of the Ciempozuelos Bell Beaker, Epicampaniforme and Arbolí pottery styles.

ı couple of carinated bowls with trianular motifs. The important varieties of the "puntillado geométrico" type, marking the transition to Ciempozuelos styles and visible in the collection from Atalayuela (Agoncillo, Prov. Logroño) are absent.

It is succeeded by the Ciempozuelos Bell Beaker complex, represented by sherds of 54 different vessels (fig. 3). Most of the reconstructible forms belong to open bowls and carinated vessels; only one Bell Beaker profile is recognizable in the assemblage. The characteristic dark finish, and densely packed motifs of incised decoration are easily recognizable, as are the geometric patterns used on the base of the bowls. Internal rim decoration is common. There is nothing in the typology of the group to separate it clearly from the Ciempozuelos complex elsewhere in northern Spain.

Contemporary with the Ciempozuelos complex is a ceramic style better known in northwestern Europe than in the western Mediterranean: Rusticated Pottery, decorated with impressions of fingernails or fingertips (fig. 4). Only 10 fragments were found at Moncín, but from their stratigraphic position, they appear as a late component in the Ciempozuelos complex, overlapping into subsequent phases when the Arbolí style flourished.

The Epicampaniformes are a discrete typological group of at least 17 vessels, overlapping chronologically with Ciempozuelos Beaker pottery and possibly lasting into the period when Arbolí ceramics were being made (fig. 3). This is a style which develops alongside the Ciempozuelos fashions, and while retaining the interest in geometric decoration, emphasizes fringes and occasionally excision in its decorative repertoire. Open bowls, plates, a Bell Beaker profile and vessels with omphalos bases are known.

Replacing these fashions, after overlapping with them for some time, is the Arbolí style (fig. 3). It is represented by about 130 sherds from a small number of vessels; given their large size and complicated form, the exact number of vessels is impossible

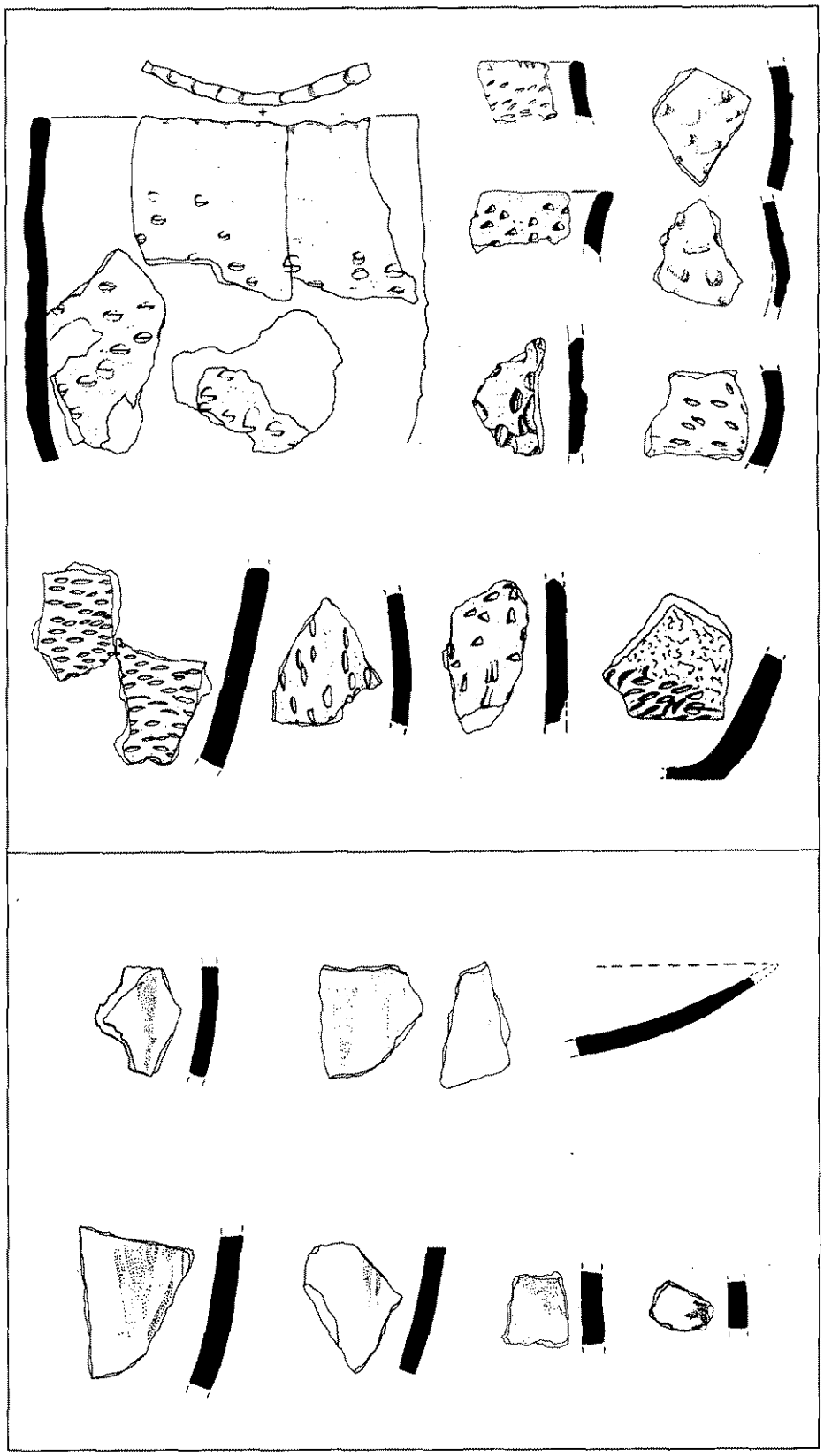


Figure 4. – Two distinctive pottery groups from Moncín. Top: rusticated wares. Bottom: painted pottery.

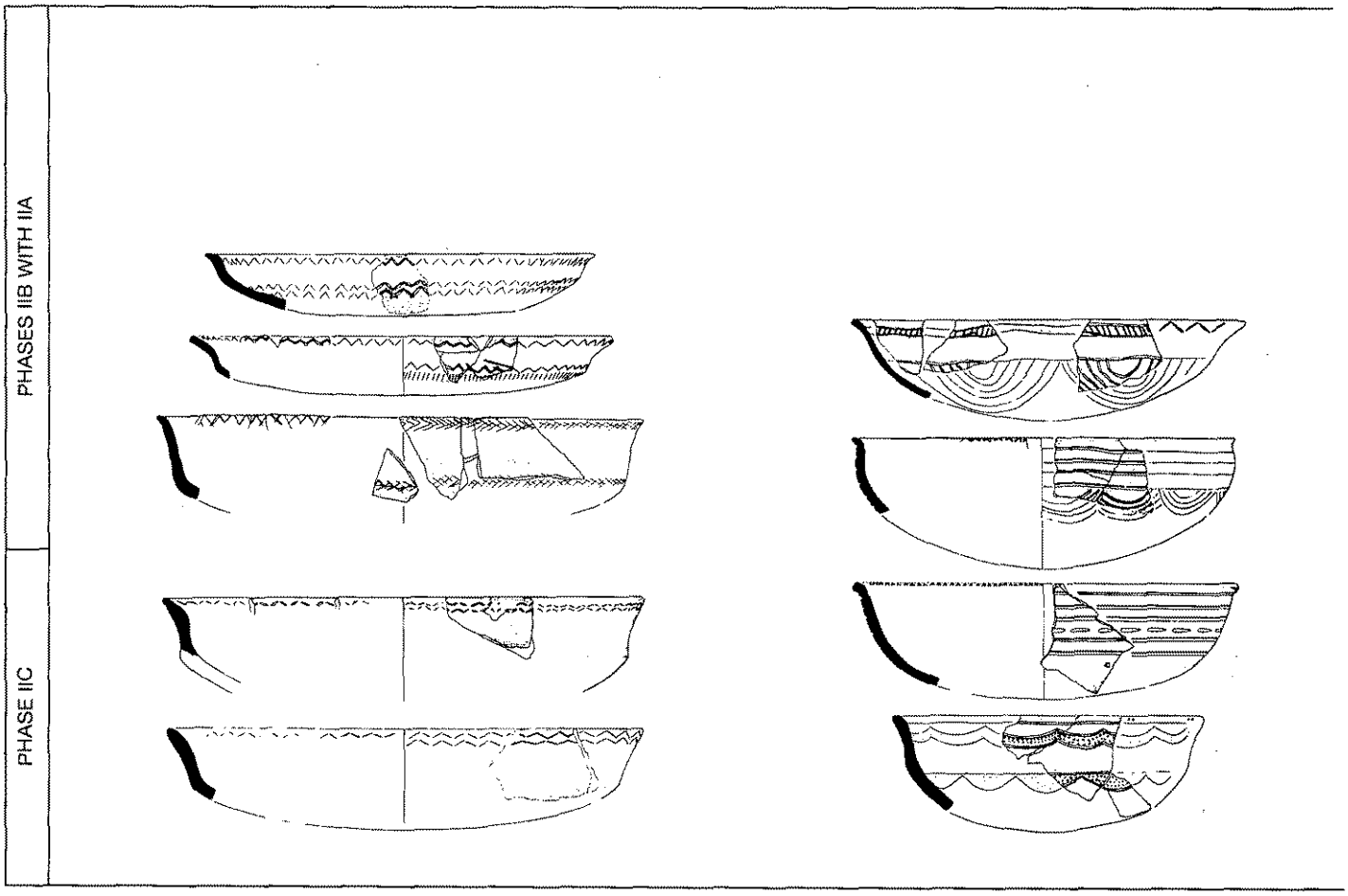


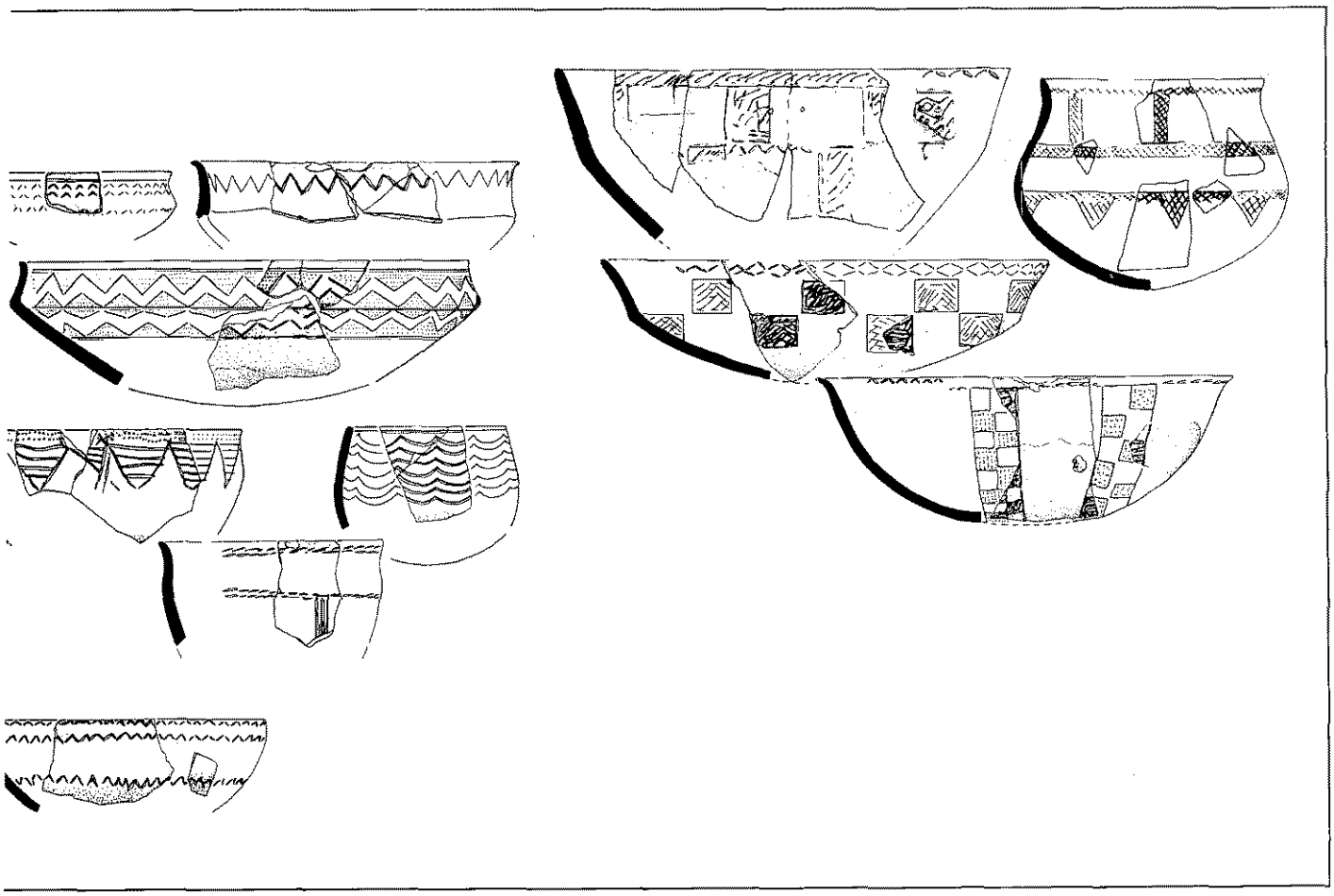
Figure 5. - Chart of decorated pottery from Moncín in phases IIC, and IIB with IIA, arranged to emphasize the increasing complexity of shape and designs through time.

to calculate from the small sherds we have available. The group as a whole was catalogued by Maya and Petit (1986), and from their descriptions its polythetic nature is apparent. This same quality is noticeable in the Moncin collection, and may be a genuine characteristic of the assemblage rather than a mixing of different repertoires. The situation is, in many ways, like that of the Cogotas I complex, which is a classical example of a polythetic set.

Geographically, the Arbolí group is confined to the northeast of Spain, with outlying pieces as far south as Valencia, and as far west as Moncín. Indeed, Moncín is on the fringe of the main geographic distribution. The pottery forms include open bowls with handles, plates, bomb-shaped pots, and a taste for sharply angled profiles. The decorative motifs are simple: some are linear, like rows of small dots, incised triangles with fringes and simple lines of open zigzag; others are formed by grouping dots into clusters of three or four; concentric circles were stamped on some pots. Additionally, there are motifs like the sun, and applied plastic decoration of a specific sort, such as horseshoe lugs, double handles and applied medallions filled with dots. Special pieces include clay spoons and a pottery lid with flanges around the rim. The closest parallels for these pieces singly, and as an assemblage, are in Tarragona, as Maya and Petit recognized. Towards the end of the period when the Arbolí style was in use (phase IID), it seems as if the linear motifs of zig-zags and triangles survive, while the more eccentric elements disappear.

Separate from the Arbolí style is a tiny group of six painted pottery sherds (fig. 4). Half are stratified in good contexts in phase IIE, so they are not part of the Later Bronze Age repertoires. They are all wares made of a pale yellow-buff clay, with simple triangular patterns of black, maroon, or dark brown paint on them them. The only recognizable form is a shallow bowl or deep plate. No parallels in northern Spain are known for them.

Developing from phase IIC onwards are the ceramic styles based on incised motifs, comparable to those



from Cogotas I on the Meseta. It is now known that the Cogotas I phenomenon is both long-lived and spatially diverse, and its internal development can be charted at Moncín; no doubt other sites will be found to corroborate this in due course. Three points about the Cogotas I styles stand out:

a. Cogotas I directly succeeds the Arbolí style.

b. There is apparently an internal typological development visible through phases IIC, IIB and IIA.

c. The techniques of making decoration by stab-and-drag (Boquique) and excision arrive very early (phase IIC), but only become popular (but not dominant) in phase IIA.

There are sherds from approximately 355 different vessels; 310 have incised decoration; 31 with Boquique; 9 with excision; 3 with white paste incrustation. The fragmented state of the collection makes identification of the vessels' form impossible in most cases, but the restorable examples are illustrated on fig. 5. In general terms, there is a trend towards more complicated geometric patterns in the latest phase IIA, using the same decorative syntax but repeating it to create denser and heavier patterns. Exactly the same process was noted in the assemblages excavated around Madrid, where friezes and simple bands, triangles and small filled panels form a design vocabulary that is enriched later by very simple means (Blasco Bosqued 1987). It is much like the process of design elaboration visible in the Bell Beaker ceramics a millennium earlier. One important vessel form is the plate, easily recognizable even from small rim sherds: 37 examples are stratified at Moncín. It is a form often believed to be a later addition to the repertoire in the north, but the evidence at Moncín suggests it is both early and long-lived. Plates do not define a particular phase, and are not suitable as horizon markers, any more than is the technique of Boquique pottery (fig. 6). We can say that both are at their most popular in phase IIA.

The tripartite typological division of Cogotas I material made by Fernández Posse (1986) seems borne out in practice by the Moncín sequence. It covers the first two periods. There

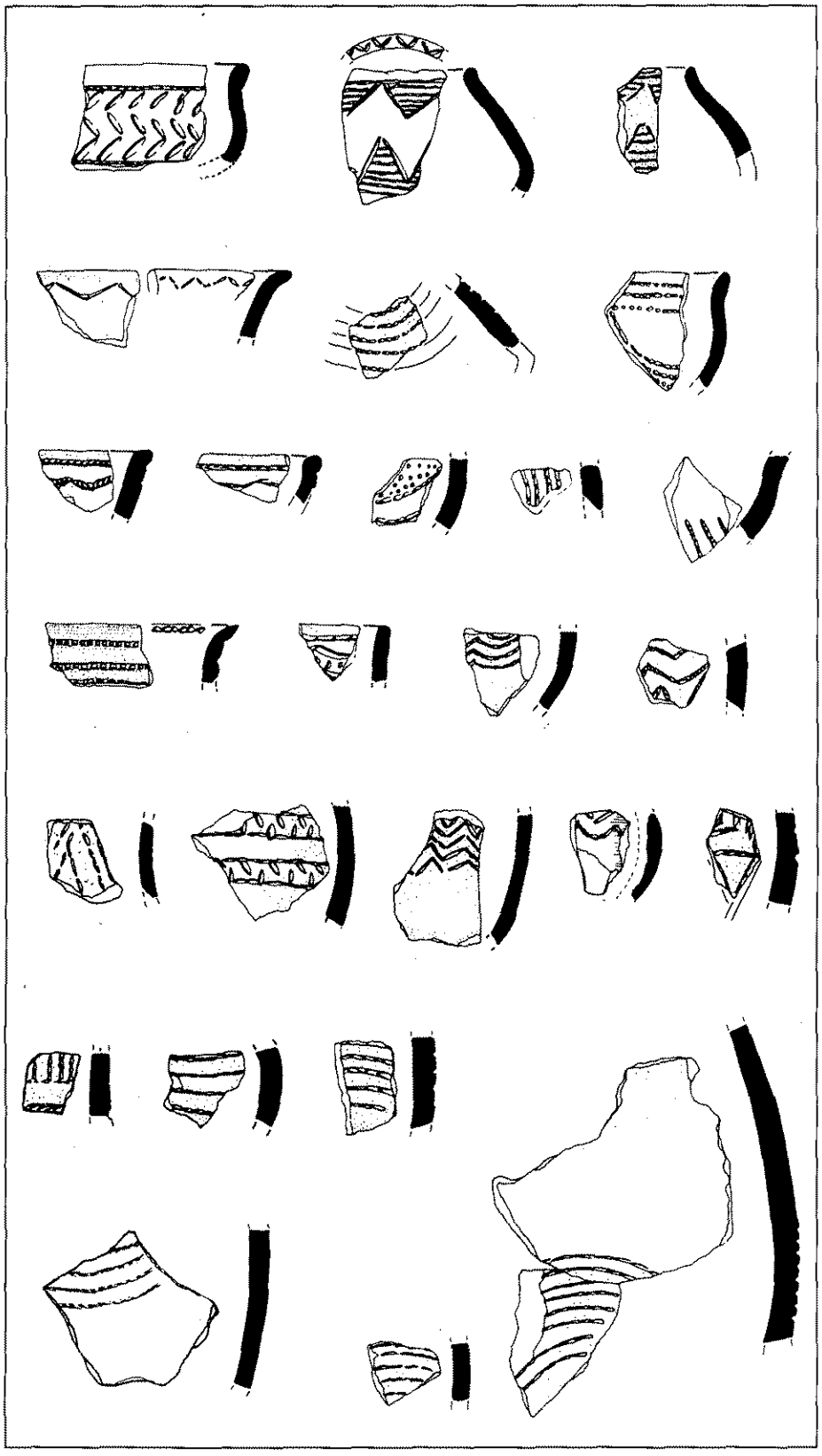


Figure 6. - Potsherds decorated in the Boquique technique from Moncín.

is further support for this model of ceramic development from the radiocarbon dates attached to an early Cogotas I assemblage excavated at Los Tolmos (Caracena, Prov. Soria) (JIMENO MARTÍNEZ 1984:199-201). Six of the seven determinations (excepting only CSIC 407) are statistically indistinguishable at the 95 % probability level. A recalibration on the Seattle-Belfast tables suggests that a Cogotas I ceramic style is extant by 1700-1600 BC; a conclusion agreeing with that derived independently for Moncín.

Conclusions

The sequence at Moncín should be of wide interest, since it articulates cultural elements from the northern Meseta, Ebro valley and Catalonia. Several points stand out. First, there is no local ceramic style peculiar to the middle Ebro valley at any point in the sequence. Nothing indicates that there is a 'Bronce Aragonés' waiting to be discovered, with an original and distinctive cultural repertoire. Secondly, the main ceramic styles are closely similar to those in neighbouring areas; the Bell Beakers are like those of northern and north-eastern Spain, without any of the local typological flourishes visible in the Levant or Andalusia (HARRISON 1988); the Arbolí group is closely comparable to the Catalonian finds; the Cogotas I styles are the same as those represented on the Meseta. Thirdly, the middle Ebro seems to change its cultural orientation just before the middle of the second millennium, moving from an orbit centred on the northeast of the Peninsula to one with its centre of gravity on the Castilian Mesetas. This change coincides with an increased interest in cultivating cereals at Moncín, and an expansion stage throughout northern Spain (HARRISON in press). Fourthly, there is a similar periodicity in the time that a major decorated pottery style remains popular. Apparently there are relatively short periods of development and disappearance, so that the inno-

vative and archaic phases in their trajectories are rapid and not easy to identify. Future work could be directed towards understanding the significance of these cyclical florescences, and explaining their periodicity.

Acknowledgements

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NOTES

1. The seven Radiocarbon dates affected are BM 1924 to BM 1928 inclusive, and BM 2193 to BM 2194 (Burleigh, Ambers and Matthews 1983; Harrison, Moreno López and Legge 1987:38). The systematic laboratory error was reported in *Antiquity 61* (1987):168. In order to correct these dates, their original values have been recalculated, and these will be published, together with a description of how they were evaluated. They will all bear the letter R *as a suffix*. Four new determinations, two from samples previously dated, and two from new ones in the same contexts, are being made. This will allow the cultural sequence for phases IIC, IIB and IIA to be dated more accurately. At the moment, the indications are that the original determinations were too young by 250 to 400 years each. The five dates coded BM 2475 to BM 2479 inclusive are not affected (Harrison 1988). They date the older phases, IV, III, IIE and IID. When all the radiocarbon determinations are to hand, they will be discussed fully in the site monograph now in preparation.

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