

Broadening Horizons 4

A Conference of young researchers working in
the Ancient Near East, Egypt and Central Asia,
University of Torino, October 2011

Edited by

Giorgio Affanni
Cristina Baccarin
Laura Cordera
Angelo Di Michele
Katia Gavagnin

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BASALT VESSELS DISTRIBUTION IN THE SOUTHERN LEVANT DURING THE IRON AGE

Andrea Squitieri
University College London

Abstract

This paper will focus on the distribution of basalt vessels in the south-western Levant during the Iron Age in relation to local geological sources. The aims are to localize possible workshops, to identify centres of consumption and exchange of finished goods and to explore the relation of basalt vessels industry with the historical and socio-economic background.

KEYWORDS: STONE VESSELS, BASALT, IRON AGE, NEAR-EAST.

This paper will focus on the distribution of basalt vessels¹ in the south-western Levant during the Iron Age in relation to local geological sources. The aims are to localize possible specialized workshops, to identify centres of consumption and exchange of finished goods and to explore the relation of basalt vessels industry with the historical and socio-economic background. GIS and geological maps² have been applied to provide quantitative analyses.

1. BASALT VESSELS TYPOLOGIES

The sample for this study includes 253 basalt vessels coming from published excavations of 22 sites (Table 1). They can be subdivided into the following types:

Mortars, mortar-bowls and bowls (161 examples)

These types include simple and crudely-made mortars, used for grinding purposes, often featuring rough internal and external profiles and an asymmetrical shape. Mortar-bowls differ from mortars because of the smoothness and regularity of the external surface. Bowls are well refined and carefully made, probably related to a wider range of functions, such as light grinding and food conservation and serving. In some cases, basalt bowls don't show clear wear marks in their interior cavity. Basalt bowls can have a flat or a ring base, a more or less deep cavity. One interesting variant displays a bar handle under the rim – so called bar-handled bowls –, a feature that can also be found on some ceramic forms.³

Tripod bowls (77 examples)

Tripod bowls are characterized by the presence of three legs. A division can be made whether the legs are free-standing or interconnected by a cross-bar. Some tripod bowls also display elaborated forms and simple decorations on the exterior face of the legs, consisting in grooves or ledges. The three legs feature confers more stability to these objects, although in the case of the more elaborat-

ed variants an aesthetic value conferred to these objects should be taken in account.

Pedestal bowls (9 examples)

These bowls stand on a pedestal, which is manufactured from a unique lump of raw material.

Basins (6 examples)

Basins can be defined as rectangular containers whose width exceeds their height.

These types lack a particular chronological significance, as they were part of basalt vessels assemblages also during the Bronze Age, or even earlier. Similarly to the Bronze Age, Iron Age assemblages don't seem to include closed shapes. Such an absence may be related to the lack of experience needed to manufacture closed vases by undercutting the shoulders.⁴ Nevertheless, some variants of these classes appear to be typical of the Iron Age. Within the first class, bar-handled bowls are characteristic of the Iron Age horizon, spreading considerably in the Levant from the beginning of the 8th cent. BCE.⁵ Tripod bowls, both freestanding and with cross-bars, derive from Bronze Age forms, however a particular decorative treatment of legs, with protrusions and grooves, as attested in Megiddo,⁶ just to name one case, seems to be indicative of the Iron Age (see below). It is noteworthy noting that these classes are attested in the Northern Levant too, in particular in the sites of Zincirli (Luschan 1943, pls. 5-6), Tell Halaf (Hourda 1962, pls. 51-2) and Carchemish (Woolley 1940), to name a few (Table 1).

2. GEOGRAPHICAL, CHRONOLOGICAL AND TYPOLOGICAL DISTRIBUTIONS: PRESENTATION OF DATA.

The geographical distribution of basalt vessels is shown in Map 1, where basalt flows are in black. Colour gradations indicate the increasing distances from basalt sources. About 88% of the overall quantity of basalt vessels (224 out of 253 items) comes from sites located within a distance of 5 km from geological sources. Chart 1 groups the

¹ Groundstone artifacts, such as querns and pestles, have not been included in this study. Only well stratified objects have been counted.

² Geological maps of the region under study have been downloaded from the Geological Survey of Israel website and subsequently elaborated in GIS environment.

³ The relation between basalt and pottery vessels is out the scope of this paper, and it will be explored during the following period of my research. One example of the relation between pottery models and basalt vessels is represented by the bar-handled bowls, which appear in pottery during the Iron Age II (Amiran 1969, pl. 64.25, 27).

⁴ Sparks 2007, 164. For a typology of the Second Millennium BC basalt vessels, see Sparks 2007, 128-140.

⁵ Bombardieri 2003; 2010, 122-28.

⁶ Lamon and Shipton 1939, pl. CCXII.13,15,17.

sites according to their distance from basalt sources. A remarkable disparity can be noticed between northern and southern sites. The former are by far richer in basalt vessels and among them Hazor and Megiddo reach all together the 56 % of the total of basalt vessels. Southern sites such as Lachish, Tell Beit Mirsim and Tell 'Ira, although within the 5 km range, do not seem to have exploited basalt sources so extensively.

Beyond 5 km, basalt vessels quantity drops dramatically. If we assume that basalt vessels were manufactured on site after collecting a lump of raw material from quarries, a 5 km distance would therefore represent a threshold after which the costs of transport were not balanced by the benefits of finished goods in terms of consumption and/or potential exchange. An interesting exception in this scenario is represented by two sites, Ashdod and Ashkelon, both located between 20 and 30 km from basalt deposits. About 9 % of the total basalt vessels assemblage comes from these two sites, a relatively high value if it is compared with the quantities of items from the 8 sites beyond the 5 km threshold, which all together count for the 6 % of the total (Chart 1).

The chronological distribution of basalt vessels has been evaluated dividing the Iron Age in three main phases: Iron Age I: 1200 – 1140/1130 BCE; Iron Age II A-B: 1000/980 – 731/701 BCE; Iron Age II C: 732/701 – 605/586 BCE.⁷ Chart 2 shows a dramatic boost in basalt vessels production during the Iron Age II A-B, with an increment of about 123 % against the previous and the following phases. (Chart 2)

This increase of production may be related to the intensive urbanisation occurred in the region during the Iron Age II A-B, when the geopolitical make-up reached a relative equilibrium with the Israel kingdom in the North, the Judah Kingdom in the South and the Philistine city-states along the coast. Stability and independence, although always threaten by internal and external factors, favoured the growth of many urban centres. This growth may have led to more socially stratified communities, in terms of accumulation of wealth and power, causing a diversified demand for more and well-refined artisanal goods. An intensified production would have been an effective response in this scenario. However, it should be noticed that the 41% of basalt vessels dating to the Iron Age II A-B has been retrieved from Hazor only. If we didn't count the Hazor production, we would have for the Iron Age II A-B an increment of about 20% against the Iron Age I and II C. The production of basalt vessels, in quantitative terms, seems therefore to have been affected by the socio-political transformations of the Iron Age II A-B especially in the north of the region, being Hazor an exceptional case (see Chart 3), whereas patterns of continuity rather than a drastic change can be observed in most areas of the region (Chart 3).

The typological distribution of basalt vessels, considering the four typologies defined above, is shown in Table 2 in relation to the distance from basalt sources. It can be no-

ticed that the two most productive sites, Hazor and Megiddo, are also distinguished by a larger repertoire of shapes. These include also a fragmentary jar from Hazor, which would represent a unique case.⁸ Closed shapes are not generally attested in basalt assemblages, but the extraordinary activity of the Hazor workshop may have stimulated some experimentations. Although grouped under the same typology, bowls from Megiddo and Hazor also differ from other bowls from all over the region for their morphological variety.

Interestingly, the two more distant sites from geological sources, Tell Jemmeh⁹ and Tell Fara South,¹⁰ have only yielded elaborated shapes, such as tripod bowls and bar-handled bowls (Table 2).

3. BASALT WORKSHOPS AND CENTRES OF EXCHANGE

The data presented above allow us to draw some conclusions about the locations of basalt workshops and of centres acquiring basalt vessels from exchange.

Basalt is an extrusive volcanic rock available in two main variants, a vesicular and a non-vesicular one, characterized by the presence or absence of pores in the texture. Large basalt flows in the Southern Levant are concentrated in a wide area encompassing the eastern Jordan and the Galilee.¹¹ Smaller deposits are located in the area immediately east of the Dead Sea, as well as in Judah and the Northern Negev. Basalt is a hard stone (Mohs scale = 6) suitable for pounding and grinding activities and made attractive to ancient people by its durability and hardness.

Detecting possible basalt workshops is not an easy task, especially if we consider the scarcity of archaeological findings such as waste of production, tools and particular structures that could help us identify with certainty a stone vessels workshop. Although it is likely that each household was producing to some extent its own stone vessels for everyday uses, like those connected with food processing, the high degree of care and standardisation observable on some shapes and the high level of concentration of vessels in particular sites would suggest the existence also of a few specialized workshops operating in the area, where some specialists, probably part-timers, were employed for their skills and were able to produce more elaborated shapes requiring time-consuming operations. Such specialists were probably employed also for other activities involving stone materials, such as quarrying, transporting and cutting stones for building purposes. In this respect, the recent discovery in Tell Hazor, Area M, of an Iron Age basalt workshop, dated to the 9th cent. BCE, will hopefully shed new light on questions about the organisation of production in relation to the social environment and other craft productions.

For the present study, the following criteria for the identification of sites hosting one or more specialized basalt

⁷ For the purpose of this study, the Modified Conventional Chronology (Mazar 2005, 24) has been used. The Iron Age II A and II B have been unified.

⁸ Yadin 1961, pl. CCVI.1

⁹ UCL Institute of Archaeology collection, reg. num. EXXXVI.17/33.

¹⁰ UCL Institute of Archaeology collection, reg. num. EVII.107/15.

¹¹ Bender 1968.

workshops have been applied:

- proximity to local basalt sources;
- absolute and relative quantity of basalt vessels retrieved;
- presence of unparalleled, early attested shapes or shared features;

The identification of sites acquiring basalt vessels from exchange is mainly based on their distance from geological sources.

In the North of the region, within the 5 km threshold from geological sources, a few specialized workshops may have been active, because of the high level of concentration of vessels found there. Apart from Hazor, also Megiddo, Beth Shean and Horbat Rosh Zayit may have hosted workshops as well. These four sites have yielded respectively the 33%, 23%, 8% and 8% of the total of basalt vessels found in the region. These workshops were probably intended to satisfy an increased local demand but also to supply nearby smaller sites. One tripod bowl from Taanach shows striking similarity in the decoration with those from Megiddo, so to suggest a movement of objects or artisans between these two sites.¹² Another element suggesting the presence of workshops in this area is the repetition of some decorative features in different sites. Craftsmen were probably inspired by the same prototypes and had the possibility to share their ideas probably also moving across the area. A characteristic decoration of tripod bowls' legs, consisting of tiny ledges and grooves, with bars interconnected to a central vertical shaft, seems to be typical of Megiddo, Taanach, Horbat Rosh Zayit and Hazor assemblages during the Iron Age II A-B. Their resemblance with Cypriot bronze tripods is significant. The inspiration for these basalt tripod bowls may have come from metal tripods coming from Cyprus through the spread of a Phoenician influence.¹³ Another example of a shared typology are the pedestal bowls with open straight or convex walls, a deep cavity and a concave pedestal with a ring base, which characterizing the assemblages of Megiddo, Hazor, Beth Shean and Horbat Rosh Zayit in the Iron Age II A-B.

Due to the proximity to basalt sources, the peaks of quantity and the shared morphological features, it seems logical to suppose that, beyond Hazor, at least also Megiddo, Beth Shean and Horbat Rosh Zayit hosted workshops, whose activity probably overrode that one of private households.

In Judah the scenario is quite different. Although small basalt deposits are present here, the sites lying in their neighbourhoods don't seem to have exploited them extensively. The bias of the archaeological records has to be taken into account; however, another explanation to this phenomenon is possible. Recent archaeometric studies applied on prehistoric basalt vessels from the Levant have demonstrated that Judean basalt deposits were not used and southern sites imported raw materials or objects from the North of the country or the Jordanian plateau.¹⁴ If we apply this pattern to the Iron Age, we could hypothesize that Judean sites

were importing a limited amount of basalt objects from the North of the country. It should be noticed, however, that some morphological features of Judean basalt vessels from the Iron Age do not seem to match those of specimens produced in the north of the region or elsewhere. A small tripod from Lachish, level III, displays a niche-like decoration on its external surface which is so far without parallels.¹⁵ In the Judean repertoire we don't find the characteristic tripod bowls with decorated legs and the open pedestal bowls with a concave pedestal, which characterize the northern repertoires. This would suggest a local production of basalt vessels also in Judah, although to a limited extent. Future archaeometric analyses on the Iron Age materials could disentangle this question. For the moment, we should not rule out the possibility of a local Judean production of basalt vessels, whose scarcity may have been caused by the abundance of limestone. Limestone (Mohs scale 1 - 3.5) is softer than basalt, so less suitable for grinding and pounding activities, but its abundance could permit a rapid and cheap substitution of worn items. The preference for limestone didn't permit the emergence of basalt workshops in Judah.

Among the sites lying far from basalt geological sources, we have seen that Ashdod and Ashkelon represent a striking exception, in relative terms, to the drastic drop of basalt vessel after the 5 km threshold. In absolute terms, 8 basalt vessels have been retrieved from Ashdod, 7 to be ascribed to the Iron Age I; 13 from Ashkelon, of which 12 belonging to the Iron Age II C. These two coastal sites, although in two different chronological phases, were able to attract a discreet quantity of basalt objects. Defining what kind of exchange was responsible for the movement of basalt vessels is not easy. In general terms, objects could travel long distances for many reasons: as a part of a tribute or booty, traded by merchants or carried by people for purposes other than commercial. The latter two cases seem to suit better the movement of basalt vessels. The peak of quantity reached in Ashdod in the Iron Age I and Ashkelon in the Iron Age II C may have been caused by the intensive commercial activities occurring here, being both sites important harbours, attracting people and merchants from neighbouring areas.

In conclusion, the production of basalt vessels during the Iron Age is characterized by a remarkable quantitative and typological increment during the Iron Age II A-B, being Hazor the most responsible for this phenomenon. During this phase, the production seems to have specialized in few workshops, located in the North of the region, that didn't substitute completely the common household production, and are particularly visible in Hazor, Megiddo, Beth Shean and Horbat Rosh Zayit. The proximity to basalt sources favoured the emergence of basalt workshops, although this didn't occur wherever basalt was available. Basalt deposits in Judah were not extensively exploited by the neighbouring sites, possibly because in this area limestone was so abundant to be considered a good substitute of basalt. Beyond a 5km distance from geological sources, basalt ob-

¹² Frick 2000, 91-2.

¹³ Gal 1992; For a discussion about basalt tripod bowls and their connection with Syrian and Cypriot models, see Buchholz 1963.

¹⁴ Durham and Williams-Thorpe 2000.

¹⁵ Tufnell 1953, Pl. 65.6. British Museum reg. num. 1980.1214.2351.

jects seem to be much rarer and possibly transported far from their places of origin by merchants.

This study offers some preliminary observations about the distribution of basalt vessels in the Southern Levant, which will be fully explored in the following period of my research. In particular, some issues to be tackled in the future regard the normalisation of quantitative data per site considering the extension of excavations, and the study of the typological trajectories, including a larger sample, in relation to political and cultural boundaries.

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Ashkelon	Stager <i>et al.</i> 2011
Beth Shean	Yadin and Geva 1986; James 1966; Mazar 2006
Bethel	Kelso 1993
En Gedi	Stern (ed.) 2007
Gezer	Macalister 1912; Dever 1986
Hazor	Yadin <i>et al.</i> 1956; Yadin 1958; Yadin 1961; Ben-Tor <i>et al.</i> 1997
Horbat Rosh Zayit	Gal and Alexandre 2000
Joqneam	Ben-Tor <i>et al.</i> 2005
Kadesh Barnea	Cohen and Bernick-Greenberg 2007
Lachish	Tufnell 1953
Megiddo	Lamon and Shipton 1939; Loud 1948; Finkelstein <i>et al.</i> (eds) 2000; Finkelstein <i>et al.</i> (eds) 2006
Taanach	Frick 2000
Tell Beit Mirsim	Albright and Kelso 1943
Tell Fara N.	Chambon 1984
Tell Fara S.	Petrie 1930
Tell ‘Ira	Beit-Arieh 1999
Tell Jemmeh	Petrie 1928
Tell Moza	Greenhut and De Groot 2009
Tell Qasile	Mazar 1980
Tell Qiri	Ben Tor and Portugali 1987

Table 1 - Sites included in this study.

Distance	Sites	Forms attested
0 - 5 km	<i>Hazor</i>	<i>Bowls, Bar-handled bowls, Tripod bowls, Jar, Pedestal bowls</i>
	Horbat Rosh Zayit	Bowls, Tripod bowls, Pedestal bowls, Basins
	Joqneam	Bowls, Bar-handled bowls, Tripod bowls
	Tell Qiri	Bowls, Tripod bowls
	Megiddo	Bowls, Bar-handled bowls, Tripod bowls, Pedestal bowls, Basins
	Taanach	Tripod bowls
	Beth Shean	Bowls, Tripod bowls, Pedestal bowls, Basins
	Tell Fara North	Bowls, Tripod bowls
	Gezer	Bowls, Tripod bowls
	Lachish	Bowls, Bar-handled bowls, Tripod bowls
	Tell Beit Mirsim	Tripod bowls
	Tell ‘Ira	Bowls
5 - 12 km	Ain Shems	Tripod bowls, Pedestal bowls
	Kadesh Barnea	Bowls, Bar-handled bowls
12 - 20 km	Bethel	Bowls, Tripod bowls
	Tell Moza	Tripod bowls
	Tel Goren	Tripod bowls
20 - 30 km	Tell Qasile	Bowls
	Ashdod	Bowls, Bar-handled bowls
	Ashkelon	Bowls, Tripod bowls
30 - 50 km	Tell Jemmeh	Bar-handled bowls
	Tell Fara South	Tripod bowls

Table 2 - Typological distribution of basalt vessels.

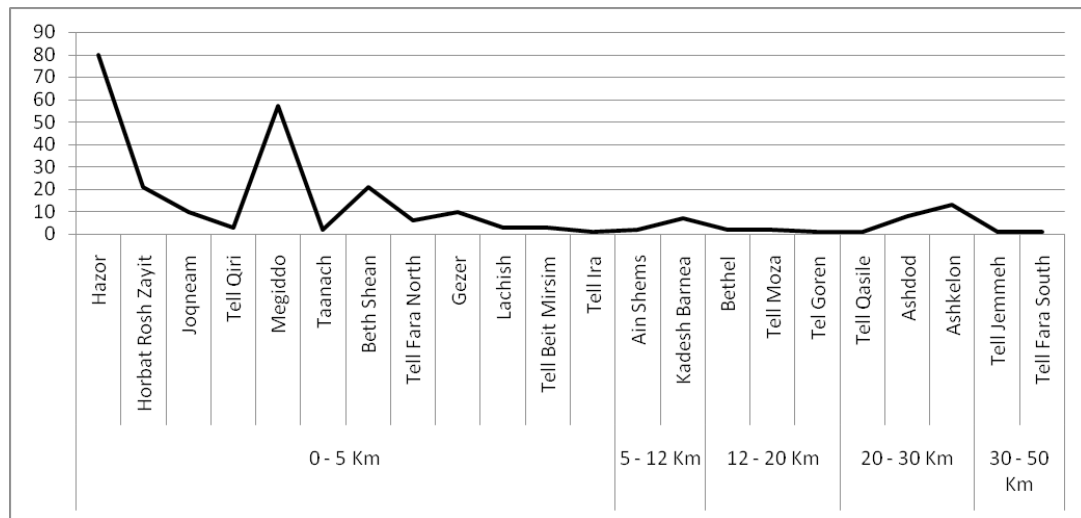


Chart 1: Quantities of basalt vessels per site included in this study, grouped by distance from geological sources.

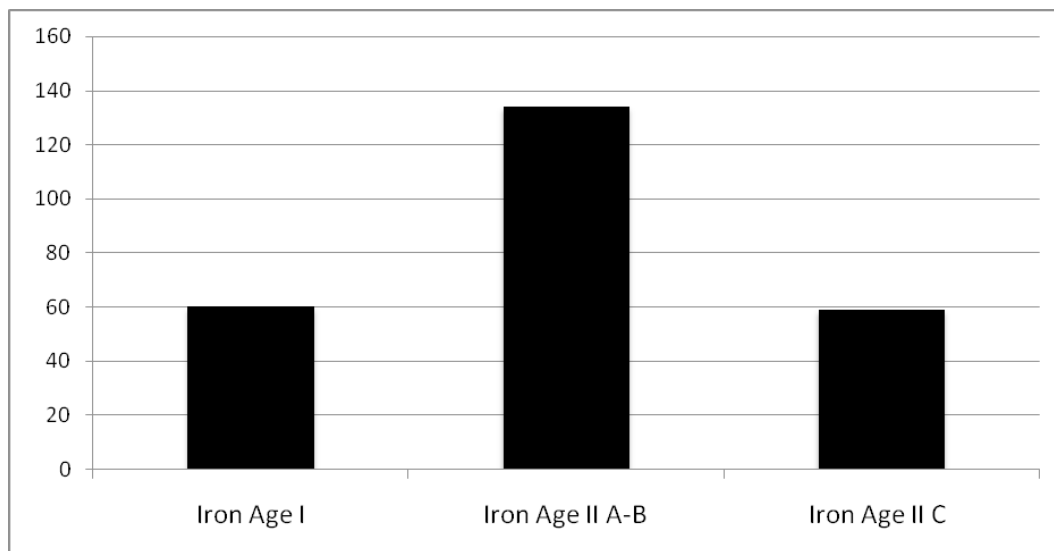


Chart 2: Distribution of basalt vessels included in this study through time.

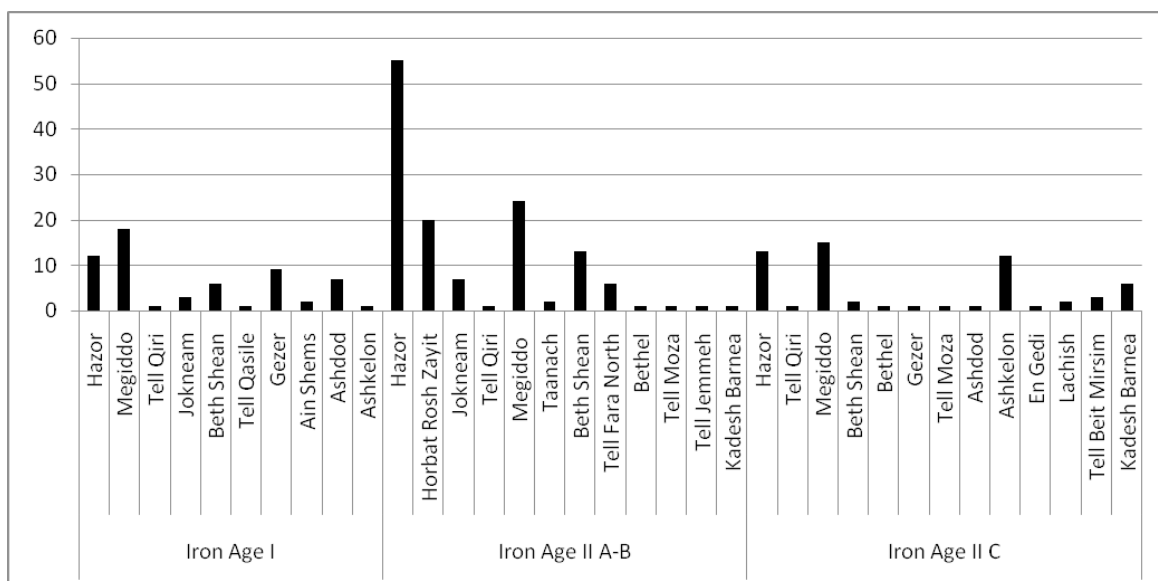


Chart 3: Quantities of basalt vessels included in this study through the Iron Age.

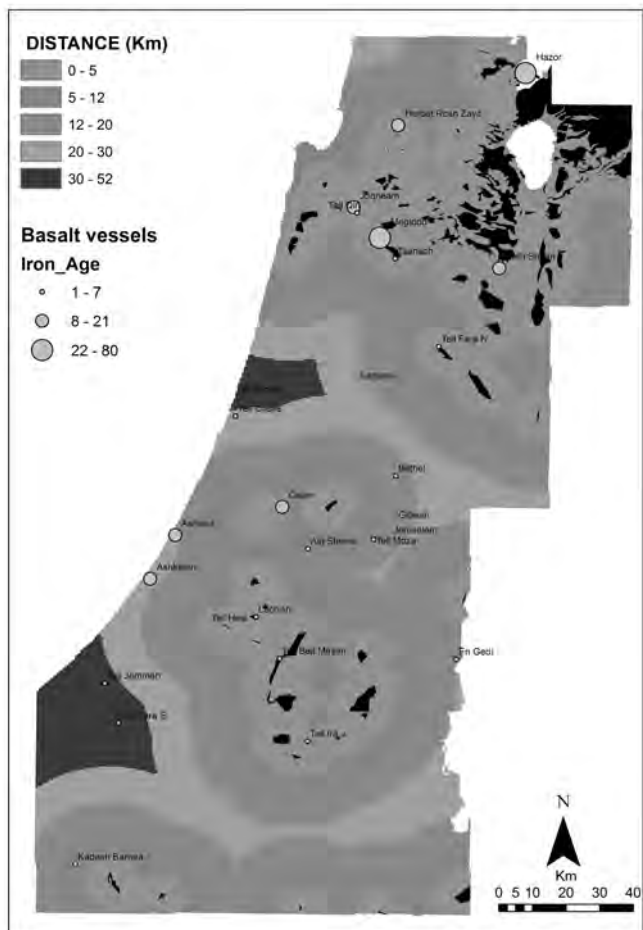


Figure 1

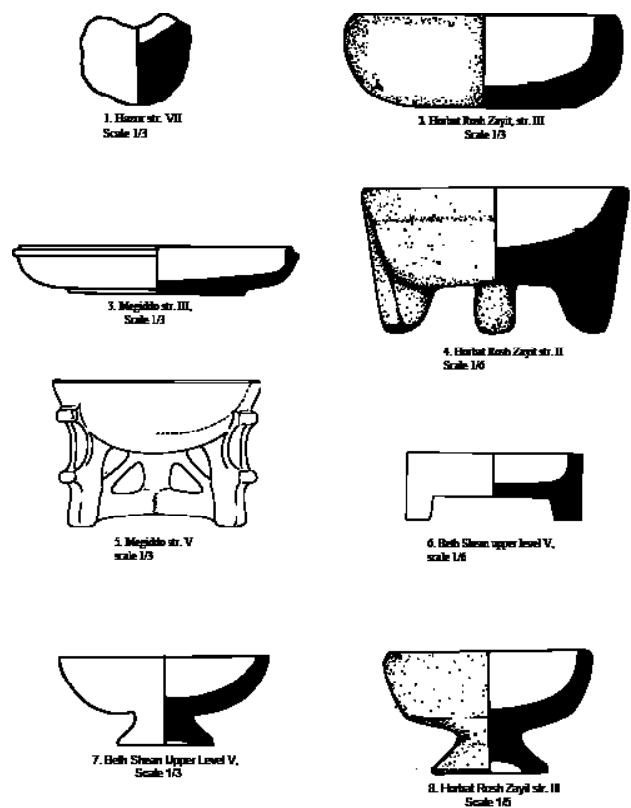


Fig. 2.1) after Yadin 1958, pl. LDC.3; 2) after Gal and Alexandre 2000, fig. III.115.2; 3) after Lamon and Shipton 1939, pl. 113.0; 4) after Gal and Alexandre 2000, fig. III.115.8; 5) after Lamon and Shipton 1939, pl. 112.13; 6) after James 1968, fig. 43.1; 7) after James 1968, fig. 43.2; 8) after Gal and Alexandre 2000, fig. III.115.5

Figure 2