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Revisiting the Chalcolithic site of El Ventorro (Madrid, Spain). Ceramic Re-fitting and Taphonomy

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Monumental ditches and Bell Beakers are two key phenomena in later prehistoric Europe involved in the study of El Ventorro, near Madrid. In this article, we discuss and develop an analytical protocol for a thorough characterisation of the patterns of breakage, abrasion, and representation of ceramics. The procedure is tested with a large ceramic sample from 'Pithouse 013', an unusually rich context which challenges stereotypical accounts of the domestic sphere, feasting, and prestige goods deposition. This sunken feature was filled with a heterogeneous mixture of recently broken remains and secondary residues, and is reinterpreted here as a ditch segment instead of everyday fossilised occupation surfaces. The paper sheds important new light on depositional practices, the social biographies of Beaker pottery, and the infilling of ditched enclosures. It also allows the assessment of the potential of this integrated re-fitting and taphonomic strategy to illuminate poorly understood aspects of pottery in a range of time–place contexts.

Keywords: Assemblage formation, ceramic re-fitting, ceramic taphonomy, sunken features, ditched enclosures, Bell Beaker, Iberia

In the last 30 years, there has being a growing interest in understanding how cultural remains entered the archaeological record (eg, Schiffer 1987; Tani 1995; LaMotta & Schiffer 1999; Chapman & Gaydarska 2007; Jiménez Jáimez 2007; Bailey 2007; Lucas 2012; Wolfram 2013). In fact, this topic is widely regarded as a key subject whose discussion should be addressed in advance of any functional or spatial accounts. However, this is a completely neglected issue in many European archaeological traditions, such as central and eastern European and Mediterranean later prehistory. Assemblage-based formation studies have mainly relied upon faunal and lithic debris so that the contribution of pottery in taphonomic terms remains under-exploited, save in some avant-garde milieux, especially within British archaeology (eg, Bradley & Fulford 1980; Sørensen 1996; Garrow *et al.* 2005; Brudenell & Cooper 2008; Mercer & Healy 2008; Lamdin-Whymark 2008; Edwards 2009; 2012; Beadsmoore *et al.* 2010). Yet even these seminal contributions often focus on the idiosyncrasy of the ceramic assemblages at hand and their procedures are designed for the interpretation of these particular cases studies. The methodological aspects and the criteria for conducting such evaluations or their applicability to further collections are not properly tackled and made explicit.

An analytical protocol is presented to characterise the preservation condition as well as the representation and breakage rates of pottery collections. The variables for conducting such post-excavation operations are carefully discussed here. The ceramic assemblage from a residue-rich depositional context excavated in 1981 has been re-examined. Dated to the late 3rd millennium BC, the El Ventorro site (Madrid, Spain) is well-known internationally for its remains that have stimulated opposing and controversial archaeological readings based on the same ambiguous evidence. Its study has wider implications because of the extraordinary occurrence at the same site of pan-European later prehistoric phenomena such as Bell Beakers and monumental earthworks. Thus, this test-case serves to challenge the formational dynamics of widespread Neolithic locales, such as pit sites and ditched enclosures, as well as the changing roles of Bell Beakers throughout an unexpected

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range of biographical steps. The assessment of an unusually large ceramic sample – nearly 4000 potsherds, including over 100 Beaker sherds – examined from an integrated, systematic, and explicit hands-on methodology has allowed the evaluation of the fitness of several interpretive hypotheses. This study has ultimately led to an estimation of the potential of such a procedure and its applicability to prospective ceramic collections, even to those unearthed by old archaeological excavations.

LOCATION AND AVAILABLE READINGS

El Ventorro is located in the province of Madrid, in the sedimentary tablelands of the Tagus valley in central Iberia, to the south of Madrid city, on the right-bank floodplain of the Manzanares river (Fig. 1). This setting has been intensively distorted by extensive gravel exploitation as well as urbanisation projects, but many later prehistoric sites are known in its surroundings (eg, Muñoz 2002). The site was subjected to successive rescue excavations in the early days of such activity in Spain (1962, 1972, 1977, and 1981) (Fig. 1C). These campaigns documented explicit remains of dwelling, subsistence, and craftsmanship activities – large collections of faunal, ceramic, and lithic debris – spatially linked to an outstanding collection of Ciempozuelos-style Bell Beaker pottery, all within several sunken features (Quero & Priego 1975; Priego & Quero 1983; 1992). Particularly remarkable at a pan-European scale was the finding of a metallurgical workshop containing copper smelting by-products and crucibles with Beaker incised decoration – results rapidly presented to an international audience and discussed thereafter (Harrison *et al.* 1975; Harrison 1977, 178–80; Garrido-Pena 1997, 202; 2000, 43–4; Harrison & Mederos 2001, 121).

The above-mentioned fieldwork seasons unearthed 228 m^2 in four adjacent sectors, allowing the recording of three elongated gullies dug into the rock – interpreted as 'pithouses' – and 23 pits in their surroundings. Initially, the site was envisaged by its excavators as a permanent settlement composed by the aggregation of several households living together in semi-sunken huts made up of wattle-and-daub structures with several annexed multi-purpose underground wells (Priego & Quero 1992). Such a locale presented an uninterrupted occupation throughout the second half of the 3rd millennium BC, according to the few available radiocarbon determinations. This allegedly prolonged occupation led to two discernible superimposed phases, coincident with the internal sub-division of the Iberian Chalcolithic in the 1980s: a Beaker phase in the uppermost layer and a pre-Beaker phase beneath that (Priego & Quero 1992, 357–64).

We shall focus on the third excavation campaign, carried out in 1981 (Fig. 2). The excavated features comprised five pits – Pits 008–012 – and an elongated gully – 16 m long, with 44 m^2 excavated –, with an irregular section, 4 m in width and 1.2 m deep, the so-called 'Pithouse 013' (Priego & Quero 1992, 83–125; Díaz-del-Río 2001, 243–5). This cut feature was filled with several thin ashy and sandy layers, interpreted as a slow build-up of successive occupation floors pertaining to two recognisable dwellings – the deeper pre-Beaker and the upper Beaker-phase occupation – partially superimposed and substituted in a span of few years without stratigraphic hiatus (Priego & Quero 1992, 104–5). Within the 'uppermost dwelling', some structures or arrangements of patterned remains were identified, such as a cache of potsherds regarded as a 'soil'[1], a hearth, and several activity areas such as a metallurgical oven with copper smelting by-products and a flint knapping workshop (Priego & Quero 1992, 103–4; 123–5, lams. xx–xxii). In short, these occupation layers were seen as forming inside thatched huts, which despite being regularly cleaned, preserved *in situ* structures and activity areas, along with fallen or displaced debris in primary position (Priego & Quero 1992, 83–125). Subsequently several authors have commented on such a hypothetical reconstruction of what has come to be a paradigmatic case of a two-phase Chalcolithic dwelling in central Iberia (Garrido-Pena 1997, 190; 2000, 43–4; Harrison & Mederos 2001, 121; Rojo *et al.* 2005, 525).

Díaz-del-Río (2001, 237–50; 377–8) conducted a critical reassessment of the published data and concluded by offering an alternative account. His chief objections were: (A) the sequence of two Chalcolithic phases for 'Pithouse 013' is invalidated by the arbitrary criteria used to support it, as this was a non-stratigraphic excavation, that followed fixed-depth layers of 10 cm which revealed clearly sloping strata in section (Priego & Quero 1992, 101, fig. 39; 103, fig. 41). Moreover, phase discrimination was based only upon the presence/absence of Bell Beaker and metallurgical elements (Díaz-del-Río 2001, 244–5); (B) there are no true *in situ* structures or diagnostic elements of the domestic realm and those appearing – irregular post-holes – might be regarded as an open-air windscreen, indicative of outdoor activities (Díaz-del-Río 2001, 246–7); and (C) the extraordinary

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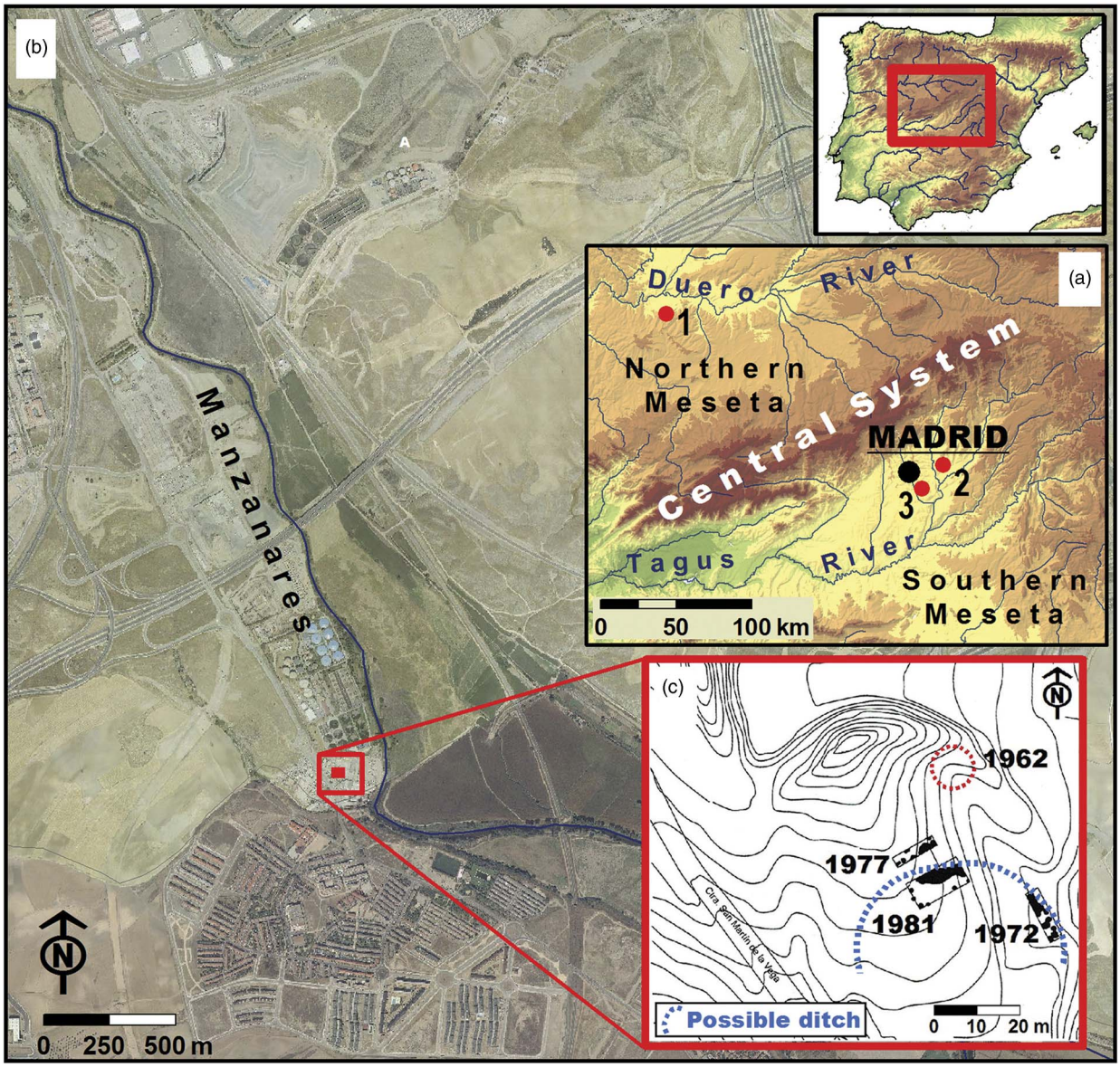

Fig. 1.
Location of El Ventorro. A. Sites mentioned in the text: 1. Las Pozas (Zamora); 2. Camino de las Yeseras (Madrid); 3. El Ventorro (Madrid). B. El Ventorro in the Manzanares valley. C. Excavation trenches at El Ventorro (after Díaz-del-Río 2001, 240, fig. 61)

amount of remains yielded by 'Pithouse 013', containing, as it did, the highest accumulations of flint flakes (n = 2792), faunal debris (n = 3283), granite querns (n = 24), and potsherds (n = 33,595, including 106 Beaker sherds) per sq. m in Iberia and beyond (Díaz-del-Río 2001, 246; 2006, 73). (D) In view of these extraordinary quantities of items within 'Pithouse 013', he posited its interpretation as a massive midden resulting from successive dumps of large volumes of refuse disposed of during festive social gatherings (Díaz-del-Río 2001, 246–50; 2006, 73).

ANALYTICAL METHODS

Our main goal has been to assess the various explanations by examining a sample of the material evidence.

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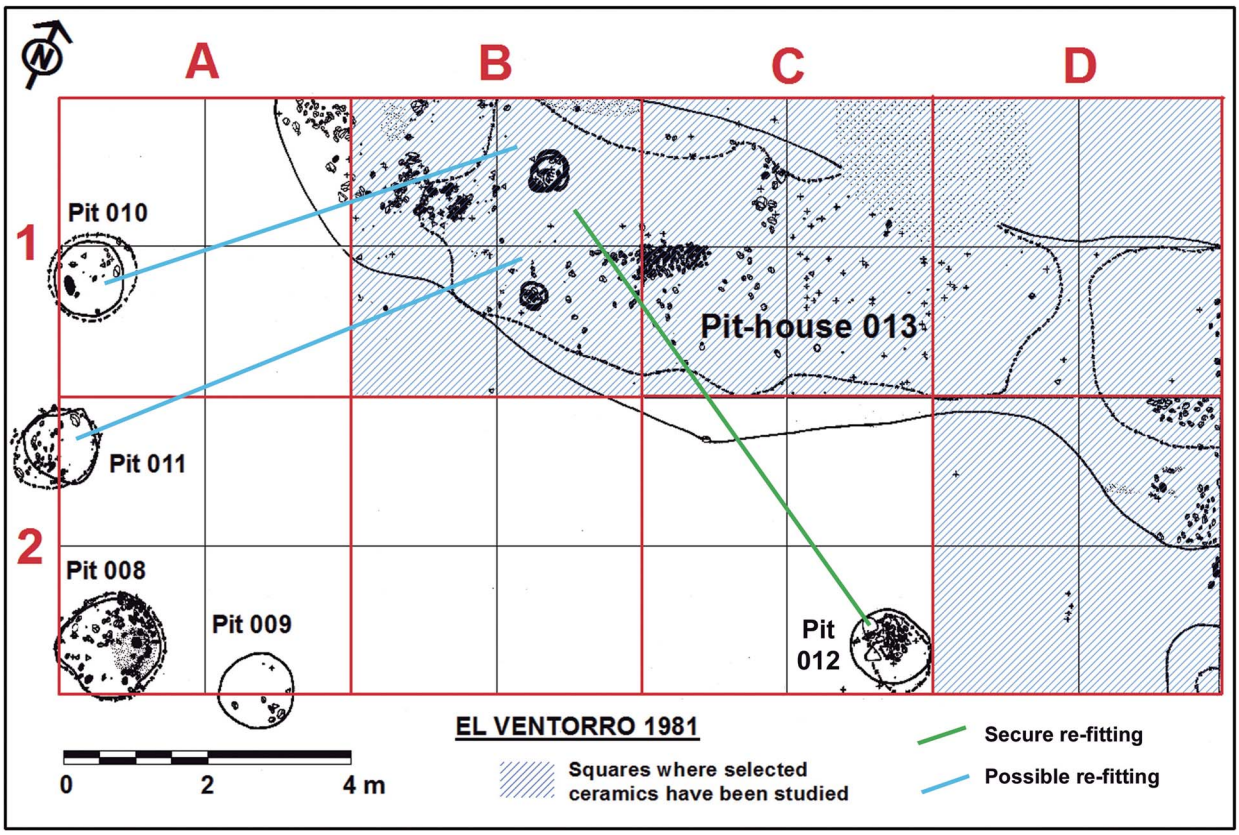

Fig. 2.
Sector excavated in 1981 at El Ventorro (after Priego & Quero 1992, 85, fig. 32)

Thus an analytical protocol has been designed, inspired by recent attempts to deal with the depositional histories of ceramics (Garrow *et al.* 2005; Brudenell & Cooper 2008; Edwards 2009; 2012; Beadsmoore *et al.* 2010; Wolfram 2013). This has been directed to shed new light upon overarching issues such as the composition, origin, timing, and degree of intentionality of such deposits; the representation, dispersion or loss of parts of the same vessels, or the trajectories undergone by sherds after their break and the time elapsed before being deposited into the cut features. The huge number of potsherds found in 1981 – over 36,500 items – made it necessary to choose a representative ceramic sample which could be studied using intensive methods of analysis and recording. Thus, our efforts focused exclusively on feature sherds – decorated sherds, rims, carinations, bases, and handles – recovered within Pits 008–012 and in squares B-1, C-1, D-1, and D-2 for the area of the 'Pithouse 013' (Fig. 2). To explore the results of our assessment, the simple sherd count proved an unreliable indicator of relative frequency, being a variable too dependent on the mechanical properties of the ceramics and their patterns of breakage. The combination of attributes is a much more robust method. Thus, we chose the surface of the sherds expressed in square centimetres and their weight in grammes as the two attributes that best defined their size (eg, Solheim 1960; Chase 1985, 218; Byrd & Owens Jr 1997, 315–7).

A scheme using four categories with predefined thresholds was chosen (Table 1). A cardboard template with cut openings allowed us to sort out the ceramics easily and accurately. In response to different patterns of breaking the pieces, two alternative formats for each size were contemplated: a square (Table 1, cell A) and another rectangular cell (Table 1, cell B), both representing the same surface area. The weight of every sherd was measured with a small electronic scale.

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Secondly, the preservation condition of ceramics is a very informative variable on the vicissitudes experienced before entering the archaeological record (eg, Bradley & Fulford 1980; Schiffer & Skibo 1989; Sørensen 1996, 67–70; Buko 1998, 399–403; Edwards 2009, 147–59; 2012, 86–9; Beadsmoore *et al.* 2010, 125–9; Wolfram 2013, 82–6, tab. 1; Sánchez-Polo & Blanco-González 2014: 14–16, tab. 2). The basic principles of this approach are that the current state of the fragments provides information about attritional processes (Schiffer & Skibo 1989, 101) and that it is possible to differentiate between pre- and post-depositional alterations. The resistance to such changes depends on the hardness of the fabrics and the nature and intensity of the abrasion processes (Sørensen 1996, 67; Buko 1998, 402). There can always be exceptions but ceramic collections with homogeneous mechanical properties and made under similar firing conditions are subject to comparative evaluation. There is no a widely tested and agreed method for measuring erosion on potsherds. Sørensen (1996, 67) proposed three degrees of sherd abrasion – low, medium, and high (Sørensen 1996, 65, fig. 41). Buko (1998, 400, fig. 13) working on wheel-thrown medieval ceramics, and Edwards (2009, 148; 2012, 88, fig. 7.11), working on hand-made pottery, proposed an ordinal scale for all sherds. It is this ordinal scale that is used here (Table 2). The unit of analysis has been the individual potsherd, and the scheme includes four classes defined by the condition of surfaces (unpatinated or dull) and the degree of wear on the edges and corners (sharp or rounded and blunt) of each piece (Fig. 3). The variables of area, weight and erosion of all pieces were recorded in a database.

Finally an exhaustive and massive re-fitting operation was carried out in order to identify prospective connections between sherds pertaining to the same vessels (cf. Sørensen 1996; Garrow *et al.* 2005; Mercer & Healy 2008, 753–5; Beadsmoore *et al.* 2010; Edwards 2009; 2012). This procedure was repeated systematically looking for cross-mendings between sherds within the same context – vertical or intra-feature matches – and between pieces from different contexts – horizontal or inter-feature refits. The cases of uncertain or non-adjoining sherds, lacking direct matching but probably from a common pot, were also considered as positive results (Bollong 1994, 17–8, tab. 1; Beadsmore *et al.* 2010, 126). In order to assess the likelihood of these sherd-to-vessel associations, a scoring template was used to express such relevant observations in terms of inter-sherd matching probability (Blanco-González & Chapman 2014).

All in all, the above tasks demanded the spreading of the whole pottery assemblage across large tables and on the floor of the two rooms kindly provided by the Museum of San Isidro in Madrid (Fig. 4). The ceramics from each context were kept in independent areas, near their labels, and each set was delimited with coloured tape (Fig. 4). The analysis involved three people for 15 days, spending about 300 person-hours of actual work.

TABLE 1: CERAMIC SIZE CATEGORIES EXPRESSED IN AREAL UNITS (cm^2)

Category	*Area (in cm^2)*	*Cell A (in cm)*	*Cell B (in cm)*
1	<6.25	2.5 × 2.5	
2	6.25–12.5	3.5 × 3.5	3 × 4.5
3	12.5–66.5	8.2 × 8.2	7 × 9.5
4	>66.5		

THE CERAMIC ASSEMBLAGE

Out of 36,578 potsherds retrieved in 1981 (Priego & Quero 1992, 90–110), 3837 ceramic fragments have been studied, representing 10.5% of the total assemblage from this sector (Table 3). The bulk of the sample – 3296 sherds – was found within 'Pithouse 013' and represent 10% of the ceramics from this depositional context, whereas between 9% and 20.5% of the ceramic contents from the annexed

TABLE 2: TYPES FOR ASSESSING THE ABRASION OF SHERDS

Grade	*Condition*	*Breaks and corners*	*Condition of surfaces*
1	Not abraded	Sharp & rough aspect	Both surfaces fresh & unpatinated
2	Isolated erosion	Freshly' broken aspect, local alteration	Only one surface locally alterated
3	Generalised abrasion	Smoothly rounded	Both surfaces slightly patinated
4	Highly worn	Dull, blunt, rounded corners	Substantial loss of surfaces, core appearance

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Fig. 3.
Examples of Beaker sherds for every abrasion category: 1A & 1B) Grade 1, 'freshly' broken; 2A & 2B) Grade 2, local abrasion; 3A & 3B) Grade 3, slight but generalised abrasion and 4A & 4B) Grade 4, highly abraded. (Scales in cm)

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Fig. 4.
Assessment of the selected assemblage from El Ventorro 1981 in Museum of San Isidro (Madrid)

pits were analysed (Table 3). The majority of studied potsherds (84%) are medium or large in size (size groups 2 and 3) (Table 1), and 13% of them are small (group 1) with only 3% of cases over 66.5 cm^2 (group 4) (Table 4). Most of the larger sherds – with a relatively short delay between their breakage and deposition – were recovered in 'Pithouse 013', but smaller proportions also appeared in the pits (Fig. 5). Regarding their preservation condition (Table 2), 'freshly' broken pottery with little or no sign of weathering (abrasion grade 1) dominates with 60% of the sample, while a third of the total sample exhibits partial and local attritional alterations (grade 2) and the most intensely eroded (grades 3 and 4) represent only 7% (Table 4). The pits contained mostly well-preserved potsherds (grade 1), with a weak presence of items classified in grade 2 and almost total absence of the most worn cases (grades 3 and 4) (Table 4 and Fig. 6). Ceramics with partial attritional marks (grade 2) and more intensely eroded pieces (grades 3 and 4) are best represented in 'Pithouse 013' (Fig. 6). A Kruskal-Wallis H-test helped us to assess the differences between the values of size (chi square = 5.0, p value = 0.416) and erosion (chi square = 3.143, p value = 0.370) between the studied ceramic samples from each feature. Such contrasts are not statistically significant, ie, these ceramic subsets are not dissimilar enough to say that they come from different populations. The important conclusion is that they were subjected to similar processes of fragmentation and attrition.

It has been argued that the longer the history of disturbance and alteration, the smaller the potsherds (Bradley & Fulford 1980, 86; Buko 1998, 402). Thus, the possible association between the size of sherds and their abrasion (Table 5) has been evaluated by the Kendall-Tau B test (Edwards 2009, 355–8; 2012, 88–9), offering a negative result close to 0 ($\tau = -0.032$ and p value = 0.033). This means that the two variables are not related, namely that the smaller fragments are not the worst preserved, and hence both post-breakage and pre-depositional dynamics were relatively independent.

The re-fitting operation (Table 6) has yielded 310 sherd-to-vessel associations comprising 730 potsherds, involving 2–11 sherds per refit; 39 of these cases are physically matching sherds, and the remainder are possible matches lacking a direct refit. According to our scoring template for non-adjoining sherds (Blanco-González & Chapman 2014), these cases feature medium–high probability re-fits (75–90%). Regarding the type of refit, 96% of these connections are intra-feature refits, linking sherds within the same depositional context – the vast majority within 'Pithouse 013' (Table 6, Fig. 2). Some inter-feature or horizontal connections have also been identified between Pits 010, 011, 012, and 'Pithouse 013', although no refits have been traced between pits (Table 6; Fig. 2). Importantly 3107 items, representing 81% of the ceramic sample, are 'orphan sherds' without any local refit (Schiffer 1987, 298–302; Bollong 1994, 18, tab. 1; Chapman & Gaydarska 2007, 81).

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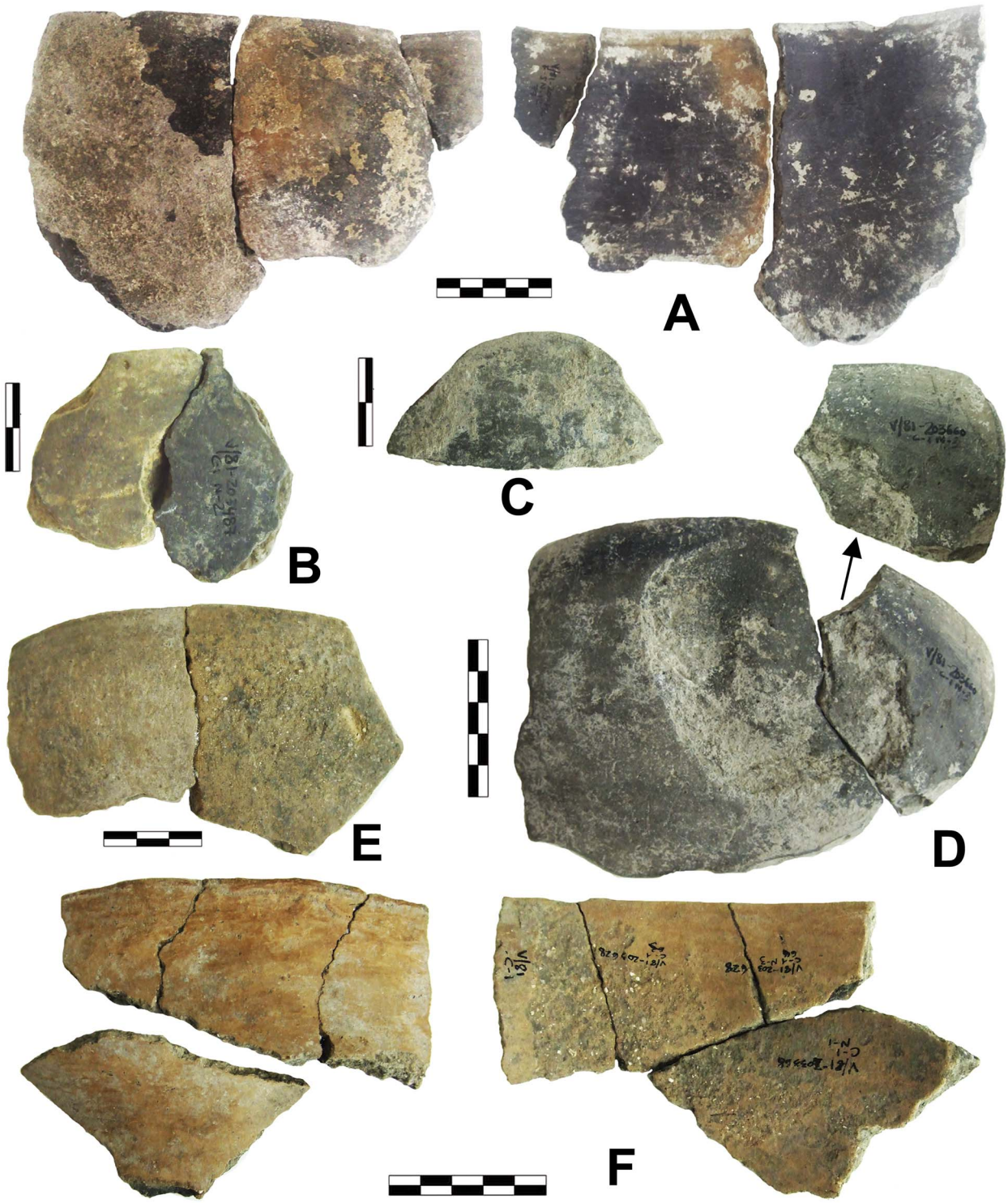

Fig. 5.
Examples of re-fits and sherds showing different taphomonic marks. (Scales in cm)

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TABLE 3: FREQUENCY AND PERCENTAGE OF CERAMICS

Feature	*No. sherds*	*Studied sherds*	*Weight (g)*	*No. Beaker sherds*	*St./ feature (%)*	*St./ 1981 (%)*
Pit 008	841	153	4280		18	0.41
Pit 009	166	15	535		9	0.04
Pit 010	379	60	2047		16	0.16
Pit 011	776	144	4952	5	18.5	0.39
Pit 012	821	169	4331		20.5	0.46
Pithouse 013	33,595	3296	61,251	106	10	9.01
Total 1981	36,578	3837	77,396	111		10.5

key: st./feature: percentage of sherds studied by feature; st./1981: the proportion of sherds studied in the whole 1981 assemblage

TABLE 4: NUMBER OF STUDIED SHERDS: SIZE (TYPES 1–4) AND ABRASION (GRADES 1–4) PER FEATURES

Feature	*No. st. sherds*	*Size 1*	*Size 2*	*Size 3*	*Size 4*	*Abr Gr1*	*Abr Gr2*	*Abr Gr3*	*Abr G4*
Pit 008	153	4	60	81	8	153	0	0	0
Pit 009	15	0	7	7	1	15	0	0	0
Pit 010	60	2	16	38	4	59	1	0	0
Pit 011	144	5	43	85	11	142	2	0	0
Pit 012	169	23	76	60	10	166	2	1	0
Pithouse 013	3296	465	1422	1343	66	1784	1252	222	38
Total	3837	499	1624	1614	100	2319	1257	223	38
%		13	42	42	3	60	33	6	1

Certain materials deserve further comments because of the clues they provide for characterising the depositional dynamics in operation in this case study. Thus, most of the taphonomic alterations were acquired when detached sherds were undergoing divergent post-breakage trajectories before their eventual deposition altogether within a common cut feature. One case in point concerns the different colours of three conjoining rim sherds from a bowl found in 'Pithouse 013' (Fig. 5A). A second concerns a pair of physically matching rim sherds with important lacunae between their breaks – proof of intensive attrition – and again exhibiting different colors (Fig. 5B). A third example is two rim sherds of a bowl with contrasting abrasion effects (grades 2 and 3) (Fig. 5E). The duration of this delay between the discard of ceramics and their deposition in the sunken features might have been prolonged. This occurrence is well illustrated by an initially large slab of a pot rim showing local traces of weathering on its inner surface (grade 2) and subsequent secondary shattering into four smaller sherds (Fig. 5F). A similarly long-lasting pre-depositional sequence can be tracked from two sherds from a hemispherical bowl (Fig. 5D), showing a large external chip prior to its breakage into two sherds, the smaller of them then ground and re-utilised. There are several examples of re-used sherds with intensively polished breaks (Fig. 5C), which inform us about the regular re-cycling of ceramic debris by those prehistoric communities.

The characteristics of the Bell Beaker assemblage is of the utmost importance, with over 180 potsherds found in the three last fieldwork seasons (1972, 1977, and 1981) representing 2.5% of the total ceramics found on this site (Priego & Quero 1992, 231). The 111 Beaker fragments from Pit 011 and 'Pithouse 013' feature a remarkable range of taphonomic variability (Table 3): 66% of them are of small and medium size (groups 1 and 2), while the remaining 34% is larger than 12.5 cm^2 (groups 3 and 4). Regarding their preservation condition, 74% are well preserved (grade 1) and a significant set, around 23%, lack a 'freshly' broken aspect (grade 2) (Fig. 3). We know that both erosion and size are uncorrelated variables and are to be considered as autonomous disturbance dynamics. The scores for the size and abrasion of the Beaker pottery subset have been compared to the rest of the sample by means of the chi square test to assess if their differences were statistically significant. The result (chi square = 56.0, p value = 0.229) confirms that Beaker fragments did not experience distinctive treatment or idiosyncratic conditions. All ceramic waste, whatever its decoration, shared similar post-breakage cycles and alterations before its deposition. Finally, a dozen very worn sherds, two of them from Pit 011 and the remainder from 'Pithouse 013', have been

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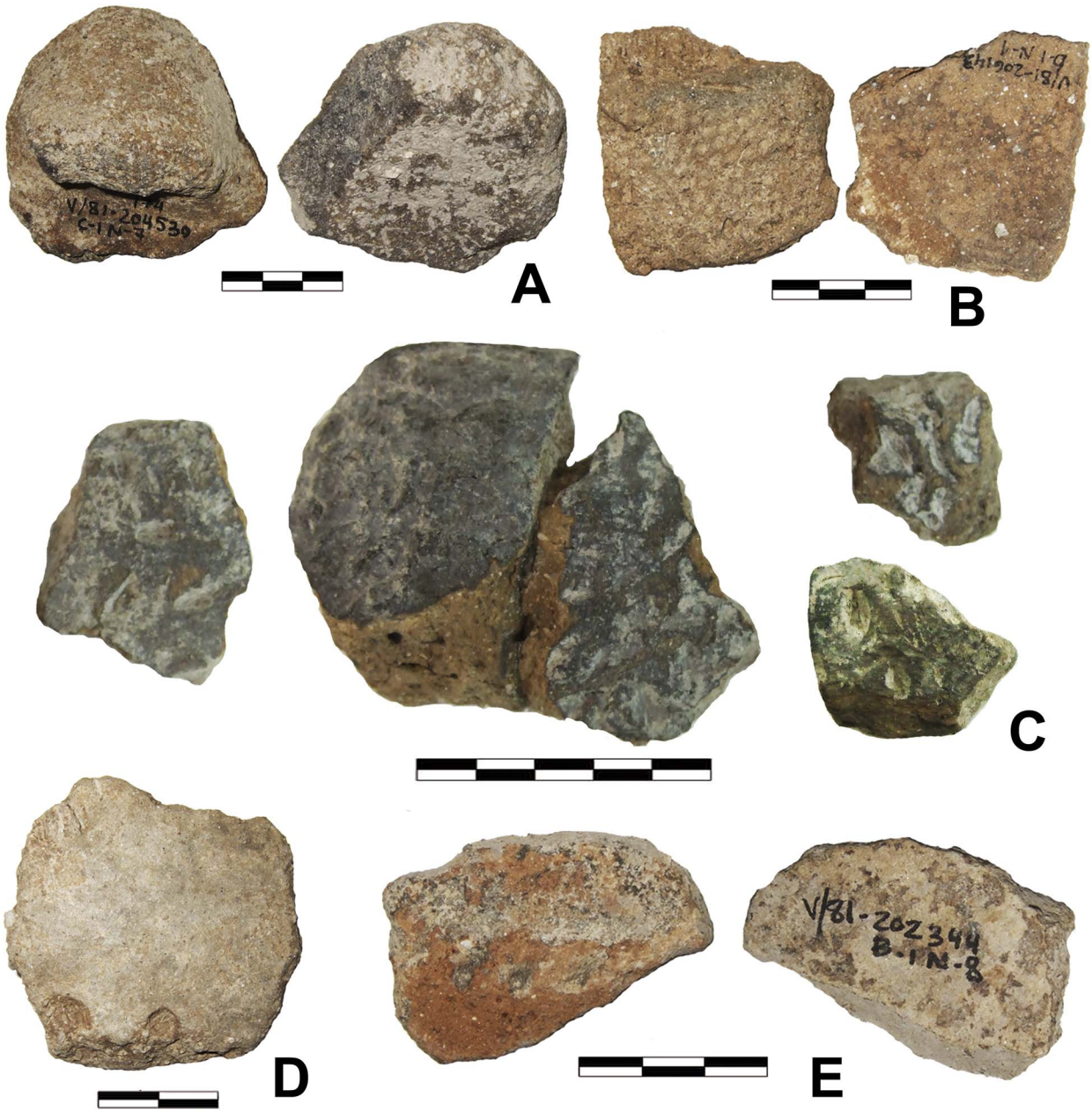

Fig. 6.
Heavily worn sherds of probable Neolithic date. (Scales in cm)

dated to the Neolithic because of their diagnostic form, such as a characteristic type of elongated-section handle (Fig. 6A), or decoration, including different impressed motifs (Fig. 6B & D), finger and nail impressions (Fig. 6C), and impressed applied protuberances (Fig. 6E).

DISCUSSION

Deposition in domestic structures and their subsidiary underground facilities is a relatively frequent later prehistoric scenario (eg, Domboróczki 2009; Bergin 2011; Wolfram 2013) and the excavators at El Ventorro

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TABLE 5: RELATIONSHIP BETWEEN THE VARIABLES OF SIZE AND ABRASION

	Size 1	*Size 2*	*Size 3*	*Size 4*	*TOTAL*
Abrasion 1	295	968	972	86	2319
Abrasion 2	166	546	534	10	1257
Abrasion 3	35	98	87	2	223
Abrasion 4	3	12	21	2	38
TOTAL	499	1624	1614	100	3837

TABLE 6: RE-FITTING OUTCOMES

	Pit 008	*Pit 009*	*Pit 010*	*Pit 011*	*Pit 012*	*Pithouse 013*
Pit 008	6 + **4**					
Pit 009		2				
Pit 010			**4**			1
Pit 011				7 + **3**		3
Pit 012					3 + **1**	6 + **1**
Pithouse 013						244 + **26**

The number of physical or secure refits are in bold and underlined, the remainder are possible non-adjoining refits

posited an interpretation centred on this key idea (Priego & Quero 1992). However, only recently, scholars have started paying adequate attention to the specific conditions to be met to support such a reading. All too often, such requirements are not fully considered and, in their absence, a series of fallacious principles are assumed, namely *reflectionist* prejudices (Chapman & Gaydarska 2007, 71–3) based on Schiffer's 'Pompeii premise' (Schiffer 1985; Jiménez Jáimez 2007; Lucas 2012, 102–4). This distorted misinterpretation has been widely applied to prehistoric European pit sites (Chapman 2000). According to this line of argument, the cut features, their fillings, and contents reflected pristine areas of activity with meaningful arrangements and associations faithfully frozen in time.

A brief overview on the local contexts of our case study might be useful to contextualise such statements. There are numerous examples of huts in the central Iberian Chalcolithic. They are highly variable structures in size (5–50 m^2) and construction techniques, with semi-sunken bottoms, shallow foundation trenches, stone foundations, and frequently roofing of perishable materials (eg, Díaz-del-Río 2001, 220–7; García Barrios 2005; Liesau *et al.* 2013, 141). Discussions of their domestic character have been imprisoned by the descriptive language, as the act of naming these structures constrains and orientates their archaeological interpretation (Hodder 1999, 94–5). Actual semi-sunken dwellings require a series of highly demanding conditions (eg, Bergin 2011) which are not always met by many archaeological cases. Thus, their interpretation as sub-soil domestic quarters has been convincingly refuted in other European regions (eg, Chapman 2000), and similar arguments have been used to refute such accounts for Chalcolithic examples from southern Iberia (Jiménez Jáimez 2007). Most of these suggestions are applicable to 'Pithouse 013'. Its inadequate technological requirements and limited living conditions – its irregular plan, the poor verticality of its walls, or the absence of external post-holes – discredit any ethnographic analogies with pithouses (*contra* Priego & Quero 1992, 357; 363). There is no clear-cut separation of the internal and external spaces, since the supposed building had no 'definite plan' (*ibid*., 102) and the morphology of the uneven and sloping layers with patches of refuse accumulations are inconsistent with true occupation 'soils' (Schiffer 1987; LaMotta & Schiffer 1999; Jiménez Jáimez 2007). On the other hand, the identified spatial arrangements inside 'Pithouse 013' also raise skepticism about their primary position (Díaz-del-Río 2001, 246). The presence of true soils would be incompatible with the identification of re-fitting sherds between layers 3 and 9, ie, linking the two alleged superimposed buildings (Table 6). We have studied the large potsherds lying flat on the ground surface regarded as the entrance of the 'upper building' (Priego & Quero 1992, 103–4; 123). Their low fragmentation state (size 3 is predominant) and fresh, unworn surfaces (grades 1 and 2) do not match the expected taphonomic conditions for items subjected to continuous trampling and friction in a transit zone such as an entrance.

The excavators of 'Pithouse 013' suggested the idea of 'a permanent dwelling, whose floor was regularly prepared and swept, throwing the refuse caused by everyday activity in nearby dumps' (Priego & Quero 1992, 118). Its contents were envisaged as a Pompeii-like circulating inventory of necessaries at a discrete time in the past, abandoned in its primary context of consumption and lacking formal disposal. According to this, two possible formation processes may be adopted to explain the items found within 'Pithouse 013': a) as primary 'loss' refuse or micro-refuse that escaped the cleaning activities and became trapped in the floor matrix (Schiffer 1987, 62; LaMotta & Schiffer 1999, 21; Tani 1995, 233–6) or b) as still usable objects from the abandonment phase left

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behind but not yet discarded – ie, *de facto* refuse (Schiffer 1987, 89–96; LaMotta & Schiffer 1999, 22). However, 86% of the ceramics from 'Pithouse 013' are over 6.25 cm^2 (sizes 2–4) (Table 4) and clearly cannot be regarded as primary micro-refuse. On the other hand, within the pits the ceramics exhibit an optimal preservation condition – grade 1 is predominant (Table 4) –, and some re-fits have been identified between 'Pithouse 013' and the pits (Table 6; Fig. 2), therefore linking their backfilling. These observations would fit the excavators' interpretive proposal, with rapid disposal of the broken vessels within the adjacent pits. Nonetheless, the number of 'orphan sherds' within the pits remains overwhelming (over 90%), indicating that only a minor portion of the discarded refuse ended up in these subsoil features. Indeed, the pits were filled with a very incomplete sample of sherds, that is, they do not contained representative turnover of everyday waste. The occurrence of vertical re-fits within every pit indicates the retrieval and incorporation of materials from the same provenance, most probably vessels broken not long before the filling of the pits.

It is worth mentioning a special subset of ceramics, comprising 1058 potsherds – representing 27.5% of the total sample – which are medium–large size (types 3 and 4), well preserved (abrasion grade 1) fragments (Table 4) deriving from serving bowls and cooking pots. They were retrieved at different depths within all features and 248 of them are involved in intra-feature refits. This pottery refuse may support Díaz-del-Río's proposal: vessels used in repeated commensality feasts, being subsequently broken and immediately discarded (Díaz-del-Río 2001, 249). Nonetheless, only a part of this group had been broken immediately before deposition, and we can question the relatively rapid filling of 'Pithouse 013' (*ibid*., 248–9). Indeed, our analysis has found polished and re-utilised sherds, perhaps used as lids (?) (Fig. 5C & D) that suggest prolonged life-uses after their break (Chapman & Gaydarska 2007): the retrieval, handling, and recycling of discarded and even already altered – probably thermally damaged – ceramics (Fig. 5D). The re-use of potsherds in many different ways is well documented ethno-archaeologically (Stanislawski 1978; Chapman & Gaydarska 2007, 75). Their grinding down for subsequent use as grog temper is very likely, as shown by the results of the petrographic analyses of Beakers from Camino de las Yeseras (San Fernando de Henares, Madrid) (Ríos *et al.* 2011, 338), and this might partially account for the absence of more conjoining 'freshly' broken sherds. Moreover, taphonomic traces indicate that 46% of the potsherds exhibit some degree of wear (grades 2–4) (Table 4) and some re-fitting sherds show differences in their condition which are only understandable if we accept a prolonged interval between their initial breakage and final deposition (Fig. 5).

Importantly, these remarks are also applicable to the Bell Beaker assemblage. The 111 Beaker fragments from Pit 011 and 'Pithouse 013' belonged to at least 18 beakers and 21 bowls for individual drinking and nine carinated bowls for containing solid foodstuffs (Rojo *et al.* 2006, 258–9). Their taphonomic heterogeneity and highly incomplete representation prevent us from accepting that all of them were contemporary vessels broken *in situ*. Quero & Priego (1992, 104) already observed that parts from the same Beakers 'have been glued despite having different degrees of erosion and surfaces of contrasting colours'. In fact, 67% of the Beaker fragments are small or medium-sized (groups 1 and 2) and 23% have been classified in grade 2 of abrasion, indicating that they might have been discarded in some sort of provisional discard contexts (LaMotta & Schiffer 1999, 21–2) where they were partially worn or burnt (cf. Garrow *et al.* 2005, 148–51; Brudenell & Cooper 2008, 22–4; Beadsmoore *et al.* 2010, 125). There is some new evidence supporting such occurrences. For example, an unusual rich assemblage of Beaker potsherds has been retrieved in 'hut 2' at Camino de las Yeseras causewayed enclosure, 20 km from El Ventorro (Liesau *et al.* 2008). Their worn condition suggests their extraction from elsewhere and their eventual re-deposition in a domestic context (Liesau *et al.* 2013, 143; 147). In short, all the studied ceramics underwent similar degradation dynamics: some were piled up outdoors, in heaps or shallow middens, where they experienced weathering without being trampled or broken into new sherds; others had just recently fractured before being interred (Tables 4 and 5). Thus, at this stage of their 'biographies', Bell Beaker wares did not receive any special treatment – they were managed and disposed of in the same way as other plain ceramics. This is a novel and relevant finding based on thorough comparisons with a large sample of plain sherds. Regarding the Neolithic materials, their residual occurrence in Chalcolithic contexts is not surprising: the Manzanares riverbank was intensely occupied in previous times and some 4 km upstream are several Neolithic sites on the same right bank. It is possible that the later groups

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collected Neolithic sherds as 'heirlooms' and brought them to El Ventorro.

All in all, the foregoing observations are not fully consistent with the interpretive proposals put forward so far for this site. In view of the evidence presented here, one of the chief ideas that emerge from our analysis is the important bias of the studied assemblage, which does not constitute a coherent and meaningful unit *per se*. The selected ceramics from the 1981 excavation have little to do with the living or systemic average domestic repertoire of a household at that time. But nor do these items constitute a kind of remains 'abandoned *in situ*, without later cleanings nor excessive shuffle distorting their original arrangement' (Díaz-del-Río 2001, 247). Some materials were transferred and there are no secure patternings in primary position. The analysed collection seems a rather arbitrary and heterogeneous aggregate – ie, one whose spatial associations are not significant from a functional point of view (Lucas 2012, 193–8). It was made up of juxtaposed secondary refuse (Bradley & Fulford 1980, 90; Tani 1995, 237–8), resulting from various activities, with a wide variability in their origins, timing and trajectories of use and disposal.

These findings open up new interpretive possibilities which require careful re-examination in further later prehistoric contexts. In particular, this case study presents striking similarities with other Neolithic enclosures (Thomas 1999, 38–45; Mercer & Healy 2008; Beadsmoore *et al.* 2010). Thus, most of the vessels appear in a very incomplete and fragmentary state, with only sporadic re-fitting and the vast majority (81%) of sherds are 'orphan fragments', making their *in situ* breakage unlikely. It is therefore a very partial outcome, the unintended by-product of complex natural and anthropogenic accretion and depletion processes (Schiffer 1987; LaMotta & Schiffer 1999). A portion of the items interred in the cut features might have resulted from feasting episodes performed in their vicinity. Some large ceramic slabs might have been thrown into various receptacles mixed with long-lasting discarded refuse. The latter might have been retrieved from transient contexts where the sherds were recycled and subjected to variable post-breakage and pre-depositional life cycles (Garrow *et al.* 2005, 148–50; Chapman & Gaydarska 2007, 75–7; Brudenell & Cooper 2008, 30–3; Beadsmoore *et al.* 2010, 125; 129–30, fig. 12). It is difficult to define precisely the depositional dynamics responsible for the archaeological image presented here, but it may lie somewhere in the middle of a continuous spectrum of variation (Brudenell & Cooper 2008, 30; Lamdin-Whymark 2008, 175; Garrow 2012, 94; Lucas 2012, 123). The characterisation proposed here may be akin to the concept of a 'cumulative palimpsest' (Bailey 2007, 204–5; Lucas 2012, 112–23).

Finally, 'Pithouse 013' has been regarded as 'the largest accumulation of refuse documented to date throughout the Iberian Meseta' (Díaz-del-Río 2001, 246). We must add that this image was part of a bigger picture of which our visibility has been constrained by: a) the depositional cycle, since only a minority of sherds has survived or was deposited in the same spot, and b) the scale of the rescue excavations, which revealed only part of what was probably a monumental ditch (Fig. 1C). The remarkable number of vertical re-fittings within this context (Table 6) mainly involving slightly eroded sherds (grade 2) from the upper and lower layers, points to a prolonged process of backfilling in successive depositional episodes and the inclusion of materials curated or abandoned in its surroundings. On the other hand, we can be confident that at least Pits 010, 011, and 012 and feature 013 were open at the same time and were filled using sediments and cultural debris from the same source, as shown by the horizontal re-fittings (Fig. 2). The well-preserved condition of the adjoining ceramics between the pits and 'Pithouse 013' allow us to relate their filling with the use, breakage, and partial deposition of several serving vessels. Thus, the refitting operation confirms the coeval closure of the large ditch and several of the shafts, as well as a relatively independent filling of every pit, but employing shared materials with 'Pithouse 013'.

The striking resemblances between 'Pithouse 013' and another residue-rich Chalcolithic ditch excavated at Las Pozas (Zamora) (Fig. 1A) in 1979 and 1987 (Val Recio 1992) have already been raised (Díaz-del-Río 2001, 237; 249). This parallel is even more appropriate now, since the use of remote sensing techniques – infra-red images edited with GIS tools (García García 2013) – has revealed the true nature of Las Pozas as a double causewayed enclosure. The occurrence of unusual accumulations of Beaker sherds – some of them abraded – at Camino de las Yeseras (Fig. 1A), another nearby ditched enclosure (Liesau *et al.* 2008; 2013), has also been highlighted here (*vide supra*). As in many regions of Atlantic and Mediterranean Europe, inner Iberia is rich in such monumental features, with over 50 of them known to date (eg, Díaz-del-Río 2004; Delibes de Castro *et al.* 2010). Indeed, El Ventorro and more recently excavated

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examples (Díaz-del-Río 2004; Liesau *et al.* 2008; Delibes de Castro *et al.* 2010) share features with other ditch-digging traditions elsewhere in Europe (eg, Thomas 1999, 38–45; Darvill & Thomas 2001; Varndell & Topping 2002) such as their location on rounded locally prominent hills in lowland settings (Fig. 1C) and especially their filling with 'domestic' debris and deposits that stood out in terms of their quality or quantity.

In short, there is scope for interpreting El Ventorro as a place for gatherings surrounded by at least one ditch segment, only partially excavated and whose sketch plan can be extrapolated (Fig 1C). Its digging and backfilling would have entailed the movement of huge quantities of sediment, involving large numbers of people. The depositional histories tracked in the ceramic analysis of the fill of 'Pithouse 013' can be clearly understood from this standpoint as a cumulative aggregate or palimpsest containing time-averaged residues (Lucas 2012, 106–9), created by seasonal, small-scale, and intermittent social gatherings of dispersed groups (Díaz-del-Río 2001, 249; 2004; Mercer & Healy 2008, 755; Beadsmoore *et al.* 2010, 129). During such festive commensal episodes, people would have interacted, consumed foodstuff, and interchanged animals, items, or know-how in different crafts through hands-on training. Especially at El Ventorro, the role played by copper metallurgy in these gatherings was important (Harrison *et al.* 1975; Priego & Quero 1992). The participants also broke a remarkable quantity of vessels, including Bell Beakers, and disposed of them in a range of standardised ways. The performance of such iterative and protracted depositional practices on the same spot may account for the evidence examined here. It represents the unplanned outcome of a prolonged cultural tradition consisting of the digging and closure of ditch segments and pits, taking its meaning through its very repetition (Lucas 2012, 108).

CONCLUDING REMARKS

This article has presented a hands-on experience addressing object-oriented taphonomy as an underexploited approach whose potential has not yet been realised. Despite the widespread deployment of ceramic re-fitting and the emerging importance of ceramic taphonomy in the Anglo-American milieu, available contributions lack adequate discussion of their methods, which are often implicit or understated. An integral procedure has been exhaustively presented here, and the validity and prospects of our analytical strategy has been tested with a remarkable ceramic assemblage. Despite the limitations of being an old excavated collection, retrieved in the infancy of rescue archaeology, important insights have been gained.

The initial account of El Ventorro suggested that it was a permanent and open settlement 'without ramparts or ditches' (Priego & Quero 1992, 357). The combination of Bell Beaker and massive earthworks at El Ventorro made this case study worth of careful re-examination, to spotlight and discuss widespread concerns and interpretive models in later prehistoric Europe. Thus, the analysis of the patterns of rupture, abrasion and representation of ceramics has led to the rejection of the 'domestic' interpretation of 'Pithouse 013' and the refutation of the *primary* character of its ceramic contents, which are not representative of everyday work. We propose an alternative scenario: a place bounded by at least one ditch, whose filling required seasonal and intermittent activity, through a cumulative and gradual pace at the same time as the adjoining pits were backfilled, using a heterogeneous and chaotic aggregate of debris. Just as some vessels were used in community feasts, only a small portion was incorporated into the pits and ditch immediately after their breakage. Others were erratic residues accruing over long trajectories, including Bell Beaker and Neolithic sherds as well as the remnants of previous activities not necessarily linked, either spatially or temporally, with such depositional episodes. A better characterisation of the depositional dynamics responsible for the documented evidence has been achieved. Moreover, these observations, gained via the highly detailed examination of a massive and heterogeneous collection of ceramics, have opened up new interpretive avenues dealing with pan-European later prehistoric phenomena such as the role and meaning of Bell Beakers and the formation of Neolithic ditched enclosures.

Endnote

[1]The excavators envisaged this assemblage of sherds as an actual man-made surface, a 'floor' made of large sherds. They were not meaning a deposit, a layer or a stratum; they interpreted this assemblage as an arranged surface (the inner surface of a dwelling structure = an original soil).

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BIBLIOGRAPHY

Bailey, G. 2007. Time perspectives, palimpsests and the archaeology of time. *Journal of Anthropological Archaeology* 26, 198–223

Beadsmoore, E., Garrow, D. & Knight, M. 2010. Re-fitting Etton: space, time and material culture within a causewayed enclosure in Cambridgeshire. *Proceedings of the Prehistoric Society* 76, 115–34

Bergin, S. 2011. Tracing floors and fills in Early Neolithic Pithouses: an example from the excavation of Ayn Abū Nukhayla, Southern Jordan. In N.J. Conard, R.H. Meadow, A. Morales & P. Drechsler (eds), *Between Sand and Sea. The Archaeology and Human Ecology of Southwestern Asia*, 91–112. Tübingen: Kerns Verlag

Blanco-González, A. & Chapman, J. 2014. A new method for identifying sherd refits: a case study from the Neolithic of Northumbria, UK. *Journal of Field Archaeology* 39(3), 248–55

Bollong, C.A. 1994. Analysis of the stratigraphy and formation processes using patterns of pottery sherd dispersion. *Journal of Field Archaeology* 21(1), 15–28

Bradley, R. & Fulford, M. 1980. Sherd size in the analysis of occupation debris. *Bulletin of the Institute of Archaeology* 17, 85–94

Brudenell, M. & Cooper, A. 2008. Post-middenism. Depositional histories on Later Bronze Age settlements at Broom, Bedfordshire. *Oxford Journal of Archaeology* 27(1), 15–36

Buko, A. 1998. Pottery, potsherds and the archaeologist: an approach to pottery analyses. In W. Hensel, S. Tabaczyński & P. Urbańczyk (eds), *Theory and Practice, of Archaeological Research*, 381–408. Warsaw: Institute of Archaeology and Ethnology

Byrd, J.E. & Owens Jr, D.D. 1997. A method for measuring relative abundance of fragmented archaeological ceramics. *Journal of Field Archaeology* 24(3), 315–20

Chapman, J. 2000. Pit-digging and structured deposition in the Neolithic and Copper Age of Central and Eastern Europe. *Proceedings of the Prehistoric Society* 61, 51–67

Chapman, J. & Gaydarska, B. 2007. *Parts and Wholes. Fragmentation in Prehistoric Context*. Oxford: Oxbow

Chase, P. 1985. Whole vessels and sherds: an experimental investigation of their quantitative relationships. *Journal of Field Archaeology* 12(2), 213–18

Darvill, T. & Thomas, J.S. 2001. *Neolithic Enclosures in Atlantic Northwest Europe*. Oxford: Oxbow

Delibes de Castro, G., Crespo Díez, M., Fernández Manzano, J., Herrán Martínez, J.I. & Rodríguez Marcos, J.A. 2010. Un recinto de fosos calcolítico en el valle medio del Duero: el Casetón de la Era (Villalba de los Alcores, Valladolid). *Actas de las IV Jornadas sobre Patrimonio Arqueológico de la Comunidad de Madrid*, 239–47. Madrid: Comunidad de Madrid

Díaz-del-Río, P. 2001. *La formación del paisaje agrario: Madrid en el III y II milenios* BC. Madrid: Comunidad de Madrid

Díaz-del-Río, P. 2004. Copper Age ditched enclosures in Central Iberia. *Oxford Journal of Archaeology* 23(2), 107–21

Díaz-del-Río, P. 2006. An appraisal of social inequalities in Central Iberia (c. 5300–1600 cal BC). In P. Díaz-del-Río & L. García San Juan (eds), *Social Inequality in Iberian Late Prehistory, 67–79*. Oxford: British Archaeological Report S1525

Domboróczki, L. 2009. Settlement structures of the Alfold Linear Pottery Culture (ALPC) in Heves County (North-Eastern Hungary): development models and historical reconstructions on micro, meso and macro levels. In J.K. Kozlowski (ed.), *Interactions Between Different Models of Neolithization North of the Central European Agro-Ecological Barrier*, 75–127. Krakow: Polska Akademia Umiejętnósci

Edwards, B. 2009. *Pits and the Architecture of Deposition. Narratives of Social Practice in the Neolithic of North-East England*. Unpublished PhD dissertation. Durham: University of Durham.

Edwards, B. 2012. Social structures: pits and depositional practice in Neolithic Northumberland. In H. Anderson-Whymark & J. Thomas (eds), *Regional Perspectives on Neolithic Pit Deposition: Beyond the Mundane*, 77–99. Oxford: Oxbow

García Barrios, A.S. 2005. El espacio doméstico en la Prehistoria Reciente de la Meseta: el testimonio de las cabañas de la Edad del Cobre en el Valle Medio del Duero. *Lancia* 6, 59–75

García García, M. 2013. Las Pozas (Casaseca de las Chanas, Zamora): dos nuevos recintos de fosos calcolíticos en el Valle del Duero. *Trabajos de Prehistoria* 70(1), 175–84

Garrido-Pena 1997. Bell Beakers in the Southern Meseta of the Iberian Peninsula: socioeconomic context and new data. *Oxford Journal of Archaeology* 16(2), 187–209

Garrido-Pena, R. 2000. *El Campaniforme en la Meseta Central de la Península Ibérica (c. 2500–2000 a.C.)*. Oxford: British Archaeological Report S892

Garrow, D. 2012. Odd deposits and average practice: a critical history of the concept of structured deposition. *Archaeological Dialogues* 19(2), 85–115

Garrow, D., Beadsmoore, E. & Knight, M. 2005. Pit clusters and the temporality of occupation: an Earlier Neolithic site at Kilverstone, Thetford, Nordfolk. *Proceedings of the Prehistoric Society* 71, 139–57

Harrison, R.J. 1977. *The Bell Beaker Cultures of Spain and Portugal*. Cambridge MA: Harvard University

Harrison, R.J. & Mederos, A. 2001. Bell Beakers and social complexity in Central Spain. In F. Nicolis (ed.), *Bell Beakers Today. Pottery, People, Culture, Symbols in Prehistoric Europe (Riva del Garda, 1998)*, 111–24. Trento: Provincia Autonoma di Trento

Harrison, R.J., Quero, S. & Priego, M.C. 1975. Beaker metallurgy in Spain. *Antiquity* 49, 273–80

Hodder, I. 1999. *The Archaeological Process*. Oxford: Blackwell

https://doi.org/10.1017/ppr.2014.10 Published online by Cambridge University Press

Jiménez Jáimez, V. 2007. La *Premisa Pompeya* y las cabañas semisubterráneas del sur de la Península Ibérica (IV–III milenios AC). *Mainake* 29, 475–92

Lamdin-Whymark, H. 2008. *The Residue of Ritualised Action: Neolithic Deposition Practices in the Middle Thames Valley*. Oxford: British Archaeological Report 466

LaMotta, V.M. & Schiffer, M.B. 1999. Formation processes of house floor assemblages. In P.M. Allison (ed.), *The Archaeology of Household Activities*, 19–29. London: Routledge

Liesau, C., Blasco, M.C., Ríos, P., Vega, J., Menduiña, R., Blanco, J.F., Baena, J., Herrera, T., Petri, A. & Gómez, J. L. 2008. Un espacio compartido por vivos y muertos: El poblado calcolítico de fosos de Camino de las Yeseras (San Fernando de Henares, Madrid). *Complutum* 18(1), 97–120

Liesau, C., Ríos, P., Aliaga, R., Daza, A., Llorente, L. & Blasco, M.C. 2013. Hut structures from the Bell Beaker horizon: housing, communal or funerary use in the Camino de las Yeseras site (Madrid). In M.P. Prieto & L. Salanova (coords.), *Current Researches on Bell Beakers. Proceedings of the 15th International Bell Beaker Conference: From Atlantic to Ural (May 2011, Poio, Pontevedra)*, 139–51. Santiago de Compostela: Galician ArchaeoPots

Lucas, G. 2012. *Understanding the Archaeological Record*. Cambridge: Cambridge University Press

Mercer, R. & Healy, F. 2008. *Hambledon Hill, Dorset, England. Excavation and Survey of a Neolithic Monument Complex and its Surrounding Landscape*. Swindon: English Heritage

Muñoz, K. 2002. The Tagus Middle Basin (Iberian Peninsula) from the Neolithic to the Iron Age (V–I Millennium cal. BC): The Long Way to Social Complexity. *Oxford Journal of Archaeology* 19(3), 241–72

Priego, M.C. & Quero, S. 1983. Actividades de la sección arqueológica del museo municipal durante 1982. *Estudios de Prehistoria y Arqueología Madrileñas* 2, 285–314

Priego, M.C. & Quero, S. 1992. *El Ventorro, un poblado prehistórico de los albores de la metalurgia*. Madrid: Ayuntamiento de Madrid, Estudios de Prehistoria y Arqueología Madrileñas 8

Quero, S. & Priego, M.C. 1975. Noticia sobre el poblado campaniforme de El Ventorro (Madrid). *Zephyrus* 26, 321–29

Ríos, P., García, R., Aliaga, R. & Blanco, J.F. 2011. La cerámica: caracterización y contenido. In M.C. Blasco, C. Liesau & P. Ríos (eds), *Yacimientos calcolíticos con campaniforme de la región de Madrid: nuevos estudios*, 319–46. Madrid: Universidad Autónoma de Madrid

Rojo, M.A., Garrido-Pena, R. & García, I. 2005. El Ventorro (Madrid). In M.A. Rojo, R. Garrido & I. Martínez (eds), *El Campaniforme en la Península Ibérica y su contexto europeo*, 525–33. Valladolid: Universidad de Valladolid

Rojo, M.A., Garrido-Pena, R., García, I., Juan-Tresserras, J. & Matamala, J.C. 2006. Beer and Bell Beakers: drinking rituals in Copper Age Inner Iberia. *Proceedings of the Prehistoric Society* 72, 243–65

Sánchez-Polo, A. & Blanco-González, A. 2014. Death, relics and the demise of huts: patterns of planned abandonment in Middle BA Central Iberia (Spain). *European Journal of Archaeology* 17(1), 4–26

Schiffer, M.B. 1985. Is there a 'Pompeii Premise' in archaeology? *Journal of Anthropological Research* 41(1), 18–41

Schiffer, M.B. 1987. *Formation Processes of the Archaeological Record*. Alburquerque, NM: New Mexico University Press

Schiffer, M.B. & Skibo, J.M. 1989. A provisional theory of ceramic abrasion. *American Anthropology* 91(1), 101–15

Solheim, W.G. 1960. The use of sherd weights and counts in the handling of archaeological data. *Current Anthropology* 1, 325–29

Sørensen, M.L.S. 1996. Pottery evidence for formation process in the Late Bronze Age deposits. In S. Needham & T. Spence (eds), *Refuse and Disposal at Area 16 East Runnymede* Vol. 2, 61–73. London: British Museum Press

Stanislawski, M. 1978. If pots were mortal. In R. Gould (ed.), *Explorations in Ethnoarchaeology*, 201–28. Alburquerque, NM: University of New Mexico Press

Tani, M. 1995. Beyond the identification of formation processes: behavioral inference based on traces left by cultural formation processes. *Journal of Archaeological Method and Theory* 2(3), 231–52

Thomas, J. 1999. *Understanding the Neolithic*. London: Routledge

Val Recio, J. 1992. El yacimiento calcolítico precampaniforme de Las Pozas en Casaseca de las Chanas (Zamora). *Boletín del Seminario de Estudios de Arte y Arqueología* 58, 47–62

Varndell, G. & Topping, P. (eds) 2002. *Enclosures in Neolithic Europe*. Oxford: Oxbow

Wolfram, S. 2013. Two sides of the coin: ceramic taphonomy and domestic space in the Linear Pottery settlements Hanau-Klein-Auheim and Eythra (Germany). In C. Hamon, P. Allard & M. Ilett (eds), *The Domestic Space in LBK Settlements*, 79–90. Rahden/Westf: Verlag Marie Leidorf GmbH

RÉSUMÉ

Revisite du site chalcolithique d' El Ventorro (Madrid, Espagne). réajustement de la céramique et taphonomie, d'Antonio Blanco-González *et* John Chapman

Fossés monumentaux et vases campaniformes sont deux phénomènes clés de l'Europe de la seconde partie de la préhistoire impliqués dans l'étude d'El Ventorro, près de Madrid. Dans cet article, nous discutons et développons un protocole analytique de caractérisation minutieuse des configurations de bris, abrasion et

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représentation des céramiques. Le procédé est testé sur un important échantillon de céramiques de `Pithouse 013',un contexte exceptionnellement riche qui remet en question les récits stéréotypés de sphère domestique, festins et déposition d'objets de prestige. Ce vestige enfoncé en terre était rempli d'un mélange hétérogène de restes récemment brisés et de résidus secondaires, et on le réinterprète ici comme un segment de fossé et non pas les surfaces d'une banale occupation fossilisée. L'article éclaire d'une nouvelle lumière les pratiques de déposition, les biographies sociales de la poterie campaniforme et le remblayage des enclos à fossés. Il nous permet aussi d'évaluer le potentiel de ce réajustement intégré et de cette stratégie taphonomique pour éclairer des aspects mal compris de la céramique dans une gamme de contextes espace-temps.

ZUSSAMENFASSUNG

Eine Neubewertung des chalkolithischen Fundplatzes El Ventorro (Madrid, Spanien). Keramische Anpassungen und Taphonomie, von Antonio Blanco-González und John Chapman

Monumentale Gräben und Glockenbecher sind zwei der wichtigsten Phänomene des jüngeren prähistorischen Europa, die für die Untersuchung von El Ventorro, nahe Madrid, eine Rolle spielen. In diesem Artikel diskutieren und entwickeln wir ein analytisches Protokoll für eine detaillierte Erfassung von keramischen Bruch-, Abrasions- und Erhaltungsmustern. Das Vorgehen wird anhand eines großen Ensembles an Keramik aus dem „Grubenhaus 013" getestet, ein ungewöhnlich fundreicher Kontext, der stereotype Vorstellungen in Frage stellt, welche die häusliche Sphäre, das Feiern von Festen und die Deponierung von Prestigegütern betreffen. Dieser eingetiefte Befund war mit einer heterogenen Mischung von frisch zerbrochenen Funden und sekundären Überresten verfüllt und wird hier neu interpretiert als ein Grubenabschnitt statt eines Hauses mit fossilisierten Oberflächen alltäglicher Nutzung. Der Beitrag wirft wichtiges neues Licht auf Deponierungspraktiken, auf die sozialen Biographien von Glockenbecherkeramik und die Verfüllung von Grabenwerken. Er ermöglicht auch eine Bewertung des Potentials einer solchen Strategie, die Keramikanpassungen und Taphonomie integriert um bislang kaum verstandene Aspekte von Keramik in einer Reihe verschiedener räumlich-zeitlicher Kontexte zu beleuchten.

RESUMEN

Revisitando el sitio calcolítico de El Ventorro (Madrid, España). Remontajes cerámicos y tafonomía, por Antonio Blanco-González y John Chapman

Los fosos monumentales y el campaniforme son dos de los fenómenos clave de la Prehistoria tardía en Europa implicados en el estudio de El Ventorro, cerca de Madrid. En este artículo, se discute y se desarrolla un protocolo analítico orientado a una meticulosa caracterización de los patrones de rotura, abrasión y representación de las cerámicas. El procedimiento se prueba con una gran muestra cerámica procedente del "fondo de cabaña 013", un contexto inusualmente rico que desafía los valores estereotipados de la esfera doméstica, los banquetes y la deposición de bienes de prestigio. Esta estructura socavada se rellenó con una mezcla heterogénea de restos fracturados y residuos secundarios, y se interpreta como un segmento de foso más que como superficies de ocupación cotidianas fosilizadas. Este artículo arroja importantes y nuevas interpretaciones sobre las prácticas deposicionales, las biografías sociales de la cerámica campaniforme y el relleno de los recintos de fosos. También permite evaluar el potencial de esta estrategia integrada de remontado y tafonomía para esclarecer aspectos poco conocidos de la cerámica en contextos espacio-temporales en deversos contextos.

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