

Khirbat Iskandar Tall, Tombs and Bāb Adh-Dhrā': A Multi-Dimensional Quantitative Approach

Introduction

In the recently published final report on the Early Bronze (EB) IV Area C settlement and cemeteries at the central plateau site of Khirbat Iskandar (Richard *et al.* 2010), the author and Paul Holdorf collaborated on a new quantitative ceramic analysis of three phases of stratified EB IV pottery from the site. Since the EB IV period is still known primarily by a corpus of tomb pottery and by regional typology, the study has the potential to provide a much-needed stratigraphic basis for chronological and typological studies. Moreover, besides being a quantitative ceramic study, it is one of the first – outside the Mādabā Plains network of sites with its shared classification system – to attempt a cross-cultural comparative study of two sites from different regions in Jordan utilizing the same quantitative classification system. That other site is in the southern Ghawr: Bāb adh-Dhrā'.

The multi-dimensional approach mentioned in the title refers to several areas of study investigated as a result of the quantitative three-phase typological ceramic study of the Area C 'gateway' corpus, the results of which allowed us to posit: (1) statistically derived high-probability diagnostics, (2) a correlation with and seriation of the EB IV tombs and (3) correlations with Bāb adh-Dhrā'. This paper will discuss in summary form the data and conclusions of these studies.

The Site

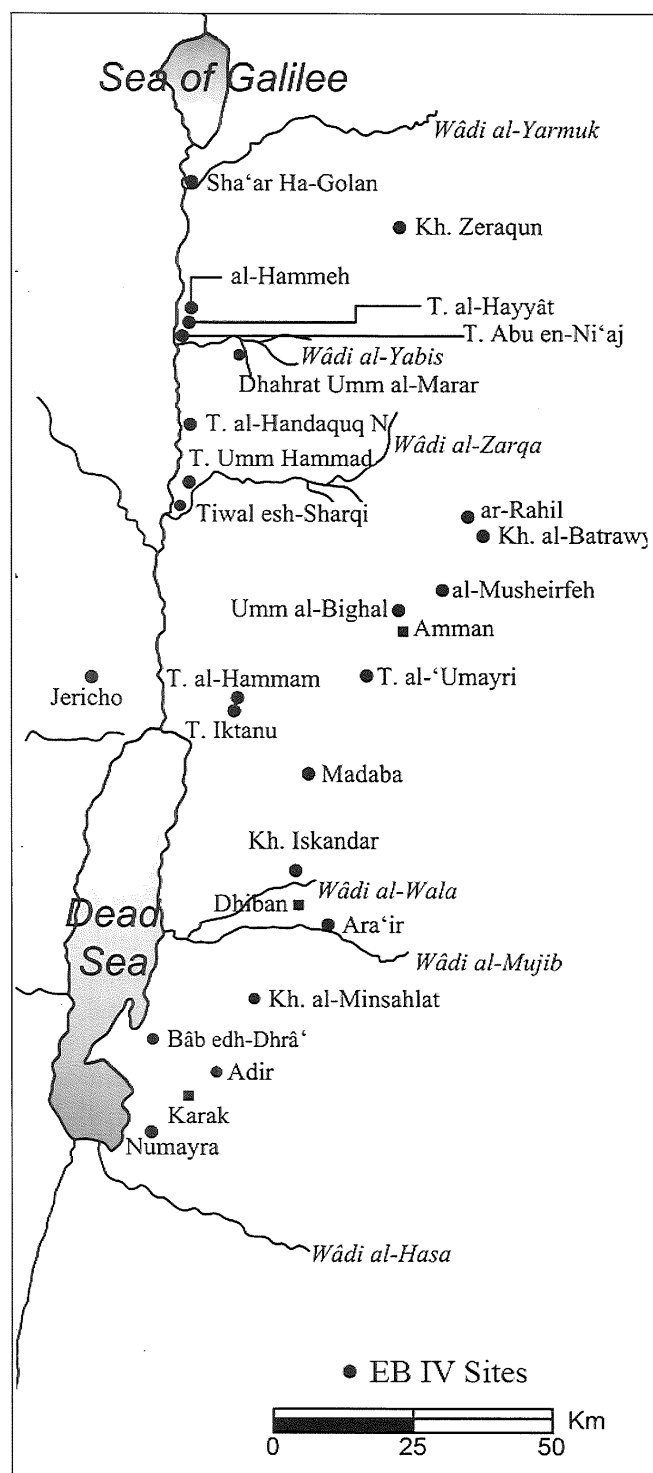
The Early Bronze Age site of Khirbat Iskandar is situated just south of Mādabā on the Kings' Highway (FIG. 1). As the topographic map shows (FIG. 2), there are three major excavation fields at the site (A, B and C). The nearby EB IV cemeteries (D, J and E) are respectively located south, west and east of the site. The three EB IV stratified phases

in Area C (FIG. 3) form the basis for the ceramic study. Phase 3, the upper phase, is the 'gateway'. Phase 2 below is domestic and includes a well-made broad-room house and courtyard. Below that, Phase 1 is also residential (see Long 2010 for details of excavated remains in Area C; for earlier reports see Richard and Boraas 1988; Richard 1990).

Background to the Study

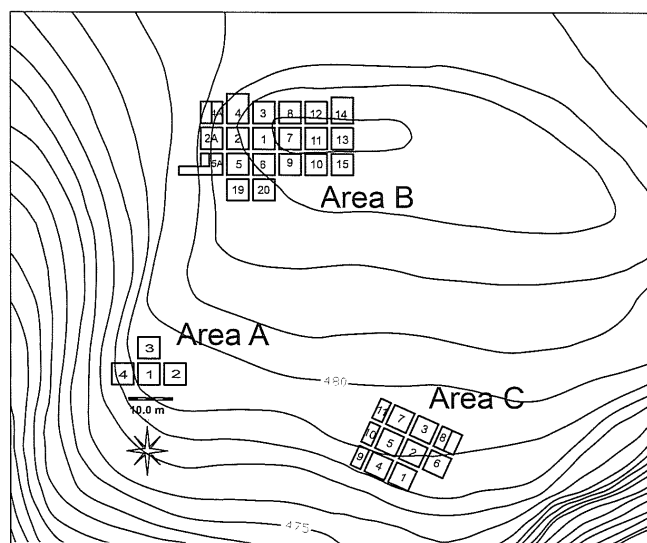
As anyone who has attempted a comparative quantitative ceramic study between sites is aware, there are (1) few publications with statistical data and (2) the effort to compare totally different typological systems is a frustrating endeavor. For a discussion of the difficulties of inter-assemblage and inter-regional ceramic studies in the Early Bronze Age, see Philip and Baird (2000) and Dessel and Joffe (2000). Having encountered such difficulties in numerous attempts to compare and correlate our quantitative typological system with that of Bāb adh-Dhrā', Paul Holdorf and I decided to jettison our classification and adopt the Bāb adh-Dhrā' system (Schaub and Rast 1989; Rast and Schaub 2003), with some modifications particular to the site of Khirbat Iskandar. The experience confirms the view that databases, data sharing and shared (quantitative) classification systems are crucial in order to grasp inter-regional relationships. We are indebted to Tom Schaub and the late Walt Rast for their collegial support in this endeavor.

The classification system, as detailed in the Bāb adh-Dhrā' volumes (Schaub and Rast 1989: 4-9; Rast and Schaub 2003: x-xii), essentially follows the objective form/size criteria developed by Anna Shepard (1968), with the addition of rim type and other variables to identify specific (EB IV) types. As an integral part of the typological classification, it also includes a ware study. Although our recently

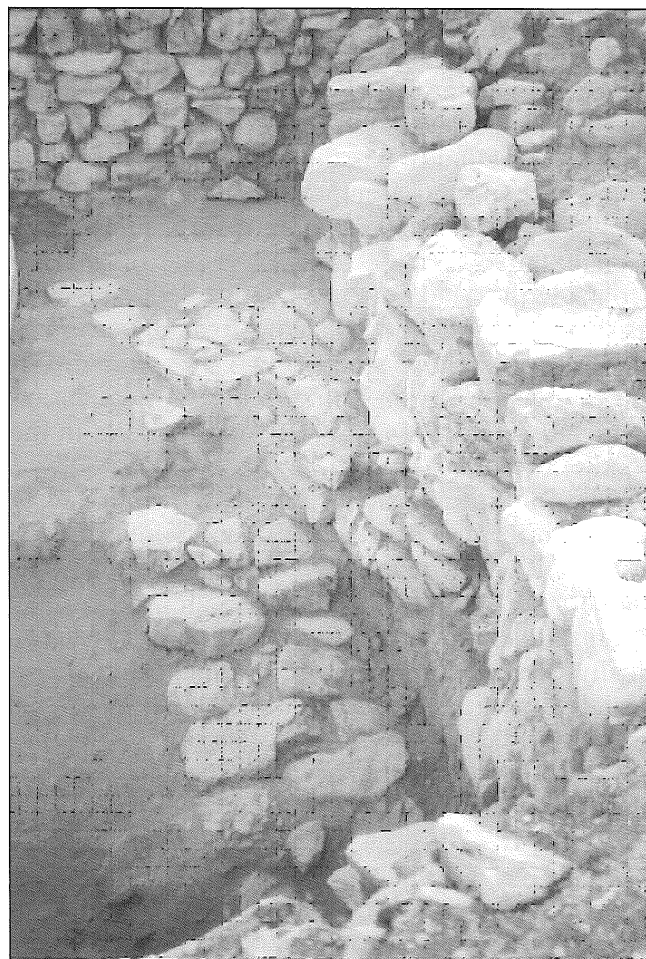


1. Map of Jordan showing EB IV sites.

published volume includes petrographic and ware studies, in future we likewise hope to merge the Khirbat Iskandar ceramic classification with ware studies. The Bâb adh-Dhrâ' and Khirbat Iskandar projects both limited their ceramic studies to primary and sealed loci.



2. Topographic map (Richard).



3. Area C, three phases (Richard).

History of the Problem

As is well known, there is much scholarly debate on the EB IV period, e.g. its terminology (EB IV

vs Intermediate Bronze Age), its relation with the Early Bronze Age (continuity vs break), the nature of the period (sedentary vs pastoral) and ceramic chronology (regional families vs settlement site phasing), to mention but a few. For a history of the problems associated with late third millennium BC studies, see Richard (2003). For the purposes of this paper, it is only the latter debate that concerns us. The most widely used classification framework has been and continues to be William Dever's chronological but overlapping regional family system (Dever 1971). The sub-division of the EB IV into geographical-cultural families (based primarily on tomb deposits) recognized and emphasized the regional nature of the period. The families comprise the following regions: Northern (N), North-Central (NC), Jericho/Jordan Valley (J), Southern (S), Central Hills (CH) and Coastal (C). Later, based on new information emerging from stratified settlement sites in Jordan, he added a Transjordan (TR) family (1973). Subsequently (1995), he noted the newly recognized 'Ammān-Zarqā' (A-Z) family (Palumbo and Peterman 1993), although he thought it overlapped with his TR category.

With the excavation of multi-phase EB IV settlements in the 1960s and 1970s, a new chapter opened in the study of the period and its pottery sequencing. Informing that study was the new evidence for EB IV sedentism recognized in Jordan at such sites as Iktānū (Prag 1974), Adir (Cleveland 1960), 'Arā'ir (Olavárrri 1969) and Bāb adh-Dhrā' (Rast and Schaub 1978), as well as earlier work at Khirbat Iskandar (Parr 1960). The mounting evidence for multiple phasing linked to ceramic change at EB IV settlement sites led to the first pioneering efforts at building a typo-chronology for the EB IV period, based primarily on stratified data, sometimes in combination with tomb groups (Dever 1973; Prag 1974; Richard 1980; Dever 1980).

Since then, excavation in Jordan especially has confirmed an important sedentary component, e.g. Tall al-Ḥayyāt (Falconer *et al.* 2006), Tall Abūan-Ni'āj (Falconer and Magness-Gardiner 1989), Tall Umm Ḥammād (Helms 1986), Dhahrat Umm al-Murrār (Falconer *et al.* 1998; 2007), Khirbat al-Batrāwī (Nigro 2006), Tall al-Ḥammām (Prag 1991; Collins *et al.* 2009), Rāḥīl and other Wādī al-Yābis sites (Palumbo *et al.* 1990), Khirbat Ḥamrat Ifdān (Adams 2000) and Tall al-'Umayrī (Mitchel 1989), as well as continued excavations at Tall Iktānū (Prag 1991) and Bāb adh-Dhrā' (Rast

and Schaub 2003), and current excavations at Khirbat Iskandar (Richard *et al.* 2010). Since 1980, additional evidence for EB IV ceramic sequencing from sedentary sites in Jordan, such as Tall Umm Ḥammād (Helms 1986), Khirbat al-Batrāwī (Nigro 2006) and Khirbat Ḥamrat Ifdān (Adams 2000), has appeared. These data add significantly to efforts aimed at constructing a typo-chronological sequence of EB IV ceramics.

Despite a considerably enhanced corpus of ceramic datasets, until very recently there have been few final publications of EB IV settlement sites, thus rendering comparative analysis somewhat difficult. Now however, we have final publications of Jordanian sites to draw from, viz. Bāb adh-Dhrā' and the newly published Khirbat Iskandar Expedition Series Volume 1, both of which include quantitative ceramic studies. Interim reports from Khirbat al-Batrāwī (Nigro 2006) are another major source of stratified material, as are the final Jericho publications. The Khirbat Iskandar ceramic study builds on the data and ceramic chronology published on the site and tombs of Bāb adh-Dhrā'. The quantitative ceramic studies of both sites introduce much-needed objective data into the current discussion of EB IV ceramic classification in the field. Hopefully, the combined results from these two sites may serve to set EB IV chronology on a firm foundation.

The Statistical Method

First, a brief word about the statistical method used (for details see Holdorf 2010a). My colleague, Paul Holdorf, with whom I collaborated on the ceramic study, is author of the quantitative study in the volume and sums up by saying: "We identified the *important* differences between and among the Area C phases by using standard tools that focus on (1) *quantitative* measurements such as rim diameter averages, (2) *qualitative* data such as the frequency (presence/absence) of a form and form/rim combination and (3) *variety/richness* such as the number of different rim types as compared with the number in the assemblage" (Holdorf 2010a: 114). He goes on to say that those findings were used to identify which tombs at Khirbat Iskandar and which phases at Bāb adh-Dhrā' were good matches for the Area C phases. As a natural outcome of the study, as mentioned earlier, Holdorf and I isolated types occurring in the three phases that showed a quantifiable assurance of high statistical probabilit-

ity. We designated the latter ‘diagnostics’. These three multi-dimensional studies all derive from the three-phase typo-chronological ceramic sequence identified from Area C.

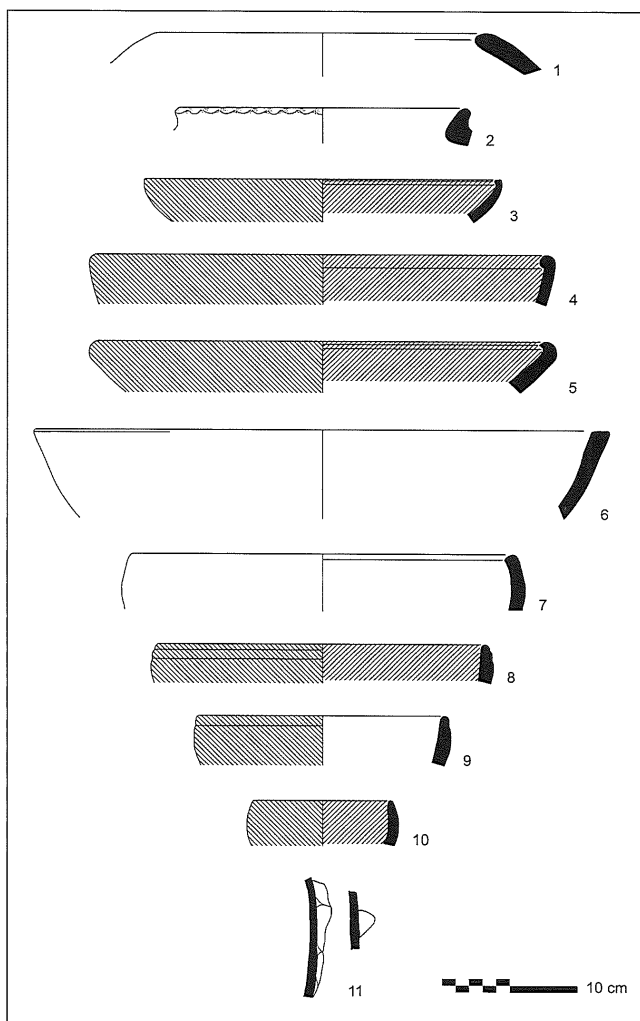
There were 56 EB IV ceramic types (form+size+rim+other characteristics) discerned in Area C which, when transformed into well-known EB IV categories, numbered 35 specific types. Although some have questioned whether a correlation between form/rim morphology and chronology has ever been demonstrated (Dessel and Joffe 2000: 38), we believe that the quantitative studies of the Khirbat Iskandar and Bāb adh-Dhrā’ EB IV corpora affirm a chronological sequence. The radiocarbon dates from the two sites combine to suggest that EB IV phases and associated ceramics do demonstrate chronology (Holdorf 2010b; Weinstein 2003). As Weinstein (2003: 648) notes about the ranges of the two Stratum I radiocarbon dates, “the two EB IVA dates may have real value for the chronology of Bāb adh-Dhrā’ in the Early Bronze Age”.

The Multi-Dimensional Studies

Statistically Derived High Probability EB IV Diagnostics

With a view to positing objectively derived EB IV diagnostics, we isolated the stratified ceramic examples that evidenced high statistical probability as markers of a phase. The variables were form or size or type (form+size+rim), or a combination. This section will summarily discuss the major diagnostics for each phase. For a detailed study of the pottery from each phase, see Holdorf (2010a) and Richard (2010b). The statistically derived diagnostics include three variations: (1) those having a confidence level of 95% or higher, (2) those having a confidence level of 90-95% and (3) those having a confidence level of 80-90%.

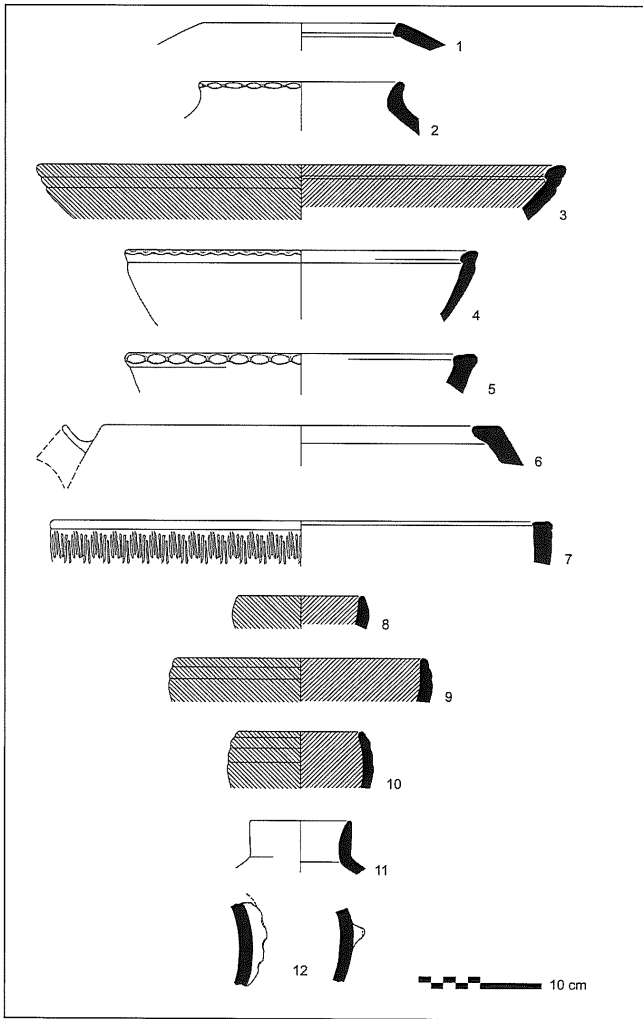
Phase 1 pottery types (FIG. 4) suggest a transitional EB III/EB IV phase or very early EB IV phase. The forms were of Early Bronze Age type, mostly red-slipped and burnished. There was a trend toward simple direct rims; rolled and flat rims were still popular at this stage. Notably, there were virtually no rilled-rim platter bowls with turned-down rim (the EB IV ‘type-fossil’). The statistically significant diagnostics discerned were: holemouths with rounded or bulbous rim (1), small sized platters (3), rolled (4) and rolled-pointed (5) platters, as well as platters with flat rim (6). The small bowls/



4. Phase 1 diagnostics (Richard).

cups with incurved sides (9-10) are diagnostic for the phase, as are envelope ledge handles with folded (overlapping) flaps (11).

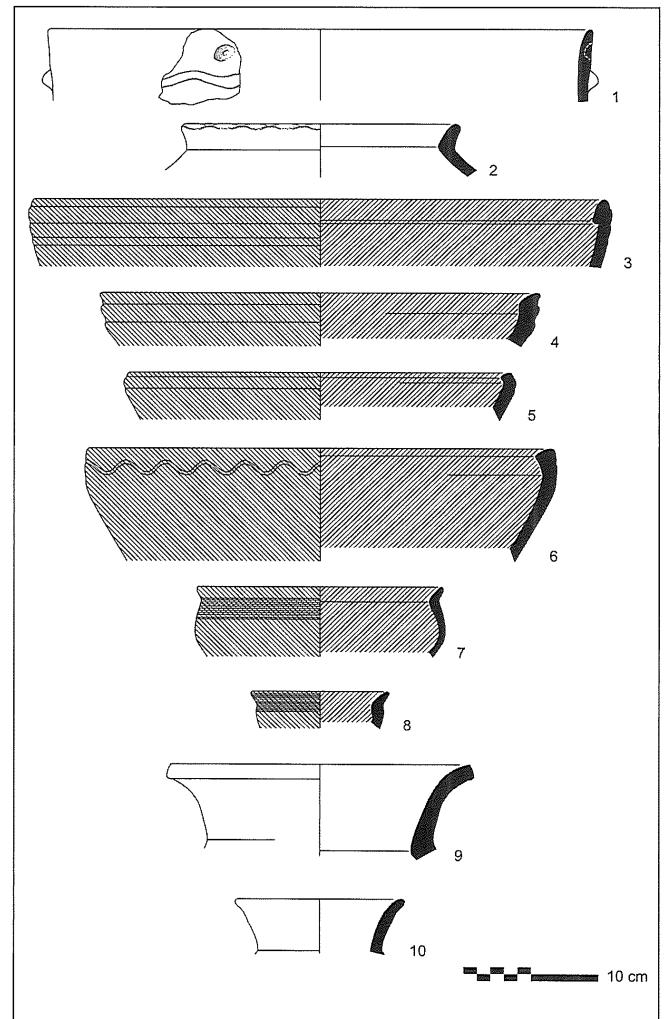
The Phase 2 assemblage (FIG. 5) revealed a greater diversity of types; in other words, the greatest variety of forms occurs in Phase 2. From this phase there were a number of significant diagnostics, such as: the holemouth jar with interior lip rim (1) and the general category of necked cookpot (2). The most evident change from Phase 1 to Phase 2 is seen in the development of platter bowls. Platters are now larger, show great variety and, most significantly, the turned-down rim (3-4) clearly supersedes the rolled and rolled-pointed rim platters. Other statistically important diagnostics for Phase 2 include basins with thick flat rims (6-7) and some simple bowl types (8-10). Interestingly, vestigial thumb-indented (scalloped) handles are statistically significant in this phase (12).



5. Phase 2 diagnostics (Richard).

Phase 3 (the 'gateway' phase) represented a more standardized assemblage (FIG. 6), possibly suggesting mass production at the site. The hole-mouth bowl cooking pot is an important new form (1). In Phase 3, the platter bowl with turned-down rim (3) has a confidence level of 99.3%, closely followed by a new form: the beveled rim platter (4) and bowl (6). Even simple direct beveled-down bowl rims (5) are significant in this phase. There was an emphasis on carinated bowls, especially the cyma-profiled bowl (7) and cup (8). Necked jars with curved-out, slightly tapered, flared rim have a 95% confidence level (9).

In conclusion, based on the quantitative study one can sum up the most important observations on the EB IV typological characteristics at Khirbat Iskandar as follows: the hole-mouth jar/bowl form exhibits a sequence from rounded or bulbous (Phase 1) to square rim with inner lip (Phase 2) to



6. Phase 3 diagnostics (Richard).

holemouth bowl cookpot (Phase 3). All of these types are statistically significant. On the contrary, holemouth store jars displayed no discernible trends. Also, the spouted vessels (or 'teapots') are remarkably non-diagnostic, there being only a slight trend towards a beveled rim in Phase 3. The cookpot development of holemouth (Phase 1) to necked (Phase 2) to holemouth bowl (Phase 3) was statistically significant.

The quantitative study also illuminated significant diagnostics in the small bowl and cup categories, viz. the simple rounded rim form (Phase 1), the beginning of carinated forms (Phase 2) and the cyma-profiled bowl (Phase 3). As for the ledge-handle sequence, the only significant diagnostics were the folded envelope (Phase 1) and scalloped vestigial (Phase 2) types, the pinch-lapped form being the most popular through the three phases.

The chronological sequence of platter bowls

through the three phases in Area C is statistically significant. The characteristic Early Bronze Age flattened rim and rolled/rolled-pointed rim platters (Phase 1) are gradually superseded by turned-down, mostly rilled-rim platter bowls (Phase 2), which become virtually the only platter-bowl type in Phase 3. Notably, the beveled rim platter and bowl—a highly significant diagnostic type—makes its appearance only in Phase 3.

The Cemeteries vis-à-vis Area C

As this topic has been dealt with previously (Richard 2009), only a summary is necessary here. The quantitative study revealed a significantly high correlation between the tall and tomb corpora. As discussed elsewhere, the similarities far outweigh the dissimilarities (see Richard 2009, especially figs. 4-5). Correlations include: lamps, small and large bowls, platters, necked jars, spouted vessels and pitchers; even the holemouth jar and holemouth-cookpot, though rare, were found in the tombs. When cooking pots are removed from the assemblages, the profiles of *tall* and tombs are remarkably similar (Richard 2009: fig. 6).

The distinctions between the two corpora mostly concern two variables: type and size, with smaller sizes being more common in the tombs. For example, there are more lamps and necked vessels (medium-small to miniature necked jars, as well as pitchers/juglets) in the tombs. Large vessels, such as pithoi and huge holemouth bowl vats do not occur in the tombs, and there are fewer large-medium deep bowls. Though cookpots and a holemouth jar occur in the tombs, they are exceedingly rare. Thus, with a few exceptions, the cemeteries lacked long-term storage, food preparation and processing/industrial (e.g. olive oil) equipment. One can therefore conclude that the cemetery corpus generally comprised serving dishes, small cups/bowls for drinking, short-term storage vessels, specialized containers (e.g. 'teapots'/miniatures for unguents or other precious commodities) and lamps. There is nothing in the tombs that is not found on the *tall*, even the rare lamps and miniature vessels.

That the ritual assemblage of the dead appears to mirror the repertoire of the living at Khirbat Iskandar offers insight into belief systems during EB IV, while affirming that those interred in the tombs most probably had occupied the site. Thus, size and to a lesser extent frequency appear to be the two major variables the quantified study illuminated in

the comparison between *tall* and tombs. Perhaps it should not come as a surprise that the burial customs of sedentary communities reflect sedentism, as seen not only at Khirbat Iskandar but also, for example, at Bāb adh-Dhrā' and more recently at Jericho (Nigro 2003).

Finally, a seriation of the tombs, based primarily but not solely on the statistically significant inter-phase changes in platter-bowl in the town (correlated with phasing at Bāb adh-Dhrā'), suggested that the cemeteries appear to have been in use throughout the three phases of occupation evident in Area C (for details see Holdorf 2010a). The seriation affirmed the assessment (Schaub and Rast 1989) that Tombs A52 and A54 at Bāb adh-Dhrā' were early EB IV.

Correlations with Bāb adh-Dhrā'

There were a number of correlations between the ceramic corpora of Khirbat Iskandar and Bāb adh-Dhrā' (for details see Holdorf 2010a). One of the most significant, given the ubiquitous platter-bowl tradition, is a shared typo-chronological sequence for platter bowls (rolled, rolled-pointed, flattened and turned-down rims). Moreover, at both sites, the platter-bowl with turned-down rim is virtually non-existent in the earliest phase. The one exception to the sequence is the beveled rim platter and bowl, which characterizes Phase 3 at Khirbat Iskandar. According to Tom Schaub (pers. comm.), there were examples of the form, but not in sealed loci. Although these findings may indicate that Khirbat Iskandar extends later into the EB IV period than Bāb adh-Dhrā', the latter does have three medium-platter bowls with direct beveled rim shapes similar to those of Area C (Rast and Schaub 2003, pls 130:12, 22-23). In general, both sites exhibit a trend from simple direct rims to thickened inside rims in later phases.

Another extremely important correlation in the phasing between the two sites is the cookpot sequence from holemouth to necked varieties. The exception to the full sequence is the absence at Bāb adh-Dhrā' of the late holemouth bowl cookpot appearing in Phase 3 at Khirbat Iskandar. Although ledge-handles were less popular at Bāb adh-Dhrā', the early appearance of the envelope variety can be noted, as at Khirbat Iskandar. Likewise, at Bāb adh-Dhrā' there was a similar trend for highly carinated bowls in the later phases. Although not of chronological significance, Holdorf (2010a) also

noted that there was a trend for large and small 'teapot' pairings at both Khirbat Iskandar and Bāb adh-Dhrā'.

Finally, from his study of phase-to-phase similarities and differences in the ceramic corpora of the two sites, Holdorf concluded that the quantitative study suggested the following correlations between Area C at Khirbat Iskandar and Fields X and XVI at Bāb adh-Dhrā':

1. Area C Phase 1 corresponds with Field X Phase C;
2. Area C Phase 2 corresponds with Field X Phase B;
3. Area C Phase 3 corresponds with Field X Phase A/Field XVI Phase B.

Conclusions

The purpose of this paper was to present the most salient data and conclusions concerning the quantitative EB IV ceramic study from the recently published final site-report on Khirbat Iskandar. The study indicated that three typo-chronological ceramic phases correlated with the three-phase stratified profile of Area C. The main aim of the paper was to present the multi-dimensional quantitative approach used by the author and Paul Holdorf, the results of which allow us to posit: (1) statistically derived high-probability diagnostics, (2) a correlation with and seriation of the EB IV tombs and (3) correlations with Bāb adh-Dhrā'. The diagnostics discerned for Phase 1 included a range of types continuing from the previous EB III period (see examples above). The most notable change in the subsequent Phase 2 was rise tonumerical predominance of the well-known ('type-fossil') EB IV platter bowl with turned-down rim over a range of other platter-bowl types. There were a host of other diagnostic traits as well (see above). In Phase 3, the EB IV 'type-fossil' is virtually the only platter-bowl present, there is a stress on carinated forms and, significantly, two unique diagnostic types appeared: the platter-bowl with beveled rim and the holemouth bowl cookpot.

The conclusions of the cemetery study were that the tomb corpus mirrored the settlement repertoire in every way, with distinctions from Area C noted primarily in terms of size and quantity (see above). All data suggested a close relationship between the beliefs and rituals of the living and the dead at Khirbat Iskandar. The tomb seriation study, which

demonstrated use of the cemeteries through the three phases of occupation on the site, affirmed the close connections with the site.

Finally, shared databases and a shared ceramic classification system made a quantitative cross-cultural study between Khirbat Iskandar and Bāb adh-Dhrā' possible. Numerous points of contact were evident, with the best evidence derived from near-parallel sequences in, for example, the platter-bowl and cookpot categories. Significantly, the study provided a quantitative cross-sequencing of stratified phases between the two sites.

With the publication of these two Jordanian sites and their respective quantitative ceramic studies, it is now possible to conclude with some confidence that an inter-site and inter-regional typo-chronological sequence does exist for the EB IV period. Although this paper focuses specifically on a comparative study of the central plateau and southern Ghawr (and most likely the contiguous Karak plateau), it is hoped that the synchronisms discerned will provide a firm stratified foundation for EB IV ceramic typology/chronology generally.

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