Khirbet Kerak Ware at Bet Yerah: Segregation and Integration through Technology

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The study of Khirbet Kerak Ware (KKW) has centred on typological, chronological, technical and provenience issues, leaving some of the most important questions unanswered: What is the technological relation between KKW and traditional local pottery; what mutual influence existed between the traditions and what is its cultural significance? How can we explain the persistence of the KKW tradition in Canaan for 300–350 years? Through comparative chaîne opératoire analysis of KKW and traditional local ceramic industries, the particular cognitive aspects of KKW are revealed, bringing out its non-local origin and allowing the tracking of changes in the technological perspectives of its producers.

keywords Khirbet Kerak Ware, Pottery technology, Early Bronze Age

For over fifty years Khirbet Kerak Ware (KKW) has been identified as the product of an alien ceramic tradition in Canaan with affinities to cultures of Anatolia and Transcaucasia. It has been the subject of typological, chronological, technical and petrographical studies (Fitzgerald 1935; Sukenik 1947; Amiran 1952; Hennessy 1967; Esse 1983, 1991; Esse and Hopke 1986; Burney 1989; Yakar 1990; Philip 1999; Philip and Millard 2000; Miroschedji 2000), the latter showing consistently that the ware was produced locally (Kellner 1946; Chazan and McGovern 1984; Mazar et al. 2000). Despite the long record of study, some of the most important questions regarding this ware have remained unanswered: Is the divergence between KKW and local ceramics merely typological, or does it have deeper roots? What is the technological relation between KKW and traditional local pottery; what mutual influence existed between the traditions and what is its cultural significance? How can we explain the persistence of the KKW tradition in Canaan for 300–350 years? As I hope to show, we can begin to answer these questions through a detailed comparative study of ceramic technologies—one that goes beyond mere description and affords insight into the thought processes of pottery-producers.
Material

The current study is based on a comparative technological analysis of KKW and local ceramic traditions at a single site, Tel Bet Yeraḥ (Khirbet el-Kerak; Greenberg et al. 2006), identifying the differences and mutual influence between them through comparison of their chaînes opératoires. The two local EBIII ceramic industries include products of a workshop located on the south of the mound, dubbed ‘the southern potter’, and cooking-pots, apparently made by one or more additional specialists. The ceramics chosen for analysis derive primarily from the well-stratified sequence of Area EY (Greenberg et al. 2006: 339–468). In this area, substantial evidence was found for the existence of a potter’s workshop (‘the southern potter’) spanning EBII (Local Strata 9–7) and III (Local Strata 6–3), including 14 parts of potter’s wheels, unfired vessel parts and implements used to finish the vessels. In adjacent houses there were rich assemblages of complete and nearly complete vessels representing this workshop (Fig. 1), including a varied repertoire found on the floors of the central house of the EBIII (Local Stratum 6B), EY 427. Round and flat-based cooking-pots (Fig. 2: 1–3) also appeared in these structures in considerable numbers.

Beginning in Local Stratum 6, a wide range of KKW is introduced, revealing a peculiar spatial distribution described by Greenberg (2007) and S. Paz (this issue). KKW differs from local ceramics in the following parameters: morphology, assemblage composition, methods of formation, finishing and decoration. The repertoire is varied and includes bowls, kraters, stands, lids and funnels (Fig. 3). An additional artefact, the ceramic andiron (portable hearth), accompanies the KKW assemblage (Fig. 2: 4–5).

The study of the materials from Tel Bet Yeraḥ is presently being complemented by a broad program of comparative study at additional KKW-bearing sites in the Levant and beyond. The preliminary results of this comparative study, which will be presented in future publications, generally confirm the results obtained at the type-site.

Methods

The premise of this study is the idea that technology is not merely a set of mechanical activities applied to produce an artefact or to solve a functional problem: Technology is knowledge, developed and employed to attain cultural and social ends (Lemmonier 1986; Pfaffengerber 1992; Dobres 2000). By its nature archaeology explores the products of ancient technologies, and as ceramics are the most frequent find at Early Bronze Age sites, understanding the period is impossible without studying the ceramics. By the same token, the study of ceramic technology permits significant insights into Early Bronze Age society and its cultural values.

The study consists of three tiers: typology, archaeometry and chaîne opératoire analysis (Lemmonier 1986; Dobres 2000). The initial identification of three major ceramic groups (‘southern potter’, KKW and cooking-pots) was typological and allowed the setup of a preliminary framework for the research. Petrographic analysis (Bishop et al. 1982; Bullock et al. 1985; Porat 1989; Goren 1991; Whitbread 1995), visual observations and x-ray photography (Rye 1977; Rice 1987: 124–136; Vandiver 1987; Rye 1981) contributed new basic information on technical aspects: procurement and treatment of raw materials,
Figure 1 Petrographically analysed vessels of the local 'southern potter' tradition at Tel Bet Yeraḥ.
formation methods and surface treatments. *Chaîne opératoire* analysis (Dobres 2000; Pelegrin *et al.* 1988) provides a detailed reconstruction of artefact manufacture and use, focusing on producers’ behaviour and decision-making. It thus combines detailed technological characterization of the ceramic groups with perceptions of the social role of artefacts, producers and consumers.

A sample of 160 vessels covering a range of types was selected for petrographic analysis: 76 samples derived from Local Strata 9–3 (beginning of EBII to the end of EBIII) belong to the ‘southern potter’ group, 37 samples from the same strata to the cooking-pot group and 47 samples from Local Strata 6–3 (EBIII), are KKW. Nineteen potential raw material samples were collected from soils and river channels in the immediate environs of the site, as well as in the Golan Heights and Kinrot Valley. These too were examined petrographically.
Figure 3 Petrographically analysed KKW from Tel Bet Yerah.
Results: Khirbet Kerak Ware as a segregated ceramic tradition

Using various analytical techniques, the characteristics peculiar to KKW can be identified in each of the principal stages of ceramic production. These are enumerated below, followed by a general consideration of the *chaînes opératoires* of all three groups.

**Raw materials**

As noted above, the three coexisting EBIII pottery traditions at Bet Yeraḥ had been identified on the basis of their morphology, coloration, temper, finishing and firing methods. The notable and immediate observation of petrographic analysis was the clear segregation of raw materials used to create the typological groups.

Thus:

(a) The products of the ‘southern potter’ were nearly always created from marly clays of a single type—here termed Group C (these include unfired vessel fragments found in Area EY).

(b) All cooking-pots were produced from Group A clays, characterized as local valley *rendzina* soil (Ravikovich 1969: 30–31; 1981) found at Tel Bet Yeraḥ.

(c) The producers of KKW used either Group A clays with atypical inclusions such as grog and/or straw, or Group E clays derived from colluvial-alluvial soils, newly introduced and never used by local potters in either EBI or EBII.

Tables 1 and 2 adumbrate the main conclusions of the petrographic analysis. The main clay groups are indicated by uppercase letters, to which numerals indicating different types of inclusions may be added.

<table>
<thead>
<tr>
<th>Typological group/ Petrographic group*</th>
<th>Southern potter</th>
<th>Cooking-pots</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (Rendzina of valleys)</td>
<td>2</td>
<td>33</td>
<td>35</td>
</tr>
<tr>
<td>A1 (Rendzina and crushed calcite)</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>A2 (Rendzina and straw)</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>C (Local marl)</td>
<td>62</td>
<td></td>
<td>62</td>
</tr>
<tr>
<td>C4 (Marl and crushed basalt)</td>
<td>5</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>C5-3 (Marl, grog and soil balls)</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>C6 (Marl and carbonatic sand)</td>
<td>5</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>76</td>
<td>37</td>
<td>113</td>
</tr>
</tbody>
</table>

* Temper codes: 1 (crushed calcite), 2 (straw), 3 (grog), 4 (crushed basalt), 5 (soil balls), 6 (carbonatic sand), 8 (Kinneret and Jordan River sand).
### TABLE 2

**Distribution of Examined Vessels according to Petrographic Groups: KKW**

<table>
<thead>
<tr>
<th>Petrographic group*</th>
<th>A</th>
<th>A2</th>
<th>A3</th>
<th>A6</th>
<th>D6-2</th>
<th>E</th>
<th>E8-1</th>
<th>E3-2</th>
<th>E3</th>
<th>Total</th>
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<tr>
<td>Bowl</td>
<td>1</td>
<td>3</td>
<td>8</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td>21</td>
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<tr>
<td>Cup</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>3</td>
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<tr>
<td>Krater</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td>9</td>
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<tr>
<td>Lid</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Stand</td>
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<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Total vessels</td>
<td>4</td>
<td>7</td>
<td>10</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>3</td>
<td>7</td>
<td></td>
<td>39</td>
</tr>
<tr>
<td>Andiron</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Total KKW</td>
<td>10</td>
<td>7</td>
<td>11</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>3</td>
<td>7</td>
<td></td>
<td>47</td>
</tr>
</tbody>
</table>

* Temper codes: 1 (crushed calcite), 2 (straw), 3 (grog), 4 (crushed basalt), 5 (soil balls), 6 (carbonatic sand), 8 (Kinneret and Jordan River sand).

The use of *rendzina* soil of valleys (Group A) was recorded in all three typological groups, but while cooking-pots and an occasional ‘southern potter’ vessel could be made of unadulterated soil, the producers of burnished KKW (in all but four of 21 cases) added chopped straw or limestone sand to the Group A clay. Functional (full-sized, unburnished) andirons stand apart from the rest of the vessels in their petrography: six of eight microscopically analysed vessels were constructed of natural *rendzina* soil. Thus, in terms of their raw materials, andirons stand apart from burnished KKW while showing similarity with cooking-pots.

*Rendzina* (Group A) and Group E soils are naturally tempered and suitable for pottery production; technically, they do not require the addition of non-plastic elements. Potters of the local tradition, spanning 500 years of EBII and III production, used *rendzina* soil without artificial temper in cooking-pot production. KKW potters consistently added temper to both groups. While it may have been explained as a means of reducing plasticity and ensuring body strength, the addition of temper to naturally tempered clays must be ascribed to tradition, to a form of knowledge—the Greek *tekhnē* (*sensu* Dobres 2000: 50–52)—that was transmitted between the KKW producers. In this manner KKW producers segregated themselves from the local cultural environment by maintaining difference in the use of raw materials. It should further be noted that KKW shows very high internal variability in proportions of matrix versus temper and between different coarse elements, contrasting with the consistent matching of clay body to form exhibited by specialists working in the local tradition. Moreover, the 39 KKW samples fall into no less than eight petrographic groups (Table 2). There is no linkage between the typology and clay/temper type: any KKW vessel could be formed from any kind of clay and temper.
**Vessel formation**

Despite the obvious formal and functional divergence between KKW and the local tradition, the ware is characterized by a very limited degree of morphological standardization beyond basic typology and regular use of elements such as omphalos bases, plastic decoration and red-black burnished slip. One obvious reason is the complete avoidance of the potter’s wheel, although it was clearly ready to hand as attested by the discovery of several basalt tournettes in Area EY itself. But this is only a partial explanation, as standardization can be achieved through other means, such as hand-forming in standardized molds or professional specialization (Roux and Courbetta 1989; Roux and Courty 1998; Roux 2003).

In order to obtain a better grasp of differences in formation techniques, radiographic analysis was carried out on a selection of traditional and KKW vessels.

Fifty-three vessels were selected for x-ray analysis (Rye 1977; Nativ 2005), representing dominant typological groups (Table 3): 13 cooking-pots, 23 ‘southern potter’ vessels, 13 KKW vessels, two pithoi and one jar of standard local type, and one North Canaanite Metallic Ware (NCMW) platter. Only about half of the vessels, however, provided identifiable traces of formation techniques.

<table>
<thead>
<tr>
<th>Formation method/Typological group</th>
<th>Coiling</th>
<th>Mould/pressing</th>
<th>Throwing</th>
<th>Unidentified</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooking-pots</td>
<td>5</td>
<td>2</td>
<td>6</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>‘Southern potter’</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>15</td>
<td>23</td>
</tr>
<tr>
<td>KKW</td>
<td>8</td>
<td>5</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NCMW</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
<td>13</td>
<td>1</td>
<td>26</td>
<td>53</td>
</tr>
</tbody>
</table>

Three categories of formation methods were identified: coiling, pressing in a mould or beating¹ and throwing. The radiographs revealed that pressing/pressing techniques (Rye 1977; Nativ 2005: 51–52) were used for all types of burnished KKW, whereas the fractures associated with coiling or throwing were not present in the samples studied. Pressing or beating could be used in order to create thin-walled vessels such as bowls, or to add structural strength to the thick walls of large kraters and stands. The consistent use of a single formation technique and the resistance to wheel-using methods testifies to the conservatism of the KKW tradition.

¹ The radiographic signature of beating and of pressing into a mould is similar (Nativ 2005: 50–52). Moulds are often ad-hoc artefacts—e.g., a bowl or the bottom of an old pot—used to form only a part of the new vessel.
Surface treatment
The microscopically identified layer of burnished slip in KKW indicates unusual investment in surface treatment. After forming, drying and bisque firing, items were slipped with one or more layers (0.01–0.08 mm thick) of fine, sorted clay and then rigorously burnished. The results of experimental burnishing of bisque-fired ceramics suggest that an experienced potter might have invested an hour or more burnishing a small KKW bowl. This produced a thick and glossy layer of slipped burnish applied to a thin, brittle vessel.

From a behavioural standpoint, clay and temper type with their qualities were evidently less important for KKW potters than the creation of thick burnished slips. Thus, where the ‘southern potter’ invested time and labour in obtaining the most suitable clay, but only minimum effort in slipping and burnishing, the KKW potters invested in highly communicative forms and surface treatment, with near indifference to the ceramic qualities of the raw material.

Firing
The black colour of the outer face was completely intentional. In every case, de-oxidation extending from the surface well into the vessel cross-section could be observed. This would have been caused by partly covering of the surface with embers, fine sand, clay or some viscid organic material in the process of the final firing. The indistinct border between red and black areas, as well as red or brown patches on the black surface, testify to the same process. After the firing, vessels received a further round of polish.

Chaînes opératoires—an overview
The ‘southern potter’ extracted naturally tempered marly clay from the Jordan River cuts, occasionally (12 of 76 petrographically analysed pots) adding artificial temper. The potter added water to the clay and kneaded it well; this is attested by a unified matrix with a minimum of ‘air bubble ghosts’. Small hemispherical bowls were produced on the potter’s wheel (tournette), detached with a string and dried. When ‘leather-hard’, bowls were slipped and slightly burnished with shell or stone. They were then further dried and fired. For the large bowls and platters, both mould and wheel were used: base and body were formed with the mould, the rim was added and centred on the wheel. Leather-hard items were removed from the moulds, slipped, burnished and dried before firing. Jugs, jars, mugs and amphoriskoi were built with mixed coiling and wheel technique. Potters used coils to build the body; vessel walls were thinned and their mouths centred with the assistance of the wheel. After initial drying, handles were added and vessels were slipped and sometimes burnished. The ‘southern potter’ invested efforts in obtaining the most suitable clay and producing highly standardized vessels, but only minimum

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Two bricks (15 × 10 cm) were made of rendzina soil (Petrographic Group A) and industrial white clay (artificially tempered) used by professional western potters today. After drying and bisque firing at 1000°C they were slipped and burnished with flint chips and a wooden spoon. Fifteen to thirty minutes were needed in order to create burnished surface of 0.15 m².
effort in slipping and burnishing. This may be linked to a perception of consumers’ expectations: the acquisition of pots with predictable physical qualities such as volume, durability or resistance to stress.

KKW potters collected calcareous soil on the mound (*rendzina* soil, Group A) or colluvial-alluvial soil (Group E) at a distance of 1–2 km east of the site. They mixed naturally well-tempered clays with grog, straw, carbonatic sand or Kinneret-Jordan sand. They kneaded some clays more than others: the matrix of KKW bowls is uniform and dense, but that of the large vessels includes a relatively large quantity of air bubbles. Radiographic and macroscopic observations suggests that the KKW producers used pinching and a pressing/beating technique to form bowls and they used mixed coils/slabs-moulding technique to build large vessels. After forming and thinning, KKW potters invested in a labour-intensive and time-consuming program of surface treatment: plastic decorations, slipping, first burnishing, drying, bisque firing, second slipping and repeated burnishing, drying, well-controlled firing in oxidizing and reducing atmosphere and additional burnishing.

The cooking-pot producers collected naturally tempered *rendzina* soil from the mound. They used a mould to form rounded bases or began with a large flat disk for flat bases. Walls were built with the coiling technique, using paddle and anvil to thin the walls and to achieve a uniform thickness. The rim was created with an additional coil, and then the interior walls were intentionally scraped to bind the coils. Cooking-pots were fired in a well-controlled oxidizing atmosphere.

The work of the ‘southern potter’ is marked by the efficient and economical use of the potter’s wheel, in contrast to the cooking-pots and KKW. By contrast, the KKW production sequence was significantly extended by the time and techniques required to produce the slip and glossy burnish that characterize the group. The *chaîne opératoire* of burnished KKW thus diverges from those of the two local groups primarily in the priority given by the potters to the vessels’ surface. This treatment comprised five steps: first slip and burnish, bisque firing, second slip and burnish, firing in oxidizing and reducing atmosphere and after-firing polish. KKW consumers clearly expected to acquire highly burnished and colourful vessels, hence the priority placed by the producers on surface treatment, rather than standardization of the pot’s morphology or raw materials.

The difference between *chaînes opératoires* of burnished KKW and andirons is also notable: andirons are generally characterized by the absence of slip and burnish, and they are not carefully fired. The KKW andiron production sequence was very simple: procuring local soil, adding water and kneading, forming, drying and firing. These differences between *chaînes opératoires* showed that andirons were not really a part of the potting tradition, and may rather be understood as an artefact representing the ‘cultural package’ accompanying KKW.
Diachronic change: signs of integration

Important trends were observed in the petrography of KKW vessels over time, as expressed in the stratigraphic sequence in Area EY (Table 3). A clear shift is observed in the use of the clay, from Group E (newly introduced by the KKW producers in Local Stratum 6) to Group A (traditionally used by local cooking-pot producers).

<table>
<thead>
<tr>
<th>Group/strata</th>
<th>EY local strata</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>6A</td>
<td>1</td>
</tr>
<tr>
<td>6B</td>
<td>2</td>
</tr>
<tr>
<td>5-4-3</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
</tr>
</tbody>
</table>

Overall, the number of clay types is reduced from seven in each phase of Stratum 6 to five in the later strata. More significantly, in the later strata (5, 4, 3) the amount of KKW created from Group E soils (with various kinds of temper) decreases in comparison to Group A soil (with various temper). Thus, while nearly 60% of the sampled pots in Phase 6A used Group E soil, this decreases to about 30% in Phase 6B and only 19% in Strata 5, 4 and 3. Concurrently, Group A vessels increase from about 35% in 6A to 60% in 6B and 81% in the later strata. The trend is therefore toward a decrease in the variety of clay sources used and a technological preference for local material. This might be interpreted as evidence for the gradual absorption of local values by succeeding generations of KKW potters.

Another notable feature is a declining investment in surface treatment. Visual observations show that quality of KKW slipped burnish in later strata decreases in comparison to that of Stratum 6. Under the microscope, the slip layers in later strata are thinner: 0.01–0.04 mm in comparison to 0.02–0.08 mm of the earlier material.

Interpreting the Khirbet Kerak Ware technique

Vessels of two groups at Tel Bet Yerah were created without the use of the wheel: KKW and cooking-pots. This affinity suggests that the choice made by KKW potters to use the same clay used by locals for cooking-pots (Group A rendzina) and the shift in the use of the clay over time from Group E to Group A were neither accidental nor a matter of mere convenience. Likewise, the slip and burnish of the KKW were not mere mechanical activities applied to solve a functional problem. As I hope to show below, the investment in surface treatment has a symbolic meaning that can be attributed to the analogy between producing a pot and the birth of a child.

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3 A third trend appears to be the discontinuation of the use of straw temper.
In many cultures, the creation of pottery is likened to the creation or birth of a newborn child (Lemonnier 1999; Gosselain 1999; cf. biblical Hebrew יוצר, meaning both divine creator and potter). The process may or may not be assisted by the potter's wheel (biblical Hebrew מִזוֹנָיִם, also used to signify a birthing-stool). The symbolic-structuralist interpretation of KKW attributes emerges from anthropological considerations of rites of passage, of which birth is certainly the most sensitive (van Gennep 1961: 1–14; Barley 1984: 97–98; Gosselain 1998: 91, 1999: 213). Parturition is a critical, dangerous last step in a very long and important process. A miscarriage undoes considerable psychological, social and economic investments and sends the prospective parents back to square one. In social terms, it represents a failure of the system. In our analogy, every step in a ceramic production process is critical, but firing is a ‘hot’ (Gosselain 1999) final and irreversible step: it is impossible to correct the results of unsuccessful thermal treatment because the chemical and physical traits of the clay have changed irrevocably. If the pot fails to survive firing, a new one must be made.

There are many ways to protect the newborn during (and after) birth—medically, magically and naturally. A natural protection for the newborn is the vernix (= varnish), a fatty substance secreted in utero that coats the skin at birth. A magical/medical protection is the ‘aging’ of the newborn by smoking, soaking, applying ashes or healing plant species mixtures (Gosselain 1999: 219–220). Many African people link human creation and the production of a pot: the newborn is compared to a new clay vessel and both are given similar, typical post-firing treatment: they are put through smoke and sprinkled or washed with water and ashes (Gosselain 1999: 211–213, 218–219). Part of the extended chaîne opératoire of KKW potters might have had the conscious aim of creating a protective layer on the vessels’ surface in order to ensure a successful ‘birth’. The glossy, ‘fat’ slip and burnish are thus analogous to the skin and vernix of the newborn infant.

The black exterior of KKW kraters and bowls—used for the presentation of food and drink—may also be understood as a protective measure. Technically, the first use of the freshly fired, untried pot—that is, its subjection to physical or thermal stress—is a critical test of its qualities and can be harmful to the contents or to the user. One of the methods employed by potters to offer symbolic protection to a fresh vessel is ‘aging’ by means of an artificial patina created by smoking or by the application of organic matter (Gosselain 1999: 219). KKW potters protected their pots by smoking the ‘newborn’. By these means the pots’ content, their users and, by extension, society itself were protected, as the potters took measures to avert a system failure. The black surface therefore functioned to confirm that the pot was ready for use.

The KKW producers’ mindset was markedly different from that of the ‘southern potter’. Their products appear much more communicative, signaling to their own community in a manner that enhances their separateness from the indigenous inhabitants of Tel Bet Yerah. In this manner, morphological, petrographical and technological divergences combine to testify to the alien origin of both the tradition and those who reproduced it.
**Conclusions**

Through comparative *chaîne opératoire* analysis, the particular cognitive aspects of KKW are revealed, bringing out its non-local origin and allowing the tracking of changes in the technological perspectives of its producers. The results of the research reveals a heterogeneous society at Tel Bet Yerah, consisting of groups that show a preference for different-looking vessels, made with diversified raw materials, forming techniques, surface treatments and firing methods. EBIII society might be considered dynamic from technological and social perspectives, but it is conservative in everything connected to cooking: the form and technique of cooking-pots does not change throughout EBII and III. Technologically, the only tie between the alien and local pottery traditions was the use of the *rendzina* soil (Group A) of the mound, but KKW potters invest their energy to make this clay different from the original and good for their products by adding their own atypical temper.

Over time, the independent, original technological preferences decrease in KKW, in favour of behaviours adopted from long-standing local preferences. Unusual raw materials are relinquished while the use of traditional local raw material increases, and a decrease can be observed in the labour invested in surface treatment. These changes can be interpreted as a relinquishing of the meaning of these operations and the absorption of the local ceramic perceptions. KKW became ‘assimilated’ over time, maintaining its morphology but absorbing local technological values.

Ceramic technology served as an instrument of social boundary-making in Tel Bet Yerah. ‘Southern potter’ pots and KKW were made by producers with very different skills. These skills were learned mostly under the guidance of a family member, less often from a neighbour or friend, and very rarely from a person outside the linguistic group (Gosselain 1998: 94–97). The *chaîne opératoire* of the migrant KKW tradition was therefore highly kin-bound. These pots, with their alien morphology, colours, highly burnished surface and technological knowledge, comprised a medium of communication between members of the group and a boundary between migrants and the indigenous population. KKW technology preserved the migrants’ identity as a separate entity. The gradual attrition of this technology marks the loss of knowledge associated with assimilation.

Ceramic assemblages are a gold mine of information about ancient societies. A comparative technological analysis of the three typological groups allows more precise definition of their characteristics and provides insight into relations between producers, users and pots. The use of analytical methods coupled with an explicit theoretical-methodological approach enables new advances in Early Bronze Age ceramic research and understanding of the roles of knowledge, memory and skill in the playing-out of social relations.
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