IRON AGE II PHOENICIAN TRANSPORT-JARS FROM A SOUTH-LEVANTINE PERSPECTIVE: TYPOLOGY, EVOLUTION AND HIGH-RESOLUTION DATING

Gunnar Lehmann, Golan Shalvi, Harel Shochat, Paula Waiman-Barak, Ayelet Gilboa*

Abstract: Levantine "Phoenician" transport-jars developed from the 9th through 7th century BCE distinct morphological features which allow for typological definitions of high resolution. In contrast, contemporary ceramics produced in the Southern Levant are often characterized by continuation and a lack of distinction. The exceptional high research and excavation density in the Southern Levant in tandem with the available historical records are applied here to reconstruct the chronological development of the transport-jars with a relative high resolution. During the same period, the "Phoenician" expansion reached the entire Mediterranean as well as vast continental areas in the Ancient Near East, rendering the proposed chronological conclusions of significant importance beyond the Southern Levant.

Keywords: "Phoenician" Transport-Jars; Ancient Maritime Trade; Ancient Mediterranean; Southern Phoenicia; Tel Shiqmona; Tel Dor; Tell Keisan.

1. Introduction

1.1. *Rationale, Aims and Definitions*

In this paper we examine the well-known "Phoenician" Transport-Jars (TJ's) of the Iron Age II Levant, usually dubbed generically (and misleadingly) "torpedo jars". This forms part of a wider study – the Southern Phoenicia Pottery Project (SPP) – which investigates the social aspects of various categories of pottery in what we term "southern Phoenicia".[1] This includes the regions south of Rosh Ha-Niqra/Ras en-Naqura (the "Ladder of Tyre"), the present Lebanon-Israel border, to the environs of the Carmel/Sharon coasts in Israel (map Fig. 1).

For obvious reasons, transport-jars are a major focus of that study, since they provide extremely valuable data for historical, social and economic studies and they also connect regional chronologies in a wider framework. In order to trace fluctuations in their production, distribution mechanisms and meaning, the first step was the creation of a high-resolution chrono-typology for these jars. The second step was a comprehensive petrographic investigation of hundreds of jars, conducted by PWB. We shall present the mineralogical results in a later publication and here we refer to them only in a general manner. Though Lebanon was definitely not the only production region of these jars, in the current paper we retain the epithet "Phoenician". This paper then presents data that is external to the cores of production of these jars, but as we argue below in *Methods*, this peripheral frame of reference allows for insights that could not have been generated from the nuclei of production.

* G. Lehmann: Department of Bible, Archaeology and Ancient Near Eastern Studies, Ben-Gurion University; gunnar@bgu.ac.il; https://orcid.org/0000-0001-9270-4678. G. Shalvi: Department of Bible, Archaeology and Ancient Near Eastern Studies, Ben-Gurion University and Zinman Institute of Archaeology, University of Haifa; golanshalvi@gmail.com. H. Shochat: School of Archaeology and Maritime Cultures and Zinman Institute of Archaeology, University of Haifa; harelsh@hotmail.com. P. Waiman-Barak: The Sonia and Marco Nedler Institute of Archaeology, Tel Aviv University; pwaimanbarak@tauex.tau.ac.il. A. Gilboa: Zinman Institute of Archaeology and School of Archaeology and Maritime Cultures, University of Haifa; agilboa@research.haifa.ac.il.

1 Elayi 1982

https://doi.org/10.19282/rsf.50.2022.05

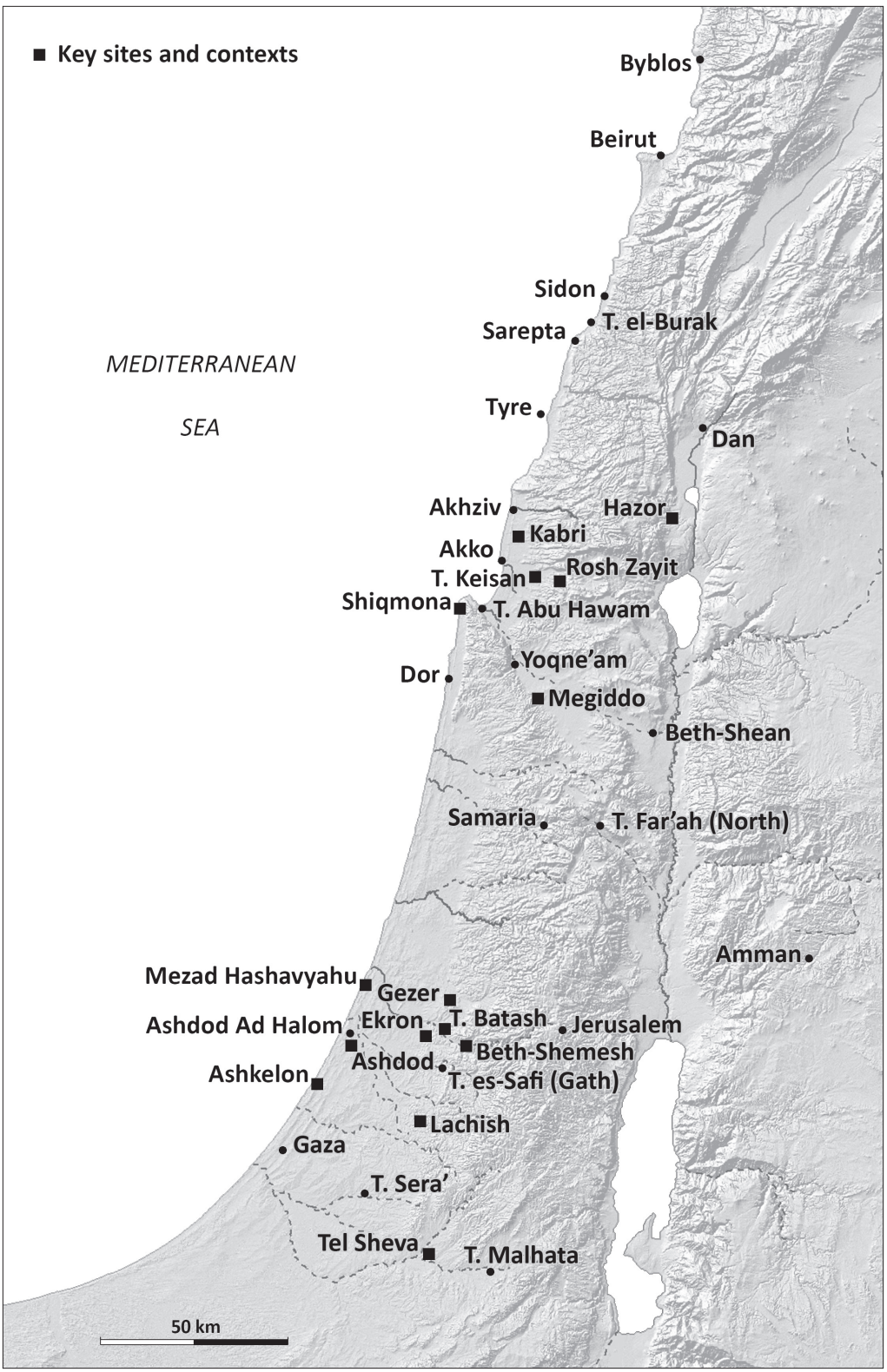

Fig. 1. Sites mentioned in the text. The so-called "Key sites" in the discussion are marked.

Our specific aims in this paper are: (1) to present the detailed typology we constructed for these jars; (2) to date the various types and demonstrate how the combinations of jar types in circulation change in specific assemblages through time; (3) to demonstrate how these changes serve as a high-resolution chronological index for various regions in the Near East and around the Mediterranean, especially for the late Iron Age, the 8th and 7th centuries BCE. This has been preliminarily suggested, based on the site of Tel Shiqmona alone, by Shalvi and Gilboa.[2] In addition to their rather rapid morphological changes, these jars have the benefit of being pervasive; they travel far, crossing cultural and geopolitical frontiers. Therefore, they constitute remarkable chronological links. We are aware of the many other aspects of ceramic transport containers which we do not address in this paper; they we will the topic of later publications.

1.2. *Research Questions and Previous Studies*

During the 9th through 7th century BCE, Levantine "Phoenician" TJs develop distinct morphological features which allow for typological definitions of relative high resolution. In contrast, contemporary ceramics produced in other areas of the Southern Levant are often characterized by continuation and a lack of distinction.

The emergence of regional hegemonies and imperial expansions resulted in repeated destructions at a number of key sites in the Southern Levant. "Phoenician" TJs from these assemblages are studied here in a typological seriation. These destruction assemblages provide a compelling foundation for a high-resolution chronology of the 9th through 7th century BCE.

We have discussed our use of the epithet "Phoenician" elsewhere and here it is sufficient to note that this paper is not operating with an assumed "Phoenician" ethnicity.[3] Rather, we understand "Phoenician" as processes of structuration, of practices and habitus which produced and reproduced the symbolic and material ordering of the social world that was conceived by external observers as the "Phoenician" or "Sidonian" way.

The SPP types of TJs discussed here represent the standardized "Phoenician" transport-jars during the Iron Age II. The emergence of early globalizing economic processes in the Mediterranean and the Ancient Near East during the 9th through 7th century BCE unfolded in an unprecedented connectivity which bridged wide distances and created new intensive contacts between societies and economies which were previously not exchanging goods and information on that level. The early globalization in trade and political expansions created challenges for the local systems of measurement and weights.

The exchange of increasing volumes of goods and their marketing led to an increasing standardization of the morphology of transport-jars, as is demonstrated by the TJs discussed in this paper. Standardization is often associated with institutional patronage.[4] During the 8th and 7th centuries BCE, several specific types of transport-jars developed as if it was necessary to distinguish commodities or their patronage from one another. The crucial point appears to us that TJs become *morphologically* "recognizable trademarks" rather than identical containers with the same volumes. In fact, the volumes even of specific types varied considerably. This is an issue we do not discuss in this paper in depth but see below the discussion of volumes of jars of the newly defined type TJ-1, and our short comments regarding type TJ-2. We note that precise correspondence of measurements is not to be expected in a time when even weights differed considerably in their accuracy.[5] Kletter quotes evidence in Egypt where differences of 5 or even 10 per cent of the price were often negligible.[6]

2 Shalvi – Gilboa 2022b.

3 E.g. Lehmann 2021.

4 Costin – Hagstrum 1995.

5 Kletter 1998, p. 71.

6 Janssen 1979; 1988.

Formal standardization is especially evident in the seven types we attribute to the 8th through the 7th centuries BCE (see below, TJ-2–TJ-9). In the 9th century BCE, morphological *variation* is much more evident. We defined only one type for this period (TJ-1, below), though other shapes are definitely in evidence. Examples for other such late Iron Age IIA jars occur for example at Sarepta,[7] Kh. Rosh Zayit[8] and Tell Keisan.[9]

Earlier studies on "Phoenician" TJs were included in Zemer's publication of a selection of jars found along the Mediterranean coast of northern Israel.[10] This was followed by the doctoral dissertation of Avner Raban[11] and the study of Antonio Sagona.[12] While these studies were groundbreaking in their time, they are somewhat obsolete today. Regarding "Phoenician" Iron Age I transport-jars, Tatiana Pedrazzi studied them in several articles and a major summary of Late Bronze Age and Early Iron Age jars.[13] Discussions of the typology, production and distribution of early Iron Age "Phoenician" containers also appear in the framework of the Tel Dor project, for example.[14]

Regarding Iron Age II – the subject of the present paper: In 1996 Lehmann published a comprehensive study of Late Iron Age ceramics in Syria and Lebanon which also included TJs.[15] Further definitions and investigations of the variability of "Phoenician" transport-jars during this time span have been conducted in the framework of the excavations at Tyre,[16] Hazor[17] and Dor[18] and in a computerized mathematical morphological comparison between the Tyre and Hazor TJ's.[19] In 2005, Carolina Aznar discussed exchange networks in the Southern Levant during the Iron Age II with a typological and a petrographic analysis of, inter alia, TJ's.[20] The hundreds of TJs found on the Iron Age ships Tanit and Elissa[21] were analyzed for their morphology and their capacities in a study directed by Israel Finkelstein.[22] This study was mainly concerned with our SPP type TJ-2 and see our comments there. Lily Singer-Avitz re-studied the pottery assemblages of Megiddo Strata III and II including the relevant TJs from these strata.[23] Her conclusions are discussed in Appendix 1 in the section dealing with Megiddo, as are other discussions of TJ's dealing with specific sites. A recent summary of current research on TJs can be found in volumes by Demestica and Knapp.[24]

All these studies made considerable progress in the investigation of ancient TJ's in the Eastern Mediterranean. They made materials available, generated typologies and chronologies. Our research stands on the shoulders of these colleagues. However, due to our approach of a high-resolution typology and chronology

7 Pritchard 1988, Fig. 43:8, 9.

8 Gal – Alexandre 2000, fig. 3.84:2, 3.92:9, 3.94:3.

9 Briend – Humbert 1980, pls. 48 and 54.

10 Zemer 1977.

11 Raban 1980.

12 Sagona 1982.

13 Pedrazzi 2007.

14 Gilboa 2018; Gilboa – Sharon – Boaretto 2008; Waiman-Barak – Gilboa 2016.

15 Lehmann 1996.

16 Bikai 1978.

17 Geva 1989.

18 Gilboa 1995.

19 Gilboa *et al.* 2004.

20 Aznar 2005.

21 Ballard *et al.* 2002.

22 Finkelstein *et al.* 2011.

23 Singer-Avitz 2014.

24 Demestica – Knapp 2016; Knapp – Demestica 2016.

for the 9th through 7th century BCE, our typology is not compatible with these earlier studies. In addition, there was considerable progress in the relevant relative and absolute chronologies, which render some of the previous conclusions outdated.

1.3. *Chronological Framework*

The Iron Age containers that we dub "Phoenician Transport-Jars" occur first in the Levant during the Late Iron IIA horizon, or Ir2a at Dor, a terminology argued to be applicable for Phoenicia.[25] Their development is discussed here until the Babylonian destructions in the decades flanking 600 BCE. These destructions terminated many settlements in the Levant, especially in its southern part.[26] In this time span, pegs of absolute chronology are of two categories. For the earliest relevant horizon, Late Iron Age IIA, in which type TJ-1 occurred, radiometric chronology is available, mostly from several sites in Israel. The absolute chronology of this horizon is still famously debated, though differences between competing opinions have shrunk. This issue has recently been summarized in detail[27] and we refer the readers to that discussion and the references therein.

We are singling out here, however, one chronological datum, from Khirbet Rosh Zayit in lower Galilee. Not only has this site produced the largest number of jars of type TJ-1 known to date, it is also the only place where such jars can be directly associated with dated organics. Both organics and jars represent the same event – the burning down of the Khirbet Rosh Zayit fortress during Late Iron Age IIA (at the end of Stratum IIa). The ^{14}C plot (Fig. 2) represents the weighted average of three samples of wheat (each measured multiple times) from three jars in the burnt level. Evidently, there is quite a wide distribution within the 9th century BCE, most of it falling between ca. 900-830 BCE, with a problematic "twin peaks" configuration caused by the wiggle of the calibration curve in this range. Specifically at Rosh Zayit the datum relates to the moment of destruction of the transport-jars. A similar radiocarbon determination has been produced by organics associated with a TJ-1 jar at the cemetery of Tyre al-Bass (see Appendix 1).

More generally speaking, the range we employ in this paper for Late Iron Age IIA in the Southern Levant is ca. 900-830/800 BCE, which is the best approximation currently possible to our minds.[28] Starting this period somewhat earlier and/or extending it a bit later cannot be ruled out at present. Because of the lack of space, we do not discuss the yet unresolved discrepancies in current chronological studies that created a divide between radiocarbon chronologies in the Mediterranean.[29]

Most of the TJ sequence, however, develops in the 8th and 7th centuries BCE, which fall within the Hallstatt Plateau of the radiocarbon dating calibration curve (ca. 800-400 BCE) when most ^{14}C determinations will calibrate to a period of several centuries, independent of measurement precision. Radiometric dating cannot, therefore, offer the resolution we require.

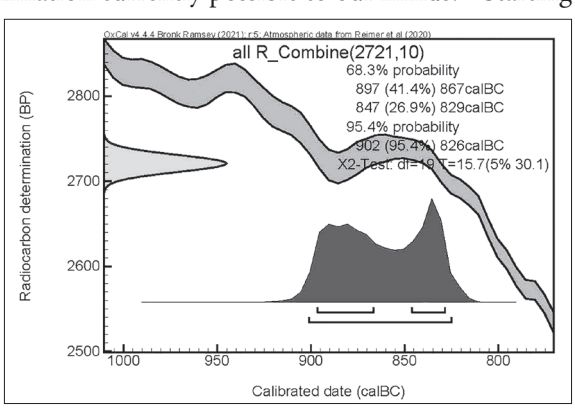

Fig. 2. Radiocarbon plot of the weighted average of three samples of wheat from three jars in the burnt level of Rosh Zayit Stratum IIa.

25 See Gilboa – Sharon 2003; Gilboa – Sharon – Boaretto 2008.

26 Faust 2012; Martin – Shalev 2022; Shalvi – Gilboa in press: Supplementary material 1.

27 Shalvi – Gilboa in press: Appendix 1.

28 Shalvi – Gilboa in press.

29 Gimatzidis – Weninger 2020.

In this timespan, the only way to offer an absolute chronology is by indirect historical dating. In effect, there *are* several reliable historical pegs for this range in the Southern Levant, mainly destruction layers whose direct or indirect associations to well-dated Assyrian and Babylonian aggressions are unanimously accepted.[30] We discuss these below, and – per specific site – in Appendix 1.

1.4. *Methods and Structure of the Study*

Catalogue.[31] As a first step, we scrutinized relevant archaeological publications of sites in the Southern Levant and compiled a comprehensive database of over 800 jars recorded in the region and pertinent for our research. We personally saw (and touched) a substantial number of them. Otherwise, we considered only illustrated vessels, the shape of which we could ascertain, mainly vessels that can be argued to be in primary contexts, but also fragments from loci of good stratigraphical integrity. To this we added unpublished material that is currently being prepared for publication by the authors; this includes ceramics from Ashdod Ad Halom, Dor, Tel Shiqmona, Tell Keisan and Tel Kabri.

Lebanon – one of the core production regions in several sub-periods – is represented by published and illustrated material from its best available stratified sequences, at Tell Burak, Sarepta and Tyre. Since we could access the relevant material from Kinet Höyük in Cilicia, where "Phoenician" TJ's from recently excavated well stratified contexts are abundant, we added this site to represent an Eastern Mediterranean coastal site far away from the core. The entire body of items we related to is presented in the Catalogue, arranged per site, alphabetically.

Typology. Subsequently we constructed for the TJ's a mostly morphological typology, based on general shape, proportions and rim shapes, and occasionally also on characteristics of fabric that were visible to the naked eye. Since, as we argue below, more often than not specific rim types could be associated with certain shapes, in many cases this typology is instrumental also when no complete vessels are preserved (or only rims kept). As mentioned, this paper does not include a detailed analysis of the fabrics, which we will discuss in a forthcoming publication. The typological list, however, does refer to previous fabric analyses of the different types, and preliminarily to our results as well.

By no means do our types represent the entire body of Iron Age "Phoenician" TJ's. We submit, however, that they represent the main varieties and that our typology is significantly more inclusive than any suggested in the past. As well, as we detail below, some "types" are better defined than others.

The typology is explicated below and Figs. 3-10 illustrate a few examples per type/subtype in order to visualize the variability we allow within a type. For each type, we define its spatial and temporal distribution.

Sites, contexts and chronology. In Appendix 1, we discuss all sites in the Southern Levant and south Lebanon which are relevant for this study in having quantitatively significant or otherwise meaningful TJ representations. We differentiate between *Key sites* and all other sites with relevant evidence. Within each category, the sites are presented alphabetically. Key Sites have the combination of substantial TJs assemblages and vital data to deduce absolute chronology, i.e., either radiocarbon dates or a broad consensus regarding the association of one or more of their occupations (frequently destruction layers) with historical events. Such key contexts currently exist only in the Southern Levant, with the exception of the above-mentioned radiometric datum from Tyre al-Bass. Thus, these levels serve as an *anchor strata* that provide an archaeological peg for absolute chronology. Beyond the range of dates established for each specific type, we constructed an inclusive chronological scheme defining sequential "SPP TJ Assemblages" which also take into account congruency

30 Faust 2021; e.g. Killebrew 2014; Sharon 2014; see now also Vaknin *et al.* 2022.

31 The Catalogue is available as an online resource: https://open.rstfen.cnr.it/index.php/rsf.

between types and relative quantities. The specific blend of types in each assemblage, and its proposed calendric dates were established based on the key sites (usually key-strata).

Regarding other sites with TJ's, in several of them the process is reversed—the chronology we provide for the TJ types can assist in more accurately dating them and settling chronological controversies—we discuss them in Appendix 1 after the presentation of the key sites.

Measuring jar capacities: We calculated volumes of jars with the "Pot-Utility" software developed by Jean-Paul Thalmann and Stefania Mazzoni as part of the ARCANE project, 2006, version 1.05. The accuracy of our calculations may have been affected by the fact that the volumes had to be calculated with pottery drawings from various publications of different standards.

2. Transport-Jar Typology of the SPP

We distinguish nine major types of transport-jars, all of which represent an increasing standardization of shape and fabrics in the Levant during the 9th through the late 7th centuries BCE. We focus on the most frequent types that occurred also in regions beyond our immediate research area of "Southern Phoenicia". A detailed typology of these jars is paired with a high-resolution chronology of the typological developments.

Most of the previous studies discussing "Phoenician" transport-jars are not entirely compatible with our typology and applying previous typological systems would blur the high-resolution chronology of morphological changes aimed at in our study.

SPP TJ-1 (Fig. 3)

Transport-jars with a round, high round shoulder with an average diameter of 30 cm and a height of 7-8 cm. The cylindrical part above the tapering has an average length of about 27 cm. The cylindrical part is often somewhat indrawn at the lower connection of the handles. The body beneath the shoulder is cylindrical and, in most instances, the lower part is tapering towards a cup-shaped base, in what Anderson has called a "knoblike protruded base", his base type B-14A.[32] This base type is very common in the early Iron Age of the Southern Levant, Iron Age I through IIA, the late 12th through the 9th century BCE, and constitutes the base of the majority of storage jar bases at various sites such as Dor, Tyre, Sarepta and more.[33] Knoblike protruding bases discontinued during the 8th century BCE with new transport-jar types appearing in the Iron Age IIB.

TJ-1 is difficult to identify when only fragments, including rim fragments are preserved, which is possibly why this type was rarely recognized and discussed in past studies (in contrast, most other types discussed here are easily recognizable even when only small rim sherds are preserved).

Type TJ-1 was discussed by Aznar[34] as her "Type 9.A. thick cylindrical storage jars," but her type included also vessels which we do not consider type TJ-1.

TJ-1 dates clearly to the Late Iron Age IIA, where it appears in well-dated assemblages (see catalogue). In only one case, at Megiddo Str. VA (Q-4; late in Late Iron Age IIA), types TJ-1 and TJ-2 were found together in primary deposition.[35] Well-dated contexts thus suggest dating TJ-1 within the second half of the Late Iron Age IIA and possibly lasting until the very beginning of the Iron Age IIB. In Salamis Royal Tomb 1 (see Appendix 1) one typical TJ-1 and one morphologically slightly diverging example are associated with

32 Anderson 1988.

33 Anderson 1988, p. 241; Gilboa 2018, type JB1.

34 Aznar 2005.

35 Kleiman 2022, Fig. 23.61:5.

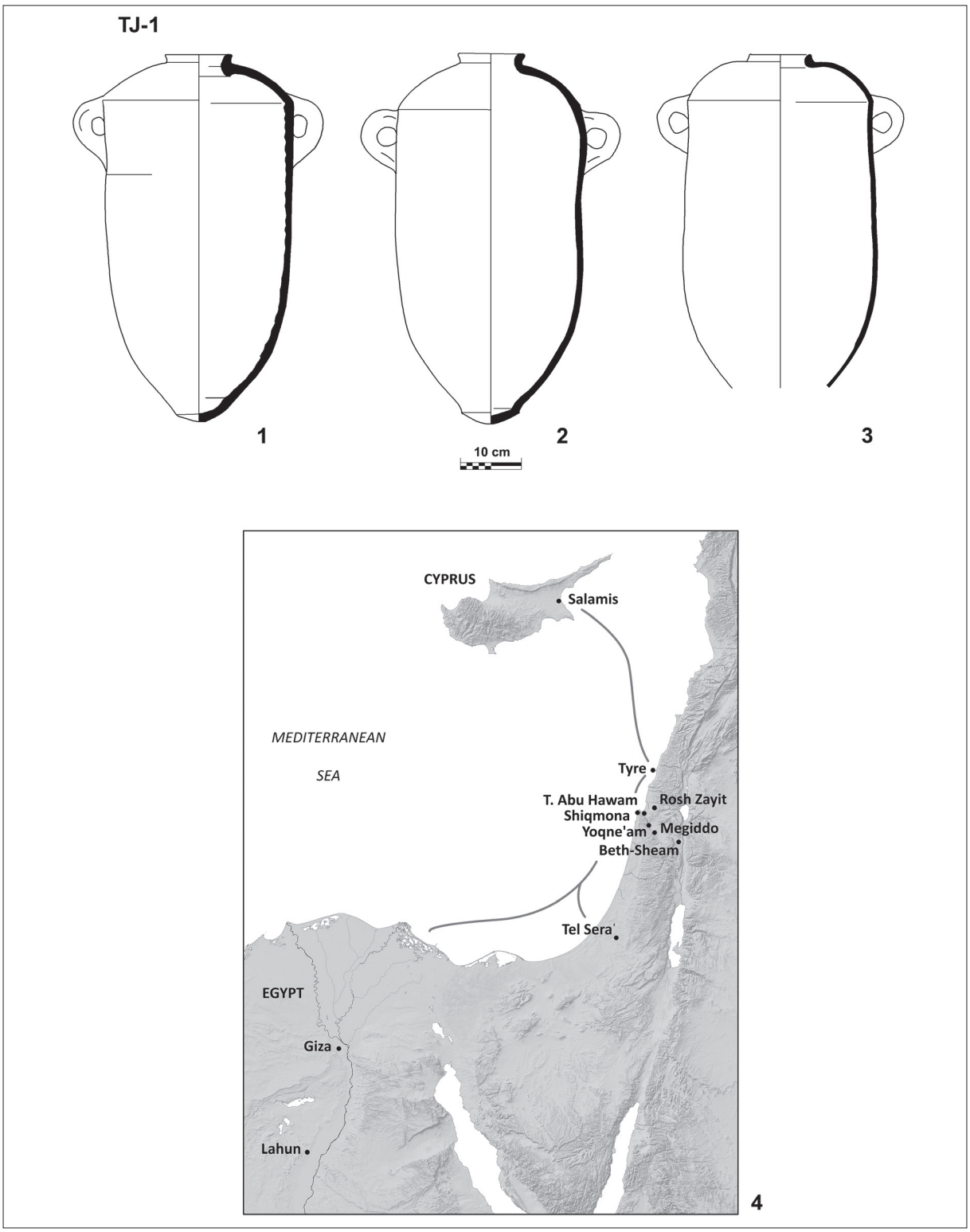

Fig. 3. Transport-jar type TJ-1: 1. Tell Abu Hawam Stratum III, drawing unpublished (for a photo see Hamilton 1935, pl. 36:172); 2. Rosh Zayit Stratum IIa (Gal – Alexandre 2000, fig. 3.92:4); 3. Shiqmona Stratum 13 (unpublished); 4. distribution map of TJ-1.

Greek Middle Geometric II ceramics as well as Cypro-Geometric III and the earliest Cypro-Archaic I styles. In Egypt, at Lahun, Type TJ-1 has been found with Cypro-Geometric III pottery.[36]

Petrographic analyses by Aznar[37] and Waiman-Barak demonstrate that type TJ-1 was produced at various locations, mainly south of the Ladder of Tyre, including the coast. This is part of the region we define as "Phoenicia" in this period.[38] Most jars of type TJ-1 were indeed recorded in northern modern Israel, but the examples from Tyre and the petrographic analysis demonstrate, as mentioned, that this type was also used and produced in Lebanon. TJ-1 was one of the earliest standardized "Phoenician" jars and was most probably used in Levantine maritime trade. This is suggested by the relatively wide distribution of TJ-1 from Cyprus to Egypt (map Fig. 3:4).

The volume of most jars (8 of n=13) ranges between 26-29 liter. This would approximately correspond to 6 Egyptian heqat (4.8 liter) or 4 Biblical seah (7.3 liter). Three jars seem to represent a smaller variation of the jar with a volume of 23 liter.

SPP TJ-2 (Figs. 4-5)

Transport-jars of type TJ-2 often appear in the literature as "torpedo" or "sausage" jars due to their long and narrow body shape. This term – which is justified when it relates to TJ-2 – is, however, misleading when it is applied to a variety of different types of transport-jars without any critique. Bikai referred to this type as "Crisp Ware" because of its crisp brittle ware usually with a light surface bloom.[39]

The body beneath the shoulder carination is straight and cylindrical. The total height of standard jars is between 68 and 73 cm (Fig. 4:7) and is slightly taller than 2 Egyptian cubits (62.76 cm). The volume of the jars was identified as equaling approximately 4 Egyptian "heqat" measurements (1 heqat equals 4.8 liter), with most vessels holding a volume of 17-19 liter.[40]

Previous studies suggested that TJ-2 transport-jars are highly standardized in their capacity with standard deviations of less than 2 cm in height and around 1 cm in width.[41] In the latter paper, the authors concluded that the volumes of 22 cylindrical jars from the Tanit and Elissa shipwrecks (see below, Appendix 1), which are of our type TJ-2, show high standardization in their volumes. They interpreted them as representing 4 Egyptian *hekats* (4 X 4.8 liter = approximately 19 liter). We measured 64 TJ-2 specimens from several sites, produced in several locales. Their volumes range between approximately 14–29 liters, so evidently the picture is more complex than might be deduced from the 22 jars, which, as these authors emphasize, represent one "closed" event.[42]

Examining jars from several contexts (see catalogue and Figs. 4-5), we found the jars to have a relatively high rim between 2.5 and 3.5 cm. The diameter at the shoulder carination is always within an average range of 18 and 24 cm. The distance from the shoulder carination point to the rim (Fig. 4:7 measurement 1) is between 6 and 9 cm. The shoulder angle (Fig. 4:8 measurement 2) is somewhat steep between 27° and 37° degrees. The opening of the vessel inside at the rim (Fig. 4:7 measurement 3) is between 8 to 9 cm wide. It has been posited that the opening of the vessel would have equaled 1 Egyptian "hand".[43] The opening

36 Petrie – Brunton – Murray 1923, Pl. 55a.

37 Aznar 2005.

38 Gilboa 2022; Lehmann 2021.

39 Bikai 1978, p. 46.

40 Finkelstein *et al.* 2011.

41 Ballard *et al.* 2002, p. 159; Finkelstein *et al.* 2011.

42 Finkelstein *et al.* 2011, p. 250.

43 Finkelstein *et al.* 2011.

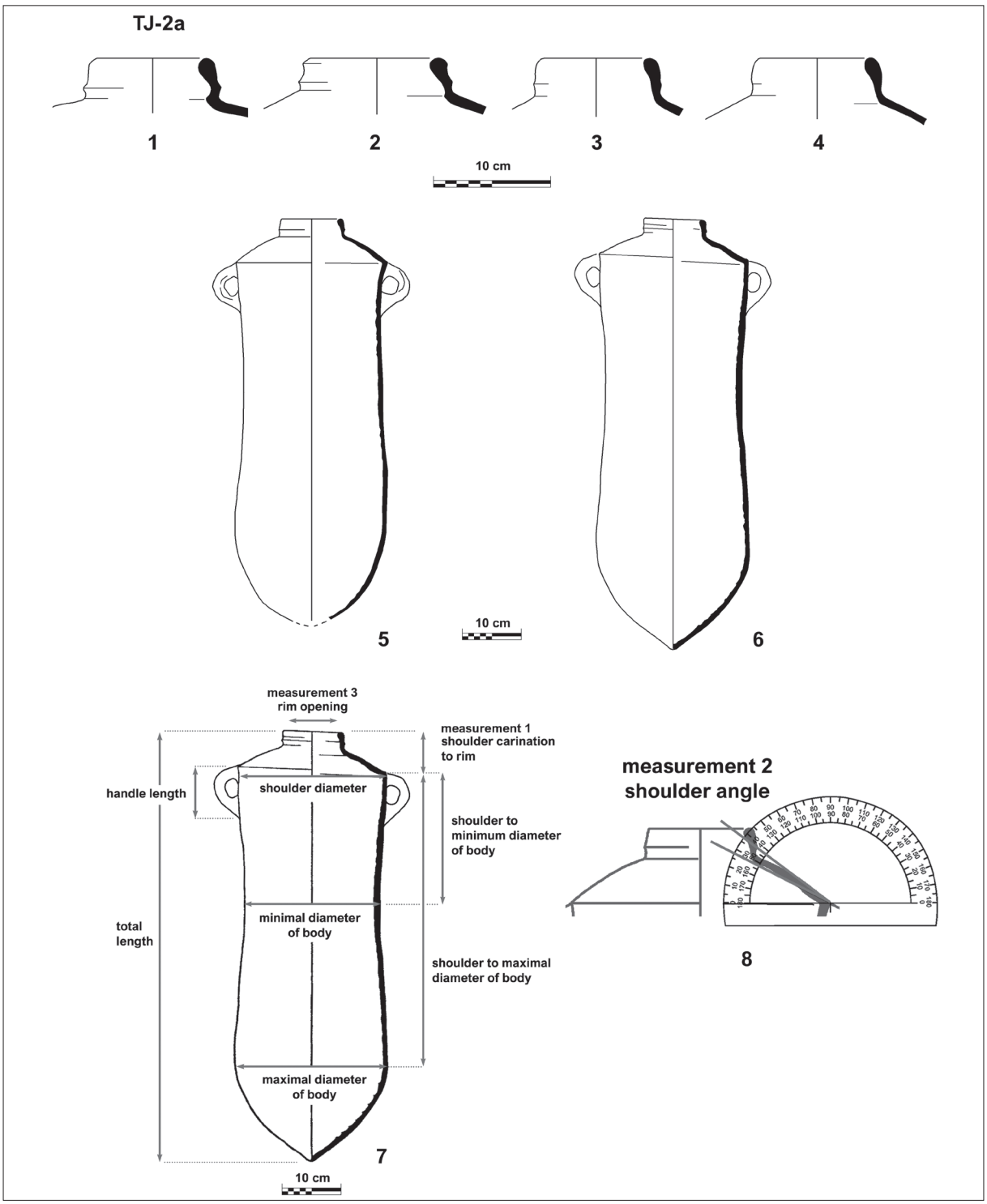

Fig. 4. Transport-jar type TJ-2a: 1. Hazor Stratum VA (Yadin 1960, pl. 96:5); 2. Dor Stratum A-9 (Gilboa 1995, fig. 1.6:11); 3. Kition Area II, Courtyard A/16, Floor 3 (Bikai 1987, n. 620); 4. Kition Area II, Bothros 13/1, Floor 3 (Bikai 1987, n. 619); 5. Hazor Stratum V (Ben-Tor *et al.* 1997, fig. 3.46:1); 6. Hazor Stratum VI (Yadin 1960, pl. 72:8); 6. Measurements taken from the body of jar type TJ-2; 7. Measurements of the shoulder angle of jar type TJ-2.

inside at the rim is indeed 8 and 9 cm wide in almost all "Phoenician" transport-jars, just enough to insert an arm into the vessel.[44]

While the body size and proportions are very similar in almost all jars of type TJ-2, there is a considerable variation in the size and form of the rims. The three main sub-types which are distinguished here (TJ-2a, b and c) are defined by different rim forms and not by distinctions of the main body of the vessel. The rim differentiation is graphically explained in Fig. 4:1-4 and Fig. 5:1-3, 7-8.

As for the fabric of these jars, macroscopically, the color even of the same morphological forms varies considerably from reddish to grey; it is hard with a "crispy" surface and includes fine white temper. The jars from the shipwrecks Tanit and Elissa have been reported to display a distinct petrographic profile for the eastern Mediterranean. The fabric contains the remains of algae of the genus Amphiroa, which is a clear marker of the Quaternary beach deposits of the central Levantine coast.[45] Petrographic analyses by Aznar[46] and generated by our study demonstrate that type TJ-2 jars were produced at several locations. Most jars were produced in southern Lebanon where type TJ-2 is also evident at the kilns excavated at Sarepta and as wasters in an industrial area in Tyre.[47] At Tell el-Burak, near Sarepta, most TJ-2 jars were produced with the local fabrics 1a and 1b.[48] A TJ-2 fragment found at Kinet Höyük, Cilicia, was analyzed with Neutron Activation Analysis (sample GLT055) and proved to be similar to a TJ-2 jar from Tyre (TC 16).[49] A substantial number, however, can be attributed petrographically to the northern coast of modern Israel.

The 21 jars retrieved from the shipwrecks Tanit and Elissa had all once been lined inside with resin. Patrick McGovern pointed out that in the one jar examined for residues there were traces of tartaric acid, an organic acid which was understood to indicates grapes or grape products such as wine.[50]

Regarding chronology: the many stratified examples of type TJ-2 and its subtypes date to the Iron Age IIB, the 8th century BCE. One of the oldest examples is possibly a complete jar found at Megiddo Str. VA (Q-4) associated with a complete jar of type TJ-1.[51] This is the only example ever reported to have been recovered from an Iron Age IIA context. Another possibly early example is the (rimless) one in Stratum 3 at Beth Shemesh, if the excavators' end date of 790 BCE for this occupation is accepted (for a later option, see Appendix 1). An important *terminus ante quem* for the beginning of production of this type is provided by the 8th century stratigraphical sequence at Hazor, where some buildings of Sub-Stratum VI were most probably destroyed in an earthquake ca. 760 BCE.[52] Since TJ-2 is already well represented at Hazor in Sub-stratum VII, they should probably be dated a few decades earlier, around 780 BCE. Most frequently, however, TJ-2 jars are associated with destruction levels attributed to the Assyrian king Tiglath-Pileser III, and at Ashdod in a destruction layer of 711 BCE, so in total between 734-712 BCE. Thus, type TJ-2 was first produced at the very end of the Late Iron Age IIA (Megiddo Level Q-4) and occurred mainly during the Iron Age IIB between ca. 800-710 BCE. TJ-2 jars occasionally occur in destruction levels of Sennacherib (ca. 700 BCE), which apparently indicates that they continued to be used till then, but in very restricted numbers (see discussion below).

44 For near-identical conclusions regarding other types of Iron Age Levantine jars cfr. Karasik – Harush – Smilansky 2020.

45 Ballard *et al.* 2002, p. 160; Daniel Master, personal communication.

46 Aznar 2005.

47 Bikai 1978.

48 Schmitt *et al.* 2018.

49 Bieber 1978.

50 Ballard *et al.* 2002, pp. 160-161.

51 Kleiman 2022, Fig. 23.61:5.

52 Austin – Franz – Frost 2000; Shochat – Gilboa 2018, 371, 373, 376, both with references.

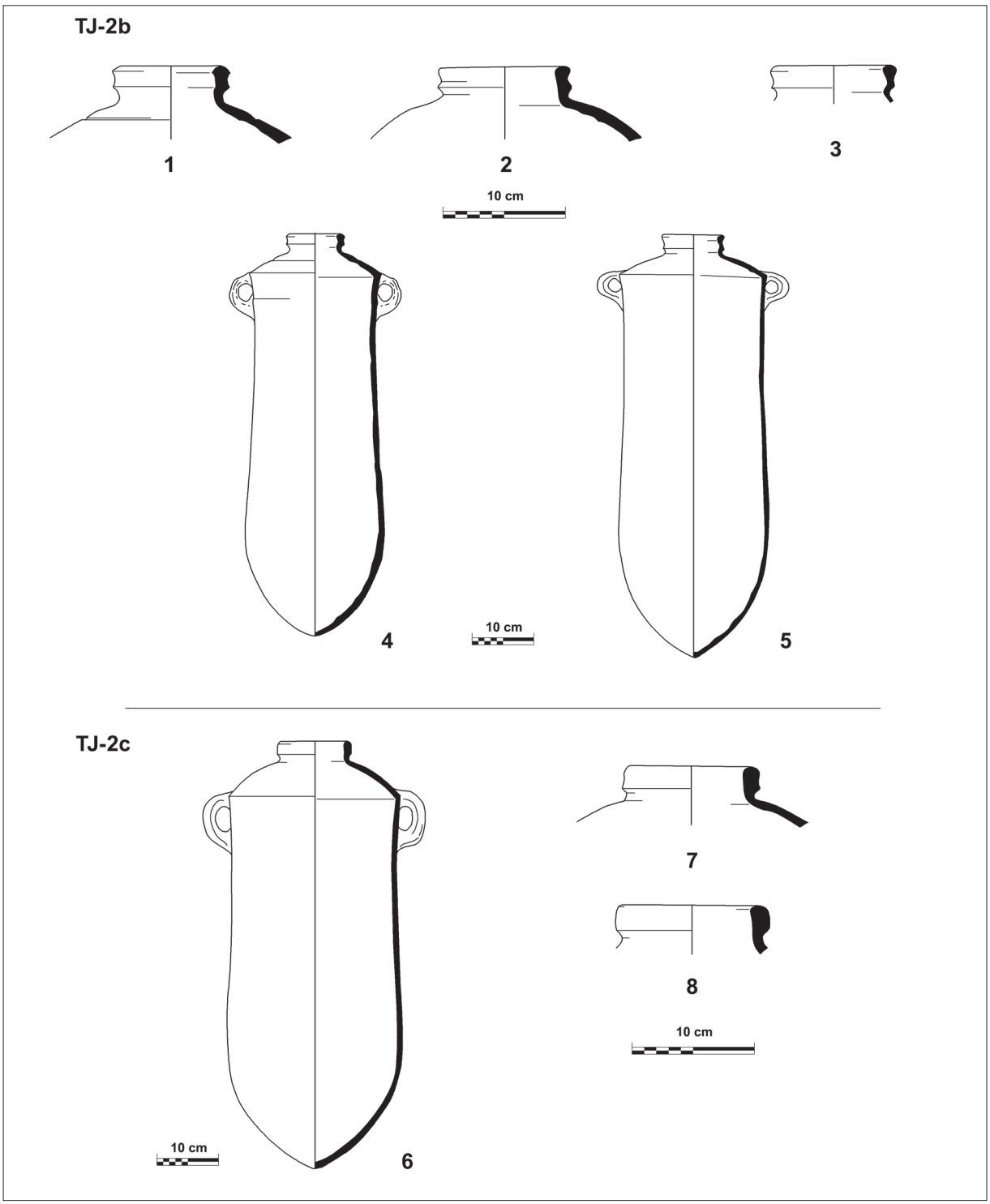

Fig. 5. Transport-jar types TJ-2b and TJ-2c: 1. TJ-2b, Hazor Stratum VA (Ben-Tor *et al*. 2012, fig. 4.35:8); 2. TJ-2b, Hazor Stratum VI (Yadin 1960, pl. 73:12); 3. TJ-2b, Dor Stratum C1-5b (Gilboa 1995, fig. 1.15:30); 4. TJ-2b, Hazor Stratum VA (Ben-Tor *et al*. 2012, fig. 4.35:8); 5. TJ-2b, Megiddo Stratum IVA (Finkelstein *et al*. 2000, fig. 11.53:13); 6. TJ-2c, Hazor Stratum VA (Yadin 1960, pl. 91:11); 7. TJ-2c, Hazor Stratum VA (Yadin 1961, pl. 230:28); 8. TJ-2c, Dor Stratum A-9 (Gilboa 1995, fig. 1.6:8).

As for distribution, TJ-2 transport-jars are among the most frequent "Phoenician" ceramics during the 8th century BCE and appear not only in Lebanon, Syria, southern Anatolia, Israel, Egypt and Cyprus. TJ-2 jars were also found in early "Phoenician" colonies in the western Mediterranean.[53] The evidence discussed here indicates that this type of transport-jar is closely connected with southern Lebanese economies and possibly reflects the expansion of Tyrian/Sidonian activities during the 8th century BCE. This is an issue which we will discuss in more detail in the future.

SPP TJ-3 (Fig. 6:1-2)

TJ-3 are small transport-jars and look like a small version of the "torpedo" jar TJ-2. Their rims are different from those of TJ-2 and are usually straight with a simple lip that is sometimes pointed. The rims are never thickened nor indented. The six complete jars which we measured had a variety of volumes which do not correspond well with Egyptian measures of volume. Our small sample points to an average volume of about 3.2 liter volume. Significantly, these jars are holding half the volume of the standard hole-mouth jars used in the kingdom of Israel which seem to represent the seah unit of measure with 7.3 liter.[54] TJ-3 is so far mainly known from Hazor Sub-Stratum VII through Sub-Stratum VA (see catalogue). One example was found at Beth-Shean Level P-7[55] and a relatively small jar similar to TJ-3 was recorded at Tyre Str. II (Bikai 1978: Pl. 3:3).

SPP TJ-4 (Fig. 6:3-6; Fig. 7:1-4)

Elongated jars of type TJ-4 generally resemble the "torpedo" shapes of type TJ-2. The main difference between both types is the "waisted" shape of TJ-4 with its incurving body beneath the shoulder carination, which forms a "S"-shaped profile. The jars are generally shorter than TJ-2. The fabric is also like TJ-2 with a hard "crispy" surface and fine white temper. The shoulder and the lower portion of the jars are considerably wider than the diameter of the middle portion. The shoulder angle is somewhat steep between 20° and 37° degrees. The opening of the vessel inside at the rim is, again, 8–9 cm wide. The jars have a considerable variety of rim types, which are the main criteria for distinguishing three main sub-types:

TJ-4a: with a high rim with an in-turning lip.

TJ-4b: with a high, thick rim, ridged externally.

TJ-4c: with a squarish, thick rim, which is often tilted or drawn inside.

Petrographic analyses by Aznar[56] and our own demonstrates production on the south Lebanese coast, on the coast of Galilee/Akko plain and marginally also on the Carmel coast. At Tell el-Burak, near Sarepta, TJ-4 jars were produced mainly with the local fabrics 1a and 1b.[57]

In the Southern Levant, TJ-4 jars occurred first, and are well-represented, in destruction levels attributed to campaigns of the Assyrian king Sennacherib (ca. 700), e.g. Lachish Stratum III (see catalogue). This suggest that the TJ-4 jars and their subtypes commenced shortly after 712 BCE, the last campaign of Sargon II in the Southern Levant, and continued into the first half of the 7th century BCE (but not later than that, see below). They were also found in such sites/contexts as Ashdod VI and the Assyrian building of Ashdod Ad Halom Strata 7a and 7b, and Tel Miqne-Ekron Stratum Ic. At Megiddo they were found in Strata III and II, at Dor, abundantly, in the Assyrian occupation levels, and at Tel Shiqmona mainly in Stratum 10 (and as complete vessels – only in this stratum).

53 E.g. Docter 2007, Fig. 350: 5416-5418; Vegas 1999 and more.

54 Butcher 2020, Tab. 2.

55 Mazar 2006, Pl. 37:4.

56 Aznar 2005.

57 Schmitt *et al.* 2018.

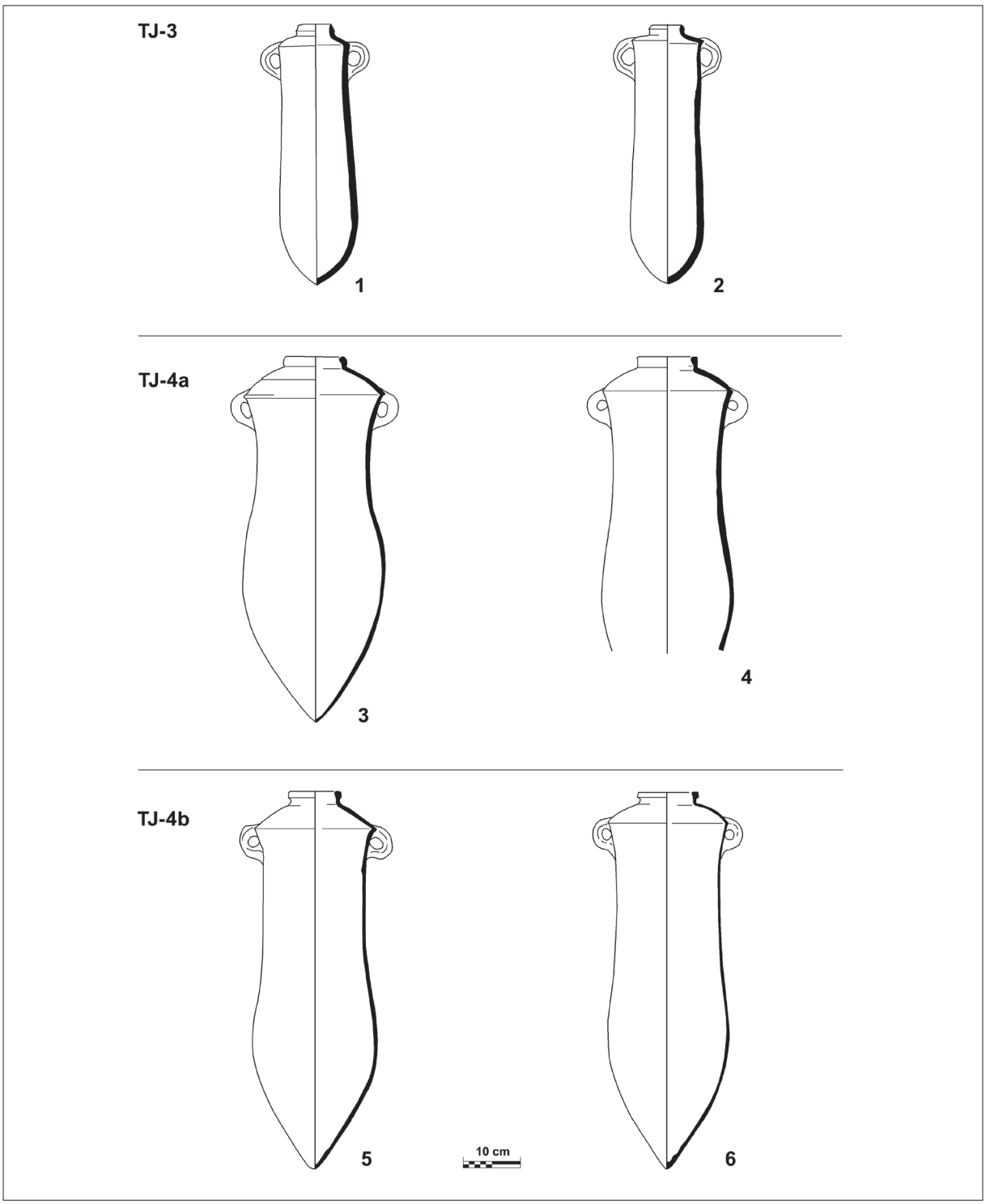

Fig. 6. Transport-jar types TJ-3, TJ-4a and TJ-4b: 1. TJ-3, Hazor Stratum VA (Yadin 1961, pl. 229:9); 2. TJ-3, Hazor Stratum VA (Yadin 1961, pl. 229:10); 3. TJ-4a, Megiddo (Lamon – Shipton 1939, pl. 16, Jar type 80); 4. TJ-4a, Shiqmona Stratum 10 (Shalvi – Gilboa 2022a, pl. 8:7); 5. TJ-4b, Beersheba Stratum II (Singer-Avitz 2010, fig. 1:2); 6. TJ-4b, Tell er-Ruqeish Tomb 22 (Culican 1973, fig. 4:R22).

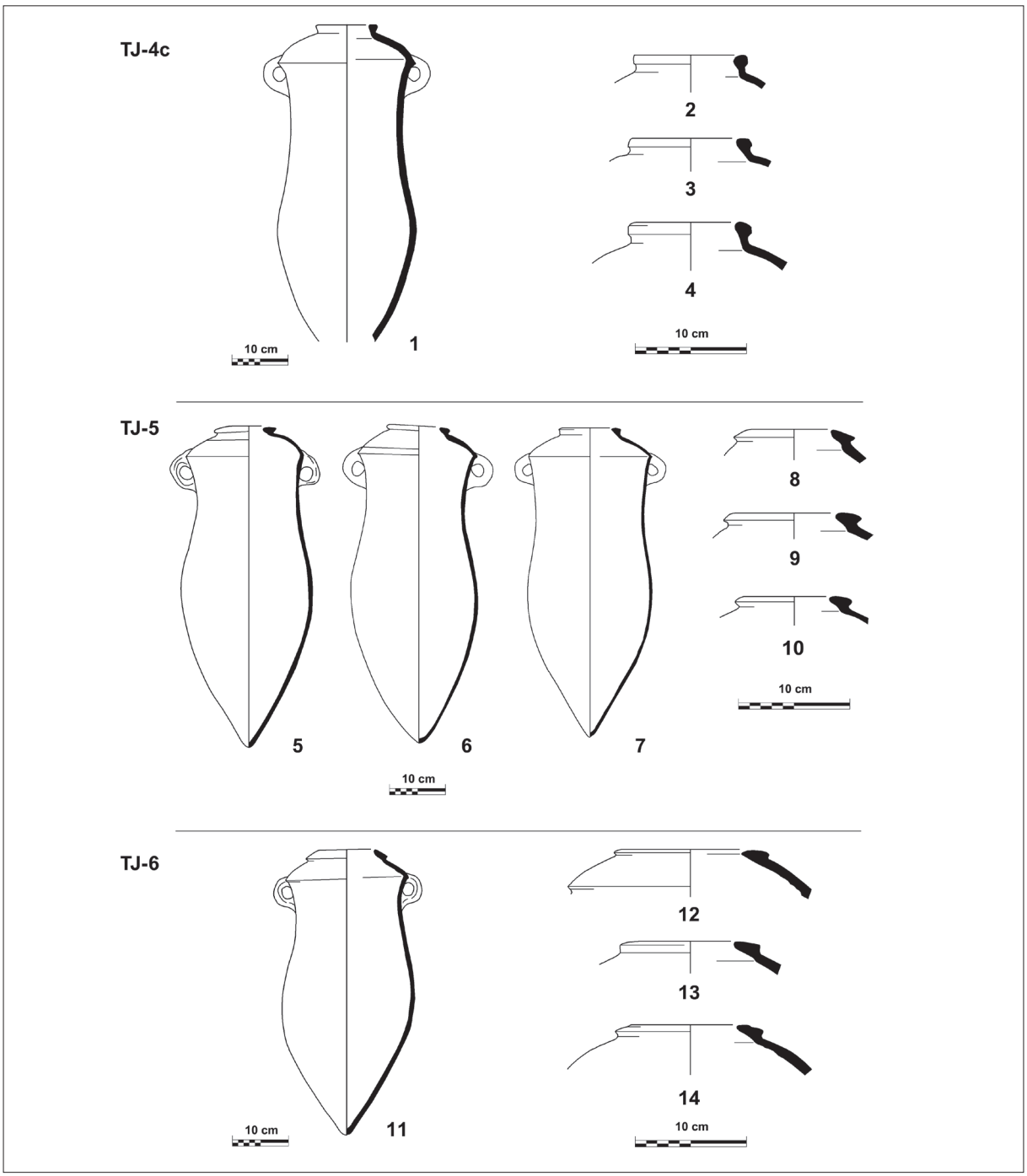

Fig. 7. Transport-jar types TJ-4c, TJ-5 and TJ-6: 1. TJ-4c, Shiqmona Stratum 10 (Shalvi –Gilboa 2022a, pl. 8:2); 2. TJ-4c, Gezer Stratum VA (Gitin 1990, pl. 26:6); 3. TJ-4c, Gezer Stratum VA (Gitin 1990, pl. 26:7); 4. TJ-4c, Gezer Stratum VA (Gitin 1990, pl. 26:8); 5. TJ-5, Lachish Stratum III (Zimhoni 2004, fig. 26.22:7); 6. TJ-5, Megiddo (Lamon – Shipton 1939, pl. 16, Jar type 79); 7. TJ-5, Shiqmona unstratified (unpublished, register number SH-149); 8. TJ-5, Hazor Stratum post-V (Ben-Tor *et al.* 1997, fig.3.50:17); 9. TJ-5, Hazor Stratum post-V (Ben-Tor *et al.* 1997, fig. 3.50:18); 10. TJ-5, Dor Stratum A-10 (Gilboa 1995, fig. 1.6:19); 11. TJ-6, Nimrud ZT 27 (unpublished, Ashmolean Museum AN 1954.32); 12. TJ-6, Hazor Stratum V (Ben-Tor *et al.* 1997, fig. 3.48:17); 13. TJ-6, Ashdod Ad Halom unstratified (unpublished); 14. TJ-6, Kabri Area E sq. OP7 L.1991/1992 (unpublished).

SPP TJ-5 (Fig. 7:5-10)

These jars resemble type TJ-4, they are, however, shorter, the "waist" is higher, and their rims are flat and oftentimes sharply shaped with some instrument. Often the rims are dented inside. The body runs into a V-shaped base. The complete vessels measured had a volume of 10-11.5 liter. Type TJ-5 is somewhat similar to TJ-6, yet it is longer than TJ-6 and does not have the dark brown and coarse fabric which defines TJ-6.

TJ-5 have a rather restricted chronological distribution, not many are known, but they are widespread geographically. The best datable contexts are Megiddo Stratum II and Tel Shiqmona Stratum 9, and they also occur in the "Casemate building" at Beirut, at Tyre Stratum II, and at Assyrian-period Dor, for example in Phase B/6-5c (see catalogue). Two examples from the 701 destruction level at Lachish Stratum III seem to indicate that the production of TJ-5 commenced at the very end of the 8th century BCE. Yet, most type TJ-5 jars were in use during the first half of the 7th century BCE, mainly in its beginning. Petrographic analyses by Aznar[58] and by us identified southern Lebanon and the northern coastal plain of Israel (the Akko plain) as the main provenance of TJ-5; thus far Carmel coast production is not represented.

SPP TJ-6 (Fig. 7:11-14)

Jars with rim lying flat on the shoulder. The body is "waisted" under the shoulder carination, which is sometimes sharply protruding. The maximal diameter is usually in the lower part of the body. The base is pointed and V-shaped. The jars have an average volume of 12 liter. The fabric is dark brown and coarse. While TJ-6 may appear on drawings similar to TJ-5, it is shorter than TJ-5 and is distinguished from it by its fabric. Our very limited petrographic analysis of two jars only suggests production on the northern coast of modern Israel.

TJ-6 jars are well represented in Assyrian period levels in the southern as well as in the northern Levant as for example in Kinet Höyük 8-7 (see catalogue). Notably, one complete jar was found in Nimrud in Building ZT, the Northern Extension of the N.W. Palace in Room 27 (Fig. 7:11, see catalogue). Several fragments of TJ-6 jars were found in the Assyrian building at Ashdod Ad Halom 7a-6 (see catalogue). Beyond these sites, a limited number of these jars are known from Hazor IV, Tell Keisan and possibly Assyrian period contexts at Dor and Tyre (see Appendix 1). The TJ-6 example from Tell Keisan found in Locus 403,[59] assigned by the excavators to Niveau 4, should be attributed to Niveau 5 (see discussion in Appendix 1).

According to our analysis, type TJ-6 was in use during the latter part of the Assyrian period, our Assemblages 4 and 5 which we attribute to ca. 700-640 BCE.

SPP TJ-7 (Fig. 8)

This too is a "waisted" transport-jar. We are distinguishing four subtypes of TJ-7:

TJ-7a: TJ-7a is a small jar with an average length of 46-50 cm. The jar has no neck, and the rim is flat and wide. The shoulders form an acute angle with the body. The body displays a distinct waisted upper part, the waist being just below the shoulders, under which, the body widens to a bulbous belly in the lower half, which in turn tapers to a point.[60] Most examples of TJ-7a have a well fired finely levigated yellowish fabric which is easily defined visually. The volume of TJ-7a ranges between 9 and 10 liters. According to the petrographic analysis by Aznar[61], Paula Waiman-Barak[62] and the current study, 7a jars were produced in southern

58 Aznar 2005.

59 Briend – Humbert 1980, Pl. 25:5.

60 See already Sagona 1982, p. 80.

61 Aznar 2005.

62 Waiman-Barak *et al.* 2017.

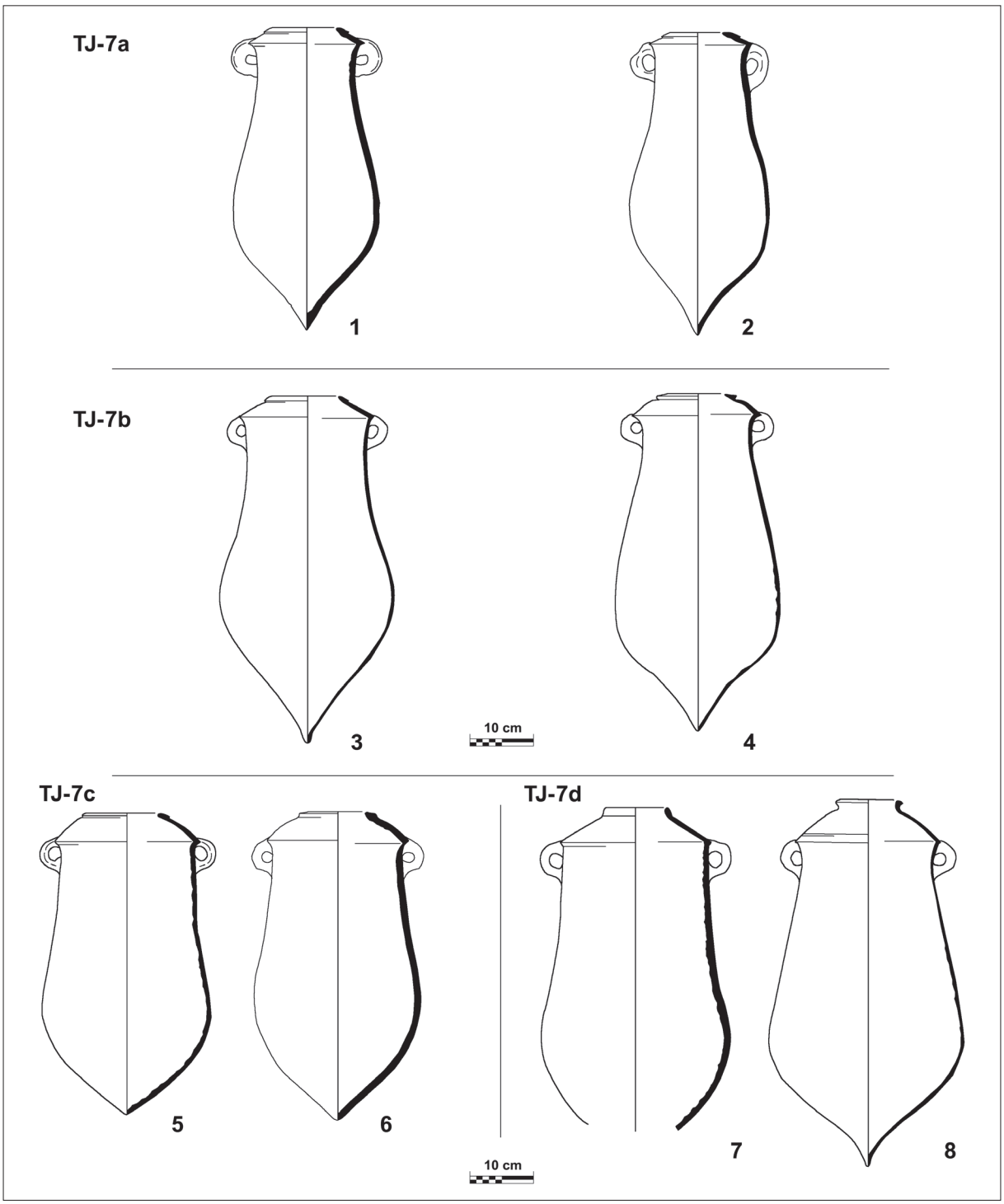

Fig. 8. Transport-jar types TJ-7a, TJ-7b, TJ-7c and TJ-7d: 1. TJ-7a, Shiqmona Stratum 7 (Shalvi – Gilboa 2022b, fig. 8:1); 2. TJ-7a, Kabri Stratum E2a (Lehmann 2002, fig. 5.82:12); 3. TJ-7b, Tell Keisan Niveau 4 (Briend – Humbert 1980, pl. 27:1); 4. TJ-7b, Tell Keisan Niveau 4 (Briend – Humbert 1980, pl. 27:4); 5. TJ-7c, Ekron (Tel Miqne) Area IIISE Building 502 Room b (Gitin 2012, fig. 9:5); 6. TJ-7c, Shiqmona Stratum 8 (Shalvi – Gilboa 2022b, fig. 5:5); 7. TJ-7d, Tell Keisan Niveau 4 (Briend – Humbert 1980, pl. 27:7); 8. TJ-7d, Tell Keisan Niveau 4 (Briend – Humbert 1980, pl. 25:1).

Lebanon and the northern coastal plain of Israel (the Akko plain). This sub-type has a wide distribution beyond the Lebanon and the Southern Levant. The earliest best-stratified and dated examples of TJ-7a were found at Tell Keisan Niveau 5 and Shiqmona Str. 8. Others are known at Ashdod Ad Halom Stratum 7b and in the latest Assyrian period contexts at Dor. The type commenced thus at the end of the Assyrian period, in our SPP Horizon 5. Most TJ-7a jars, however, were recorded in Babylonian destruction contexts, dating to the end of the 7th and the beginning of the 6th century BCE – our SPP Horizon 6 (see below).

TJ-7b: Subtype TJ-7b is very similar in its main characteristics to TJ-7a, but the vessel is slightly wider and longer (ca. 55 cm). The fabric is not always yellowish as with type TJ-7a. The volume of TJ-7b ranges between 11 and 14 liters. This subtype is so far known only from Tell Keisan Niveau 4 and Shiqmona Stratum 7 (see catalogue). We thus attribute TJ-7b to our SPP Horizon 6, dating to the end of the 7th and the beginning of the 6th century BCE.

TJ-7c: Subtype TJ-7c is a small jar with a length of 47-49 cm. This subtype has a wider body than TJ-7a, with a flat rim. The measured volumes of TJ-7c range between 13-15 liter. The earliest best-dated examples of TJ-7c have been found at Tell Keisan Niveau 5 and Shiqmona Stratum 8, where they are also best represented. The type thus commenced at the end of the Assyrian period, in our SPP Horizon 5. Other examples are, e.g., from Ekron (Tel Miqne) Stratum IB, Tell el-Far'ah (North) Stratum VIIe and even from Kinet Höyük Period 6. Most TJ-7c jars, however, were recorded in levels associated with Babylonian destructions of the end of the 7th and the beginning of the 6th century BCE, our SPP Horizon 6 (below).

The rims of subtypes TJ-7b and TJ-7c are often difficult to distinguish from those of type TJ-6. The main difference is the dark, coarse fabric, which distinguishes TJ-6 from TJ-7b/c.

TJ-7d: jars of subtype TJ-7d form only a very vaguely defined group of tall waisted jars that lack the characteristic flat rim of subtypes TJ-7a-c. This subtype is taller than all other variants of TJ-7. Examples of TJ-7d were so far found only at Tell Keisan Niveau 4 (see catalogue). They have no uniform volume. According to the petrographic analysis by Aznar (2005) TJ-7d jars were produced in southern Lebanon. We attribute TJ-7d to the Babylonian destruction horizon of the late 7th and the beginning of the 6th century BCE, the SPP Horizon 6.

According to the petrographic analysis by Aznar[63] and our own, TJ-7 jars were apparently produced mostly in southern Lebanon while specifically TJ-7a seems to be exclusively of southern Lebanese origin.

SPP TJ-8 (Fig. 9)

This transport-jar has a thick rim, a round convex shoulder and a waisted upper body which widens to a bulbous belly in the lower half, tapering to a pointed base. This type was previously not identified in the relevant literature, and it is difficult to identify with fragments only. The volumes of these jars range between 13 and 15 liters. Examples of TJ-8 were so far found at a few contexts only such as Dor in the Assyrian-period occupation, Yoqne'am Stratum "12-11", Shiqmona Stratum 7 and Tell Keisan Fosse 5049 which we suggest dating to Keisan Niveau 5. The jars evidently cluster at the Carmel coast, the Akko plain and the western Jezreel Valley. The impression that they are a regional product is corroborated by our petrographic analysis, which identified the Carmel coast as the provenance for the few sampled jars. TJ-8 is currently- attested only in Assemblages 5 and 6.

SPP TJ-9 (Fig. 10)

TJ-9 is one of the most widely distributed transport-jars of the "Phoenician" economy.[64] The jar is also known as "V-shaped" or "bullet-shaped" jar. In the detailed studies of this type by Bettles and the Tell Burak

63 Aznar 2005.

64 Lehmann 1996, Types 388-392 with references and distribution in Syria and Lebanon.

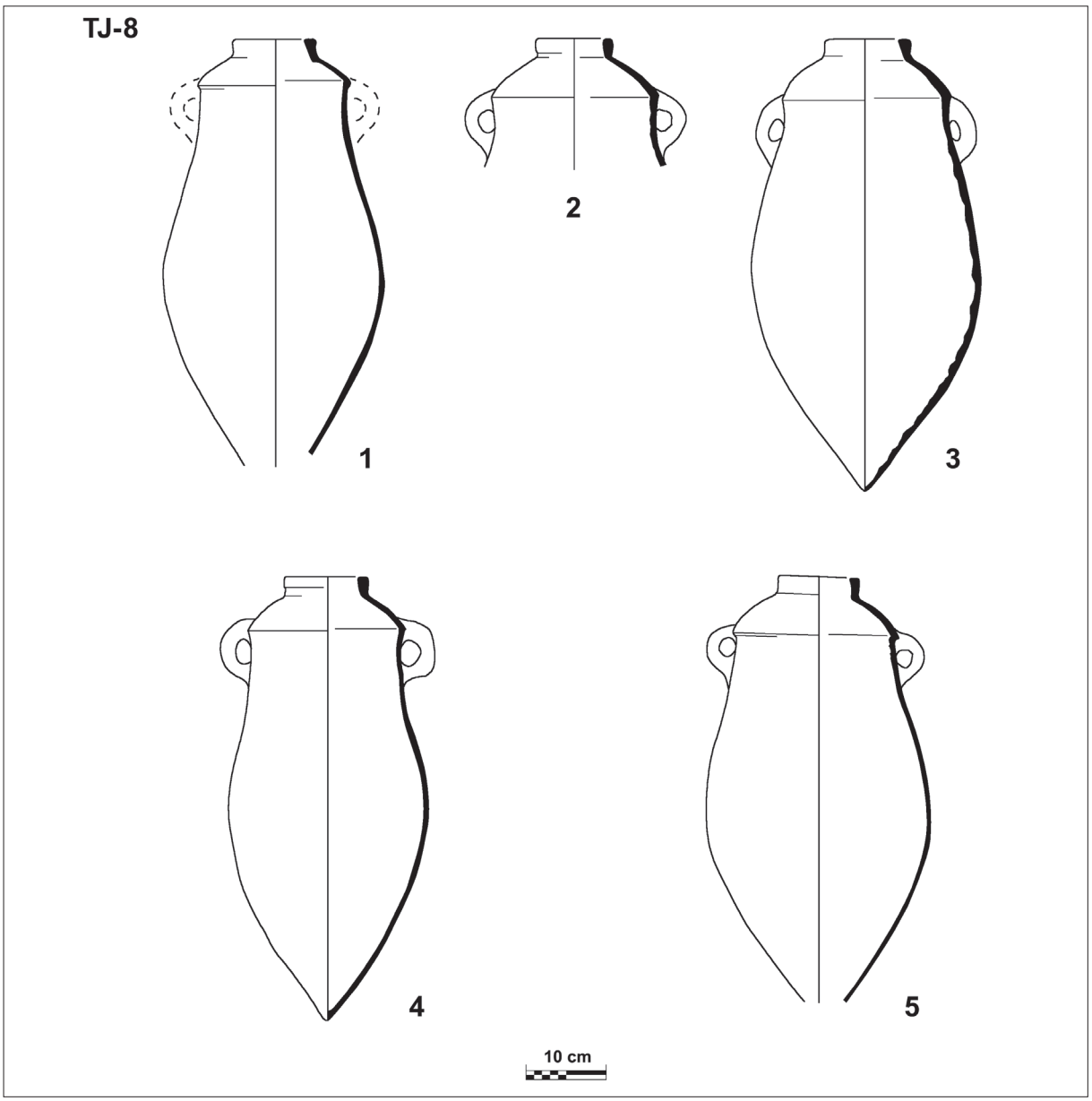

Fig. 9. Transport-jar type TJ-8: 1. Tell Keisan Niveau 4 (Briend – Humbert 1980, pl. 27:8); 2. Dor Stratum C2-7 (Gilboa 1995, fig. 1.8:28); 3. Dor Stratum B-5 (Gilboa 2015, fig. 3.1.10:10); 4. Shiqmona Stratum 7 (unpublished); 5. Yoqne'am Stratum 11-12 (Ben-Tor *et al.* 2005, fig. 1.86:3).

expedition,[65] the jar is called Carinated-Shoulder Amphora. Since most jars discussed here have carinated shoulders, we prefer to distinguish TJ-9 as "bullet-shaped". It is a relatively small jar, usually with a length of less than 60 cm. TJ-9 are neckless vessels with a small, thickened rim, which is the standard rim (Fig. 10:6). A less frequent variation are jars with a high rim (Fig. 10:7).

65 Bettles 2003; Schmitt *et al.* 2018.

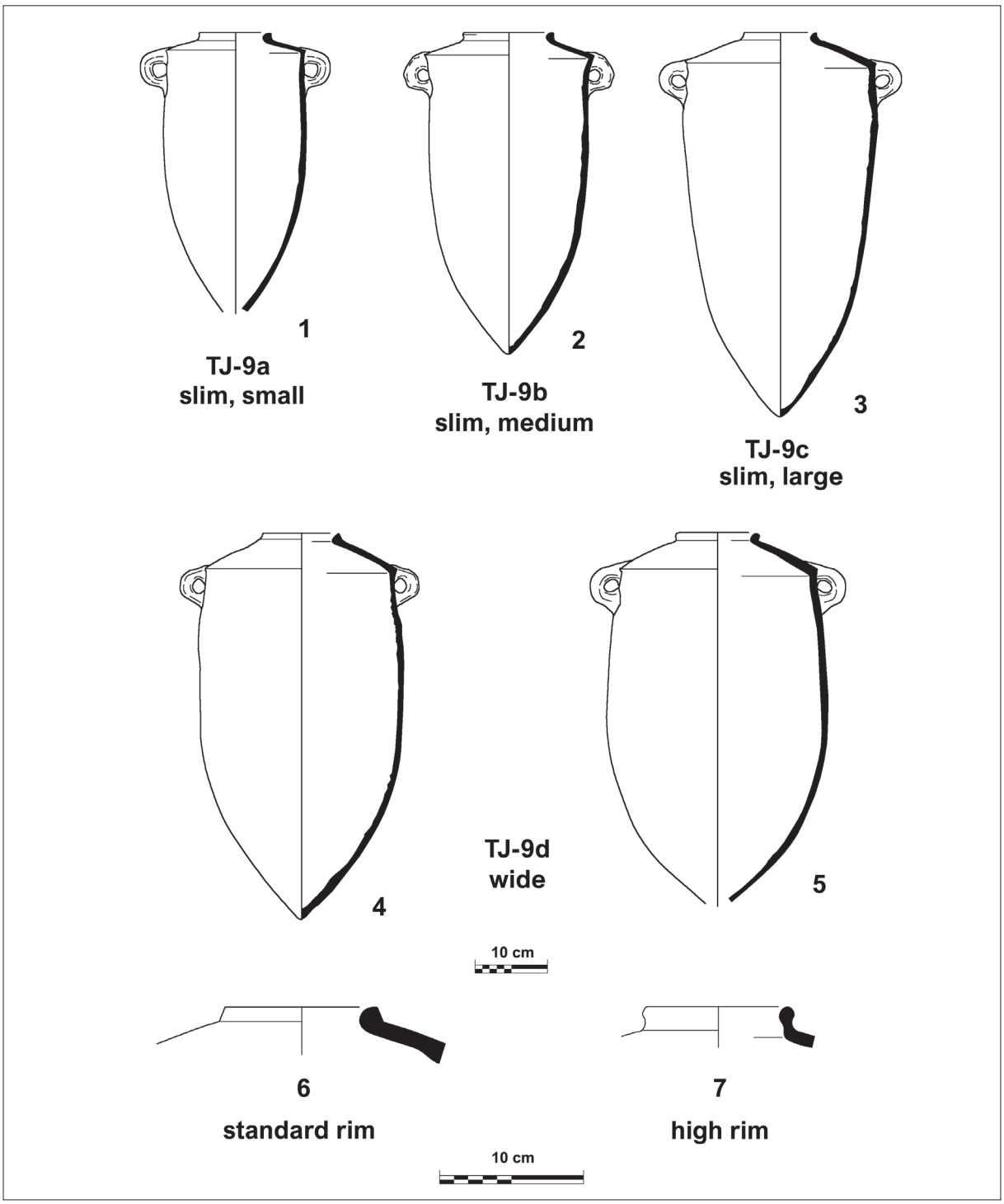

Fig. 10. Transport-jar types TJ-9a, TJ-9b, TJ-9c and TJ-9d: 1. Tell el-Burak Phase D House 3 (Schmitt *et al.* 2018, fig. 8 TB14-29/24-236-R042); 2. Tell el-Burak Phase D House 3 (Schmitt *et al.* 2018, fig. 8 TB14-29/24-236-R034); 3. Tell el-Burak Phase D House 3 (Schmitt *et al.* 2018, fig. 8 TB14-29/24-236-R052); 4. Tell Keisan Niveau 4 (Briend – Humbert 1980, pl. 26:8); 5. Tell el-Burak Phase D House 3 (Schmitt *et al.* 2018, fig. 8 TB14-29/24-236-R033); 6. Kabri Stratum E2a (unpublished); Kabri Stratum E2a (unpublished).

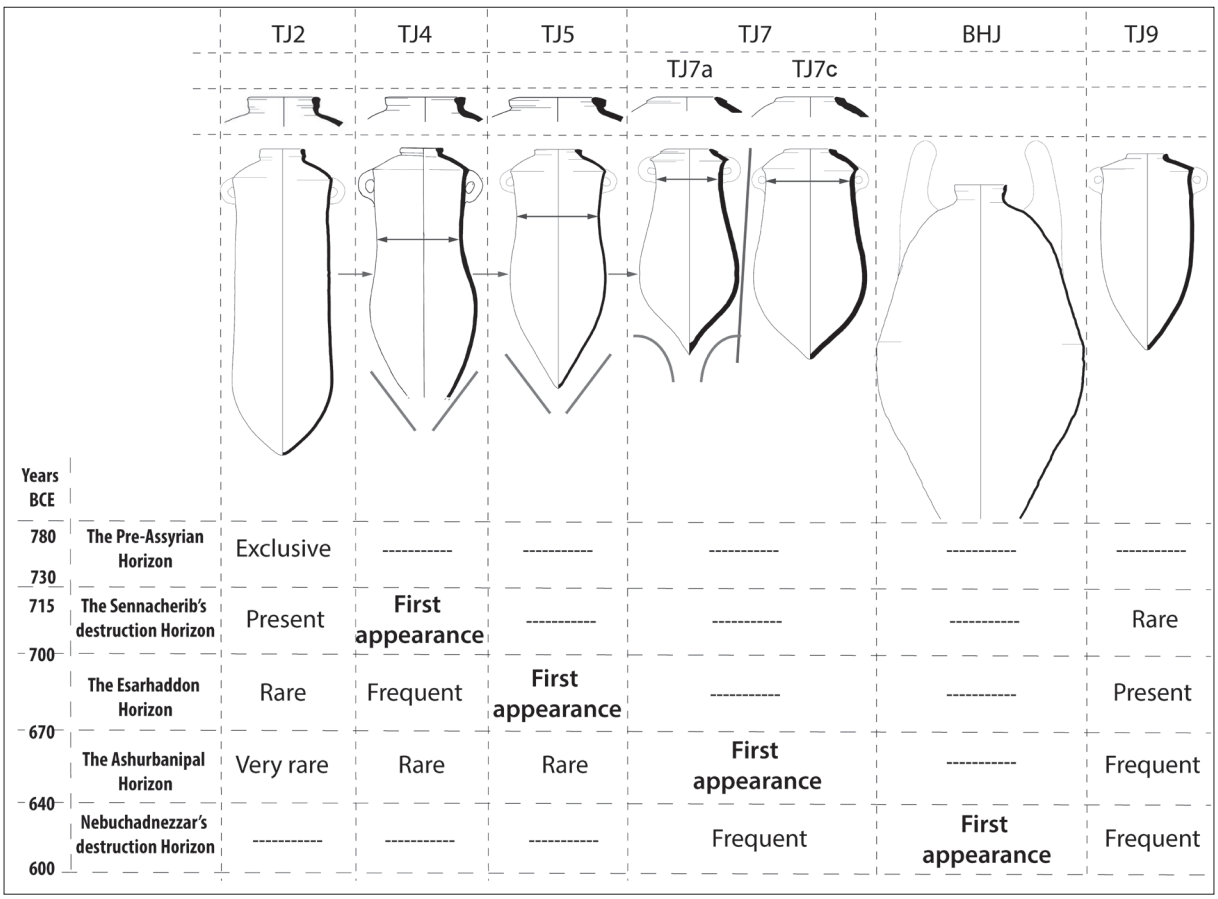

Fig. 11. Morphological development of "Phoenician" transport-jars from the late 8th century through the late 7th century BCE and the first appearance of Cypriot Basket-Handle jars.

"Bullet-shaped" jars of the TJ-9 type commenced in small numbers at the end of the 8th century BCE; they are represented for example in the 701 BCE destruction horizon in Judah and in Stratum 10 at Tel Shiqmona. They continue throughout the 7th and 6th centuries BCE with little morphological change. TJ-9 jars of the 7th and early 6th centuries have a shoulder inclination of about 22 degrees and a shoulder width of usually 6-7 cm. Subsequently they develop gradually into the similar "bullet-shaped" jars that continue throughout the Persian period, but the latter are easily distinguished from the earlier, Iron Age, TJ-9. The Persian period jars usually have a much lower inclination, with some variants having completely horizontal shoulders.[66] The shoulders are significantly narrower, 4-5 cm, which also distinguishes the Persian period "bullet-shaped" jars from the Iron Age ones with the much wider shoulders. As well, on the Iron Age TJ-9, the handles beneath the shoulder carination are relatively small, 4-5 cm long. Persian period "bullet-shaped" jars have much longer and twisted handles.

We distinguish four main subtypes:

TJ-9a: a slim and small-sized jar with a volume of about 7 liters, or about 1.5 Egyptian heqat.

TJ-9b: a slim and medium sized jar with a volume of about 9.6 liter, or 2 heqat.

66 Bettles 2003.

TJ-9c a slim and large-sized jar with a volume of about 14.4 liter, about 3 heqat.

TJ-9d is wider than TJ-9a-c and somewhat bulbous in the lower part of the body. The volume ranges between 19 and 23 liter or 4 to 4.5 heqat.

Petrographic studies indicate that TJ-9 jars were produced mainly in south Lebanon, but also on the northern coast of Israel[67]. In her study, Aznar too has identified the "Phoenician coast north of Rosh ha-Niqrah" as the provenance of TJ-9[68] (see catalogue). At Tell el-Burak TJ-9 jars were manufactured with local fabrics 1a and 5.[69] While these results seem to connect TJ-9 with the economy of southern Lebanon, i.e. the cities of Tyre and Sidon, a substantial number of TJ-9 examples were produced south of Lebanon. This needs to be further discussed in more detail in the future.

TJ-9 thus appeared in the SPP Horizons 3 through 6, until after ca. 550 BCE. Since the second half of the 7th century BCE, TJ-9 jars are the most typical and most widely disseminated "Phoenician" transport-jars.

3. Results: The SPP Chronology and Its Assemblages

As already mentioned, the main purpose of this article is a high-resolution typology and chronology of "Phoenician" TJs from the 9th through the late 7th century BCE. We are aware of the many other aspects of ceramic transport containers which we do not address in this paper and which will be the topic of later publications. We define seven assemblages in which the TJ types established here occurred.

SPP Assemblage 1: This assemblage dates to an unspecified part of the Late Iron Age IIA, which, as discussed above, encompasses mainly the 9th century BCE. Destructions of sites in the Southern Levant in this timespan are usually associated with the upheavals that followed the change of the ruling dynasty from Omride to Nimshide and are attributed by several scholars to Hazael's campaigns between ca. 842 and 835 BCE.[70] The end of this episode of an "Aramaean interlude" was most probably also an event of considerable turmoil and should be dated around 800 BCE when the rule of the house of Hazael in Damascus came to an end under Hazael's son Bar-Hadad.[71] The relevant anchor strata belonging to this horizon are Shiqmona Stratum 13, Megiddo Level Q-4 and the destruction level of Rosh Zayit Stratum IIa.

In this paper we discuss only one relevant jar type of this assemblage, TJ-1. The radiocarbon dates for Rosh Zayit Stratum IIa place the destruction of this level clearly in the 9th century BCE, yet before the end of the century (see above). The occurrence of TJ-1 jars connects Rosh Zayit with Salamis Royal Tomb 1 in which also Greek Middle Geometric II and the earliest Cypro-Archaic I pottery was found in association with TJ-1. With our current knowledge, this suggests a date for Assemblage 1 in the second part of the 9th century and possibly in the very beginning of the 8th century BCE. This approach requires revising the beginning of Cypro-Archaic I, a task too demanding for our paper here.[72]

SPP Assemblage 2: This assemblage is characterized by the existence of one main type: TJ-2 (with variants) and much fewer examples of TJ-3. Occurrences in Megiddo Level Q-4 and Hazor Sub-stratum VII, and possibly Beth-Shemesh 3 date the early part of this horizon to ca. 800-780 BCE (see discussions of these

67 Waiman-Barak *et al.* 2017 and this study.

68 Aznar 2005.

69 Schmitt *et al.* 2018.

70 Finkelstein – Piasetzky 2009; Kleiman 2016, Tab. I; Vaknin *et al.* 2022.

71 Kleiman 2019, pp. 447-451; Klengel 1992, pp. 210-211; Lipiński 2000, pp. 397-403.

72 Kleiman *et al.* 2019, pp. 533, 547; Núñez Calvo 2022; Waiman-Barak – Georgiadou – Gilboa 2021.

sites in Appendix 1). A more exact chronological anchor is available for the end of Assemblage, which is marked by destruction layers attributed to the activities of Tiglat-Pileser III and his successors between 734-720 BCE. These are Hazor Stratum Va, Yoqne'am Stratum XIIb, Megiddo Stratum IVA, the Ir2b horizon at Dor (Phases B1/7a, D2/7a), Ashdod Stratum VIII and Gezer VI. Other contexts more loosely contemporary with Assemblage 2 include Tel Shiqmona Stratum 11; Tyre Stratum IV, Sarepta Stratum C2 and Tell el-Burak Phase E. Assemblage 2 thus commenced in the beginning of the 8th century BCE and ended around the Assyrian conquest of the Southern Levant and the associated destructions.

SPP Assemblage 3: The most important chronological anchor for Assemblage 3 is provided by the destructions associated with Sennacherib in 701 BCE, mainly those of Lachish Stratum III and Beersheba Stratum II. Other contexts include Ashdod Ad Halom Stratum 7a, Tell Qudadi Stratum IIIb, Dor Strata B1/6-5c early and D2/6a, Tel Shiqmona Stratum 10, Megiddo Stratum III, Tyre Stratum III, Sarepta Stratum C1, and possibly Tell el-Burak early Phase D.

This horizon includes the last examples of TJ-2, which were still in circulation, but the main type is TJ-4 with its variants, alongside the first attestations of TJ-5. In this assemblage, TJ-9 too appeared for the first time sporadically in destructions associated with Sennacherib in 701 BCE such as Lachish Stratum III. Later, as mentioned, during the 7th century BCE, TJ-9 develops to one of the main types of "Phoenician" TJs.

SPP Assemblages 4-6: after 700 BCE there are for about one hundred years no secure chronological anchors. Local ceramics in the Southern Levant are mostly characterized by a continuous tradition and a lack of clear and distinct typological differentiation. Only "Phoenician" TJs develop distinct morphological features, which enable typological definitions of relative high resolution. Recently, Shalvi and Gilboa[73] demonstrated that the continuous stratigraphy at Tel Shiqmona and the existence of three clear occupations in the 7th century BCE can provide chronological anchors for the sub-periods within this century. These anchors can be connected with specific types of "Phoenician" TJs.

Assemblage 4 is defined with Shiqmona Stratum 9, which provides an anchor for the first thirty years or so of the 7th century BCE, mostly coinciding with the reign of the Assyrian king Esarhaddon. Notable contemporary contexts are for example Ashdod Ad Halom Stratum 7b, Dor Phases A/9 and B1/6–5c early, Megiddo Stratum II, and the Casemate-Wall Building at Beirut, probably Tell Qudadi Stratum IIIa, Tyre Stratum II, and possibly Sarepta early Stratum B.

Assemblage 5 is defined by Shiqmona Stratum 8, attributed to about 670-640 BCE, generally the reign of Ashurbanipal. Assemblage 5 is contemporary with the destruction of Tell Keisan 5 and Ashdod Ad Halom 6. Other contexts include Dor Strata B1/6-5c late, and late C2/7, Tel Kabri Stratum E2b, Tyre Stratum I and Yoqne'am Stratum XIIa. The main TJ types of this assemblage are TJ-6 and TJ-9 as well as TJ-7 which occurred for the first time in its variations TJ-7a and TJ-7c. A marginal type which also commenced in Assemblage 5 was TJ-8.

Assemblage 6 is associated with the destructions caused by the Babylonian king Nebuchadnezzar II between 604 and 586 BCE. The key strata are Ashkelon Stratum 2, Mezad Hashavyahu, Tel Miqne-Ekron Stratum Ib, Tel Batash Stratum II, Tell Keisan Niveau 4, Achziv Stratum D/4 and Kabri Stratum E2a. Other contexts include Tel Shiqmona Stratum 7, Yoqne'am Stratum XI and possibly Tell el-Burak Phase late D. The main TJ types of this assemblage are all variations of TJ-7 (TJ-7a, TJ-7b and TJ-7c), TJ-8 and mostly TJ-9.

73 Shalvi – Gilboa 2022b.

SPP Assemblage	1	2	3	4	5	6	7
Relative Chronology	Late Iron Age IIA	Early Iron Age IIB	Late Iron Age IIB	Early Iron Age IIC	Middle Iron Age IIC	Late Iron Age IIC	Iron Age - Persian period transition
Absolute Chronology	ca. 900-830/800	ca. 830/800-734/20	ca. 734/20-700	ca. 700-670	ca. 670-640	ca. 640-604/586	ca. 604/586-538
Historical Horizon	9th century	"Pre- Assyrian Ceramic Horizon"	"Sennacherib Destructions Ceramic Horizon"	"Esarhaddon Ceramic Horizon"	"Ashurbanipal Ceramic Horizon"	"Nebuchadnezzar Destructions Ceramic Horizon"	Neo-Babylonian empire
Tel Sheva	VI-V-IV	III	II	gap			
T. Shiqmona	13 12	11	10	9	8	7	6?
Dor		B1/7a D2/7a	B1/5c early D2/6	A/9 B1/5c early	B1/5c early and late C2/7		
T. Keisan	8 7 6	gap		5		4	gap
Kabri	E4	gap		E3	E2b	E2a	gap
Rosh Zayit	IIa	Areas ABC	gap				
Lachish	IV	III				II	gap
Megiddo	VA-IVB	IVA	III	II	gap		
Hazor	VIII	VII VI V	IV		gap		
Ashod Ad Halom	8		7a	7b	6	gap	
Ashdod		VIII	VII		VI	gap	
Tyre	V	IV	III	II	I*	gap	
Qudadi		IV	IIIb	IIIa			
Yoqne'am		XIIb			XIIa	XI	
Achziv						D/6-4	
Beirut				Casemate Wall Bldg.			
Sarepta		C2	C1	early B?			
T. el-Burak		Phase E	early Phase D	?	?	late Phase D?	

* The authors are divided about the date of Tyre Stratum I. Shalvi and Gilboa suggest that the stratum continued at least at the beginning of SPP assemblage 6, while Lehmann would date Tyre Stratum I to assemblages 4 and 5.

Tab. 1. Chronology table with the stratigraphy of the main sites mentioned.

Assemblage 7 represents the ceramics of the Babylonian period during the 6th century BCE. In this assemblage TJ-9 is the main and almost sole type of "Phoenician" TJ. This is mainly attested at Kinet Höyük Period 5 in the northern Levant which is so far one of the very few excavations with evidence of the 6th century BCE. Significantly, such 6th century BCE assemblages are currently unknown in the Southern Levant.

Chronology of SPP Transport-Jar Assemblages

SPP Assemblage	Relative Chronology	Absolute Chronology	Historical Context	SPP TJ Types
1	Late Iron Age IIA	ca. 900-830/800	mainly 9th century BCE	**TJ-1**
2	Early Iron Age IIB	ca. 830/800-734/20	"Pre-Assyrian Ceramic Horizon", ends with destructions by Tiglath-Pileser III till Sargon II*	**TJ-2**** / TJ-3
3	Late Iron Age IIB	ca. 734/20-700	Early Assyrian, ends with destructions by Sennacherib ca. 700 BCE	TJ-2 / **TJ-4** / TJ-5 / TJ-9
4	Early Iron Age IIC	ca. 700-670	"Esarhaddon Ceramic Horizon"	**TJ-4 / TJ-5 / TJ-6 /** TJ-9
5	Middle Iron Age IIC	ca. 670-640	"Ashurbanipal Ceramic Horizon"	**TJ-6 / TJ-7a / TJ-7c** / TJ-8 / **TJ-9**
6	Late Iron Age IIC	ca. 640-604/586	Egyptian dominance of the 26th Dynasty, ends with destructions by Nebuchadnezzar II	**TJ-7a / TJ-7b / TJ-7c /** TJ-8 / **TJ-9** (First appearance of Cypriot Basket-Handle jars in the Southern Levant)
7	Iron-Age Persian period transition	ca. 604/586-538	Neo-Babylonian empire	**TJ-9**

* Assemblage 2 continues until about 710 BCE, see discussion of the destruction of Ashdod Stratum VIII in 711 BCE in the text.
** TJ-2 occurred first at the end of SPP Horizon 1 only in a single example at Megiddo Str. Q-4 (see text).

Tab. 2. Chronology table with the transport-jar assemblages.

4. Discussion and Caveats

We submit that for the first time we succeeded in constructing a well-dated sequence of the Iron Age II "Phoenician" transport-jars. Out of over 800 items we examined, there are less than a handful that do not fit the proposed framework, most of them from problematic contexts in the old excavations at Hazor (see comments regarding Hazor in Appendix 1). As well, our typological sequence is borne out by the clear morphological trajectory unveiled by the sequence of TJ's 2-7 (Fig. 11). We argue that at the most basic level this will serve as a tool to date other contexts in which such jars are present, especially when quantities can be assessed. We further propose a chronology for the sequence of Bikai's Tyre excavations based on the many jars there,[74] a more accurate dating for levels at Sarepta, and a new date for the end of the Assyrian provincial center at Megiddo. We are also convinced that research of specific sites and wider regions around the Mediterranean, such as Kition and "Phoenician" locales in Iberia can benefit from the SPP TJ chronology. Here we provide some more examples. As discussed in Appendix 1, the end of Assyrian Du'ru /Dor can now be attributed convincingly to Ashurbanipal's reign. Our study confirms attributing the beginning of the Assyrian Building at Ashdod Ad Halom to the time of Sargon II and the end of Ashdod Ad Halom Stratum 6 to the campaign of Psammetich I in about 635 BCE. The absence of the ubiquitous TJ-7, in tandem with lacking evidence of East Greek pottery and Basket-Handle jars at Ashdod itself supports the suggestion that habitation there as well did not continue beyond about 635 BCE. The absence of TJ 6, TJ-7 and TJ-9 at Gezer suggests that this Assyrian center too, like Megiddo, did not last long into the second half of the 7th century BCE. As well, the end of the settlement on Tel Kinrot / Tell el-'Oreimeh during Assyrian times needs to be reconsidered.

Thus, the evolution and chronology of "Phoenician" transport-jars has become a powerful tool in dating, and consequently assessing various historical and other cultural processes in the Levant and around the

74 Shalvi – Gilboa 2022b.

Mediterranean. When considered with the regional perspective afforded by the results of the mineralogical investigations (in progress) we hope to highlight further the fluctuating roles of the different sub-regions, and even specific polities, in the complex mesh of Iron Age economical interactions.

One word of caution is, however, in order. Though Lebanon – more specifically, south Lebanon – was definitely not the only region where the TJ's in question have been produced (as shown by previous provenience studies and by our own), it was the most important one in the time-frame discussed here. Hence, what we present here is mostly a view from the periphery, which might not be entirely compatible with developments in the main areas of production. Specific types may have been produced somewhat earlier than the time they reached less or more distant clientele (one such example is the earliest (one or two) appearances of some variant of TJ-5 in Lachish III), more variability may have existed, and quantitative distributions may have been different. We therefore take advantage of this specific publication venue to challenge archaeologists specializing in Lebanon to modify and amend the framework we constructed with a view, and data, from the core.

Acknowledgements

The Israel Antiquities Authority granted us permission to sample pottery in its collections, and we are grateful for the professional support of their staff, especially Michael Saban, Alegre Savariego, Deborah Ben-Ami and Laura Perry. Marie-Henriette Gates generously allowed us access to material from her excavations at Kinet Höyük, Sam Wolff from Gezer and Ilan Sharon from Dor. Thin-sections for petrography were produced at the Laboratory for petrography of the Zinman Institute of Archaeology, University of Haifa by Vladimir Lehem and Alex Kozlov; photographed at the Environmental Sedimentology Lab at this university by Harel Shochat and Tanya Sokolsky, courtesy of Revital Bookman. Petrographic analysis was conducted at the Ceramic Petrography Laboratory, Sonia and Marco Nadler Institute of Archaeology, Tel Aviv University. We are grateful to Sonia Pinsky, the Tel Shiqmona laboratory director at the University of Haifa, for her assistance. Revital Golding-Meir and Bat-Ami Neumeier-Potashnik aided us with the study at Ben Gurion University. Research for this study was funded by Israel Science Foundation Grant no. 596/18 (Contextualizing Pottery in Southern Phoenicia in the Iron Age) awarded to Gilboa and Lehmann. Lehmann received also grants by the Israel Science Foundation (Grant no. 237/14, Encounter and Exchange in the Levant during the First Millennium BCE), the Gerda Henkel Stiftung (Research Grant AZ 07/F/20, Zur Genese des frühen Phönizien) and the Stiftung Humboldt-Universität zu Berlin (Globalisierung im östlichen Mittelmeerraum) the latter two in collaboration with Prof. Bernd U. Schipper, Humboldt-University Berlin. Research on Dor is supported by the Goldhirsh-Yellin Foundation, California. Research on Tel Shiqmona is supported by a collaborative initiative between the Haifa Municipality and the University of Haifa, by The Shelby White and Leon Levy Program for Archaeological Publications and by the Hecht Foundation in Haifa. Research at Tell Keisan is supported by the Oriental Institute of the University of Chicago represented by Prof. David J. Schloen and the Humboldt University of Berlin represented by Prof. Bernd U. Schipper. Shalvi received PhD scholarships from the Research Authority of the University of Haifa and the Nathan Rotenstreich Foundation in Jerusalem, as well as a Post-doctoral fellowship from the Kreitman School of Advanced Research Studies at Ben-Gurion University of the Negev.

References

Anderson 1988 = W.P. Anderson, *Sarepta 1: A Stratigraphic and Ceramic Analysis of the Late Bronze and Iron Age Strata of Sounding Y at Sarepta (Sarafand, Lebanon)*, Beirut 1988.

Austin – Franz – Frost 2000 = S.A. Austin – G.W. Franz – E.G. Frost, *Amos's Earthquake: An Extraordinary Middle East Seismic Event of 750 B.C.*, in «International Geology Review» 42, 2000, pp. 657-671.

Aznar 2005 = C.A. Aznar, *Exchange Networks in the Southern Levant during the Iron Age II: A Study of Pottery Origin and Distribution*, Unpublished Ph.D. thesis Harvard University, Cambridge, Massachusetts 2005.

Ballard *et al*. 2002 = R.D. Ballard – L.E. Stager – D. Master – D. Yoerger – D. Mindell – L.L. Whitcomb – H. Singh – D. Piechota, *Iron Age Shipwrecks in Deep Water off Ashkelon, Israel*, in «AJA» 106, 2002, pp. 151-168.

Ben-Tor – Bonfil – Garfinkel – Greenberg – Maeir – A. Mazar 1997 = A. Ben-Tor – R. Bonfil – Y. Garfinkel – R. Greenberg – A.M. Maeir – A. Mazar, *Hazor V: An Account of the Fifth Seasons of Excavations, 1968,* Jerusalem 1997 («James A. de Rothschild Expedition at Hazor»).

Ben-Tor – Ben-Ami – Sandhaus 2012 = A. Ben-Tor – D. Ben-Ami – D. Sandhaus, *Hazor VI: The 1990-2009 Excavations: The Iron Age,* Jerusalem 2012 («The Selz Foundation Hazor Excavations in Memory of Yigal Yadin»).

Bettles 2003 = E.A. Bettles, *Phoenician Amphora Production and Distribution in the Southern Levant: A Multi-Disciplinary Investigation into Carinated-Shoulder Amphorae of the Persian Period (539-332 BC)*, Oxford 2003 («BARIntSer», 1183).

Bieber 1978 = A.M. Bieber, *Neutron Activation Analysis (of Samples from the Tyre Excavations)*, Bikai 1978, pp. 88-90.

Bikai 1978 = P.M. Bikai (ed.), *The Pottery of Tyre*, Warminster 1978.

Bikai 1987 = P.M. Bikai, *The Phoenician Pottery of Cyprus*, Nicosia 1987.

Briend – Humbert 1980 = J. Briend – J.-B. Humbert, *Tell Keisan (1971-1976): Une cité phénicienne en Galilée*, Freiburg-Göttingen 1980 («Orbis Biblicus et Orientalis, Series Archaeologica», 1).

Butcher 2020 = M. Butcher, *Northern Holemouth Jars in the Iron IIA: A Royal Israelite Administrative System for the Redistribution of Wealth*, Unpublished M.A. Thesis Tel Aviv University 2020.

Costin – Hagstrum 1995 = C.L. Costin – M.B. Hagstrum, *Standardization, Labor Investment, Skill, and the Organization of Ceramic Production in Late Prehispanic Highland Peru*, in «American Antiquity» 60, 1995, pp. 619-639.

Culican 1973 = W. Culican, *The Graves at Tell er-Reqeish,* in «Australian Journal of Biblical Archaeology» 2.2, 1973, pp. 66-105.

Demesticha – Knapp 2016 = S. Demesticha – A.B. Knapp (edd.), *Maritime Transport Containers in the Bronze-Iron Age Aegean and Eastern Mediterranean*, Uppsala 2016 («Studies in Mediterranean Archaeology and Literature, Pocket Books», 183).

Docter 2007 = R.F. Docter, *Transportamphoren*, in H.-G. Niemeyer – R.F. Docter – K. Schmidt – B. Bechtold (edd.), *Karthago: Die Ergebnisse der Hamburger Grabung unter dem Decumanus Maximus*, Mainz 2007, pp. 616-662.

Elayi 1982 = J. Elayi, *Studies in Phoenician Geography during the Persian Period*, in «JNES» 41, 1982, pp. 83-110.

Faust 2012 = A. Faust, *Judah in the Neo-Babylonian Period: The Archaeology of Desolation*, Atlanta (GA) 2012 («Society of Biblical Literature, Archaeology and Biblical Studies»).

Faust 2021 = A. Faust, *The Neo-Assyrian Empire in the Southwest: Imperial Domination and its Consequences*, Oxford 2021.

Finkelstein – Zimhoni – Kafri 2000 = I. Finkelstein – O. Zimhoni – A. Kafri, *The Iron Age Pottery Assemblages from Areas F, K and H and their Stratigraphic and Chronological Implications*, in I. Finkelstein et al. (edd.), Megiddo III: The 1992-1996 Seasons. Tel Aviv 2000, pp. 244-324.

Finkelstein *et al.* 2011 = I. Finkelstein – E. Zapassky – Y. Gadot – D.M. Master – L.E. Stager – I. Benenson, *Phoenician 'Torpedo' Amphoras and Egypt: Standardization of Volume based on Linear Dimensions,* in «Ägypten und Levante/ Egypt and the Levant» 21, 2011, pp. 249-259.

Finkelstein – Piasetzky 2009 = I. Finkelstein – E. Piasetzky, *Radiocarbon-Dated Destruction Layers: A Skeleton for Iron Age Chronology in the Levant*, in «OxfJA» 28, 2009, pp. 255-274.

Gal – Alexandre 2000 = Z. Gal – Y. Alexandre, *Horbat Rosh Zayit: An Iron Age Storage Fort and Village*, Jerusalem 2000 («Israel Antiquities Authority, Reports», 8).

Geva 1989 = S. Geva, *Hazor, Israel: An Urban Community of the 8th Century B.C.E.*, Oxford 1989 («BARIntSer», 543).

Gilboa 1995 = A. Gilboa, *The Typology and Chronology of the Iron Age Pottery and the Chronology of Iron Age Assemblages*, in E. Stern (ed.), *Excavations at Dor, Final Report*, *Volume I B: Areas A and C: The Finds*, Jerusalem 1995, pp. 1-49.

Gilboa 2015 = A. Gilboa, *Iron Age IIC: Northern Coast, Carmel Coast, Galilee, and Jezreel Valley,* in S. Gitin (ed.), *The Ancient Pottery of Israel and Its Neighbors from the Iron Age through the Hellenistic Period.* Jerusalem 2015, pp. 301-326.

Gilboa 2018 = A. Gilboa, *The Iron Age Pottery of Phases 10–5: Sequence, Contexts, Typology, Cultural Affinities and Chronology*, in A. Gilboa – I. Sharon – J.R. Zorn – S. Matskevich (edd.), *Excavations at Dor, Final Report, Volume IIB: Area G, The Late Bronze and Iron Ages: Pottery, Artifacts, Ecofacts and Other Studies*, Jerusalem 2018, pp. 97-172.

Gilboa 2022 = A. Gilboa, *The Southern Levantine Roots of the Phoenician Mercantile Phenomenon*, in «BASOR» 387, 2022, pp. 31-53.

Gilboa *et al.* 2004 = A. Gilboa – A. Karasik – I. Sharon – U. Smilansky, *Towards Computerized Typology and Classification of Ceramics*, in «JASc» 31, 2004, pp. 681-694.

Gilboa – Sharon 2003 = A. Gilboa – I. Sharon, *An Archaeological Contribution to the Early Iron Age Chronological Debate: Alternative Chronologies for Phoenicia and Their Effects on the Levant, Cyprus and Greece*, in «BASOR» 332, 2003, pp. 7-80.

Gilboa – Sharon – Boaretto 2008 = A. Gilboa – I. Sharon – E. Boaretto, *Tel Dor and the Chronology of Phoenician "Pre-Colonisation" Stages*, in C. Sagona (ed.), *Beyond the Homeland: Markers in Phoenician Chronology*, Louvain 2008, pp. 113-204.

Gimatzidis – Weninger 2020 = S. Gimatzidis – B. Weninger, *Radiocarbon Dating the Greek Protogeometric and Geometric Periods: The Evidence of Sindos*, in «PLoS ONE» 15, 2020, pp. https://doi.org/10.1371/journal.pone.0232906.

Gitin 1990 = S. Gitin, *Gezer III: A Ceramic Typology of the Late Iron II, Persian and Hellenistic Periods at Tell Gezer,* Jerusalem 1990.

Gitin 2012 = S. Gitin, *Temple Complex 650 at Ekron: The Impact of Multi-Cultural Influences on Philistine Cult in the Late Iron Age,* in J. Kamlah (ed.), *Temple Building and Temple Cult: Architecture and Cultic Paraphernalia of Temples in the Levant (2.– 1. Millennia B.C.E.): Proceedings of a Conference on the Occasion of the 50th Anniversary of the Institute of Biblical Archaeology at the University of Tübingen (28 – 30 May 2010)*, Wiesbaden 2012, pp. 223-256.

Hamilton 1935 = R.W. Hamilton, *Excavations at Tall Abu Hawâm*, in «QDAP» 4, 1935, pp. 1-69.

Janssen 1979 = J.J. Janssen, *Commodity Prices from the Ramessid Period: An Economic Study of the Village of Necropolis Workmen at Thebes*, Leiden 1979.

Janssen 1988 = J.J. Janssen, *On Prices and Wages in Egypt*, in «AoF» 15, 1988, pp. 10-23.

Karasik – Harush – Smilansky 2020 = A. Karasik – O. Harush – U. Smilansky, *The Morphology of Iron Age Storage Jars and Its Relation to the Handbreadth Measure (Biblical Tefach)*, in «BASOR» 384, 2020, pp. 183-190.

Killebrew 2014 = A.E. Killebrew, *Israel during the Iron Age II Period*, in Steiner – Killebrew 2014, pp. 730-742.

Kleiman 2016 = A. Kleiman, *The Damascene Subjugation of the Southern Levant as a Gradual Process (ca. 842–800 BCE)*, in O. Sergi – M. Oeming – I.J. de Hulster (edd.), *In Search for Aram and Israel: Politics, Culture, and Identity*, Tübingen 2016, pp. 57-76.

Kleiman 2019 = A. Kleiman, *The Archaeology of Borderlands between Israel and Aram in the Iron I-II (ca. 1150-750 BCE)*, Unpublished Ph.D. thesis Tel Aviv University 2019.

Kleiman 2022 = A. Kleiman, *The Iron II Pottery from Area Q*, in I. Finkelstein – M. Martin (edd.), *Megiddo VI: The 2010-2014 Season*, University Park (PA) 2022, pp. 894-1054.

Kleiman *et al.* 2019 = A. Kleiman – A. Fantalkin – H. Mommsen – I. Finkelstein, *The Date and the Origin of the Red-on-Black Ware: The View from Megiddo*, in «AJA» 123, 2019, pp. 531-555.

Klengel 1992 = H. Klengel, *Syria: 3000 to 300 B.C.: A Handbook of Political History*, Berlin 1992.

Kletter 1998 = R. Kletter, *Economic Keystones: The Weight System of the Kingdom of Judah*, Sheffield 1998 («Journal for the Study of the Old Testament, Supplement Series»).

Knapp – Demestica 2016 = A.B. Knapp – S. Demestica, *Mediterranean Connections: Maritime Transport Containers and Seaborne Trade in the Bronze and Iron Ages*, Milton Park-Abingdon-Oxon 2016.

Lamon – Shipton 1939 = R.S. Lamon – G.M. Shipton, *Megiddo I: Seasons of 1925-34, Strata I-V,* Chicago 1939 («Oriental Institute Publications 42»).

Lehmann 1996 = G. Lehmann, *Untersuchungen zur späten Eisenzeit in Syrien und Libanon: Stratigraphie und Keramikformen zwischen ca. 720 bis 300 v.Chr.*, Münster 1996 («Altertumskunde des Vorderen Orients», 5).

Lehmann 2002 = G. Lehmann, *Pottery: Late Bronze Age, Iron Age,* in A. Kempinski *et al.* (edd.), *Kabri: The 1986-1993 Excavation Seasons. Tel Aviv University, Sonia and Marco Nadler Institute of Archaeology Monograph Series 20.* Tel Aviv 2002, pp. 176-222.

Lehmann 2021 = G. Lehmann, *The Emergence of Early Phoenicia*, in «Jerusalem Journal of Archaeology» 1, 2021, pp. 272-324.

Lipiński 2000 = E. Lipiński, *The Aramaeans: Their Ancient History, Culture, Religion*, Leuven 2000 («Orientalia Lovaniensia Analecta», 100).

Martin – Shalev 2022 = S.R. Martin – Y. Shalev, *The Reoccupation of Southern Phoenicia in the Persian Period: Rethinking the Evidence*, in U. Davidovich *et al.* (edd.), *Material, Method, and Meaning: Papers in Eastern Mediterranean Archaeology in Honor of Ilan Sharon*, Münster 2022, pp. 101-116.

Mazar 2006 = A. Mazar (ed.), *Excavations at Tel Beth-Shean, 1989-1996: Volume I. From the Late Bronze Age IIB to the Medieval Period*, Jerusalem 2006 («Beth-Shean Valley Archaeological Project Publication»).

Núñez Calvo 2022 = F.J. Núñez Calvo, *The Beginning of the Cypro-Archaic I Period: A Revision Proposal*, in G. Bourogiannis (ed.), *Beyond Cyprus: Investigating Cypriot Connectivity in the Mediterranean from the Late Bronze Age to the End of the Classical Period*, Athens 2022, pp. 351-363.

Pedrazzi 2007 = T. Pedrazzi, *Le giare da conservazione e trasporto del Levante: uno studio archeologico dell'economia fra Bronzo Tardo II e Ferro I (ca. 1400-900 a.C.)*, Pisa 2007 («Ricerche di Archeologia del Vicino Oriente», 2).

Petrie – Brunton – Murray 1923 = W.M.F. Petrie – G. Brunton – M.A. Murray, *Lahun II,* London 1923 («British School of Archaeology in Egypt and Egyptian Research Account, 26th Year, 1920»).

Pritchard 1988 = J.B. Pritchard, *Sarepta 4: The Objects from Area II, X*, Beirut 1988.

Raban 1980 = A. Raban, *The Commercial Jar in the Ancient Near East: Its Evidence for Interconnections amongst the Biblical Lands* הקנקן המסחרי, כמתעד קשרי כלכלה ותרבות במזרחו של הים התיכון בתקופת המקרא / Ph.D. Hebrew University Jerusalem 1980 (Hebrew).

Sagona 1982 = A. Sagona, *Levantine Storage Jars of the 13th to 4th Century B.C.*, in «OpAth» 14, 1982, pp. 73-110.

Schmitt *et al.* 2018 = A. Schmitt – K.P. Badreshany – E. Tachatou – H. Sader, *Insights into the Economic Organization of the Phoenician Homeland: A Multi-Disciplinary Investigation of the Later Iron Age II and Persian Period Phoenician Amphorae from Tell el-Burak*, in «Levant» 50, 2018, pp. 52-90.

Shalvi – Gilboa 2022a = G. Shalvi – A. Gilboa, *The Last Four-Room House in Israel: Stratum 10 at Tel Shiqmona in Context,* in U. Davidovich *et al.* (edd.), *Material, Method, and Meaning: Papers in Eastern Mediterranean Archaeology in Honor of Ilan Sharon*, Münster 2022, pp. 251-312.

Shalvi – Gilboa 2022b = G. Shalvi – A. Gilboa, *The Long Seventh-Century BCE at Tel Shiqmona (Israel): A High Resolution Chronological Tool for the Levant and the Mediterranean*, in «Levant» 2022, pp. 190-216. https://www.tandfonline.com/action/showCitFormats?doi=10.1080/00758914.2022.2104525.

Shalvi – Gilboa in press = G. Shalvi – A. Gilboa, *Between Israel and Phoenicia: The Iron Age IIA-B Fortified Purple-dye Production Plant at Tel Shiqmona*, in «Tel Aviv» in press.

Sharon 2014 = I. Sharon, *Levantine Chronology*, in Steiner – Killebrew 2014, pp. 44-65.

Shochat – Gilboa 2018 = H. Shochat – A. Gilboa, *Elusive Destructions: Reconsidering the Hazor Iron Age II Sequence and its Chronological and Historical Implications*, in «Levant» 50, 2018, pp. 363-386.

Singer-Avitz 2010 = L. Singer-Avitz, *A Group of Phoenician Vessels from Tel Beersheba,* in «Tel Aviv» 37.2, 2010, pp. 188-199.

Singer-Avitz 2014 = L. Singer-Avitz, *The Pottery of Megiddo Strata III–II and a Proposed Subdivision of the Iron IIC Period in Northern Israel*, in «BASOR» 372, 2014, pp. 123-145.

Steiner – Killebrew 2014 = M.L. Steiner – A.E. Killebrew (edd.), *The Oxford Handbook of the Archaeology of the Levant, c. 8000-332 BCE*, Oxford 2014.

Vaknin *et al.* 2022 = Y. Vaknin – R. Shaar – O. Lipschits – A. Mazar – A.M. Maeir – Y. Garfinkel – L. Freud – A. Faust – R.E. Tappy – I. Kreimerman – S. Ganor – K. Covello-Paran – O. Sergi – Z.E. Herzog – R. Arav – Z. Lederman – S. Münger – A. Fantalkin – S. Gitin – E. Ben-Yosef, *Reconstructing Biblical Military Campaigns using Geomagnetic Field Data*, in «PNAS Proceedings of the National Academy of Sciences of the United States of America» 119, 2022 https://doi.org/10.1073/pnas.2209117119.

Vegas 1999 = M. Vegas, *Eine archaische Keramikfüllung aus einem Haus am Kardo XIII in Karthago*, in «RM» 106, 1999, pp. 395-438.

Yadin 1960 = Y. Yadin, *Hazor II: An Account of the Second Season of Excavations 1956,* Jerusalem 1960 («James A. de Rothschild Expedition at Hazor»).

Yadin 1961 = Y. Yadin, *Hazor III-IV: An Account of the Third and Fourth Seasons of Excavations 1957-1958*, Jerusalem 1961 («James A. de Rothschild Expedition at Hazor»).

Waiman-Barak – Georgiadou – Gilboa 2021 = P. Waiman-Barak – A.P. Georgiadou – A. Gilboa, *Regional Mineralogical and Technological Characterization of Cypriot Iron Age Pottery: A View from Tel Dor*, in «Levant» https://doi.org/10.1080/00758914.2021.1972609, 2021, pp. 236-261.

Waiman-Barak – Gilboa 2016 = P. Waiman-Barak – A. Gilboa, *Maritime Transport Containers: The View from Phoenician Tell Keisan (Israel) in the Early Iron Age*, in S. Demesticha – A.B. Knapp (edd.), *Maritime Transport Containers in the Bronze-Iron Age Aegean and Eastern Mediterranean*, Uppsala 2016, pp. 169-193.

Waiman-Barak *et al*. 2017 = P. Waiman-Barak – A. Gilboa – A. Yasur-Landau – E. Arie, *Iron Age Phoenician Pottery at Tel Achziv: Two Commercial Snapshots Based on Optical Mineralogy*, in «RStFen» 45, 2017, pp. 87-108.

Zemer 1977 = A. Zemer, *Storage Jars in Ancient Sea Trade*, Haifa 1977.

Zimhoni 2004 = O. Zimhoni, *The Pottery of Levels III and II*, in D. Ussishkin (ed.), *The Renewed Archaeological Excavations at Lachish (1973-1994)*, Tel Aviv 2004, pp. 1789-1899.

Zorn 2014 = J.R. Zorn, *The Levant during the Babylonian Period*, in Steiner – Killebrew 2014, pp. 825-840.

APPENDIX 1

1. Category A: Key Sites and Contexts

1.1. *Ashdod*

Tel Ashdod is a major settlement in the southern coastal plain of Israel and one of the main Philistine sites. Ashdod is mentioned in Assyrian sources of the first half of the 7th century BCE.[75] In addition, an Egyptian ostracon, Karnak LS 462.4, sheds light on the end of Assyrian dominance at Ashdod: «… in the year 28 of king Psammetich I, while the king was in Daphne on his way to the land of Syria …».[76] According to the Greek historian Herodotus,[77] pharaoh Psammetich I besieged Ashdod for 29 years. In fact, the siege of Ashdod apparently took place in the 28th or 29th year of Psammetich I, possibly 635 BCE.[78] This was the end of Ashdod in the 7th century BCE.

The levels relevant to our study on the *tell* itself comprise Strata VIII through VI. In the excavation reports, Stratum VIII was dated to the 8th century BCE.[79] In this stratum, Ashdod reached its maximal size during the Iron Age and was subsequently completely destroyed. The destruction of Stratum VIII was convincingly attributed by the excavator Moshe Dothan to Sargon II in 712/11 BCE[80] and is generally accepted.[81] This correlation provides an important chronological anchor for the rich pottery assemblage of the destruction layer. We thus consider Ashdod VIII a key stratum.

According to Dothan, the city was rebuilt as Stratum VII, continuing the main urban outline of Stratum VIII. In contrast, Finkelstein and Singer-Avitz suggested combining Strata VIII and VII with only minor architectural changes and raised floors in Stratum VII.[82] The local pottery assemblage resembles that of Stratum VIII and only Greek and "Phoenician" imports demonstrate change and development in the ceramics. A North Ionian Bird Kotyle Type VI found in Area K, Level 6 = Stratum VII[83] was dated by Michael Kerschner between 720-670 BCE.[84] There is evidence for a destruction of Stratum VII in Area D Level 3a and in the gate area Level M-7a.[85] Dothan dated Stratum VII mainly on the basis of Assyrian and biblical texts mentioning Ashdod during the 7th century BCE.[86]

The settlement of Stratum VI shows the city in decline with a shrinking settlement. The local pottery assemblage resembles that of Stratum VII, and Stratum VI was chronologically possibly very close to Stratum VII. Stratum VI was destroyed at least to some extent as is evident in Area H level 1, Area K level 5.[87] Dothan's attribution of the destruction of Stratum VI to a Babylonian campaign is purely speculative and not sufficiently supported with archaeological evidence.[88]

75 Tadmor 2011.

76 Chauveau 2011; Schipper 2010, pp. 399-400.

77 Hdt. 2.157.

78 Tadmor 2011.

79 Dothan 1971.

80 Dothan 1971, p. 21; Tadmor 2011, p. 641.

81 E.g. Finkelstein – Singer-Avitz 2001, pp. 246, 250.

82 Finkelstein – Singer-Avitz 2001, p. 246.

83 Dothan – Ben-Shlomo 2005, fig. 3.102.6.

84 Kerschner 1995, pp. 14-15, chronology table.

85 Dothan 1971, pp. 21, 105; Dothan – Porath 1982, p. 41.

86 Dothan 1971, pp. 21-22; Dothan – Porath 1982, p. 57.

87 Ben-Shlomo 2003, p. 96; Dothan – Ben-Shlomo 2005, p. 54.

88 Dothan 1971, p. 22; Dothan – Porath 1982, p. 58.

Dothan's proposed dates were refused by Finkelstein and Singer-Avitz, yet defended by Ben-Shlomo in his response to them.[89] All three authors express explicit yet contradicting views as for possibly 7th century BCE occupations at Ashdod. Finkelstein and Singer conclude that Ashdod was not inhabited at all in the 7th century BCE as there is no evidence for an Iron Age IIC pottery assemblage at the site.[90] In contrast, Ben-Shlomo claims that Stratum VI was destroyed by Babylonians around 600 BCE. The pottery assemblages of Iron Age IIB and IIC are, according to Ben-Shlomo, very similar and some of the pottery types of Iron Age IIC do appear in Ashdod. The absence of East Greek pottery and Cypriot Basket-Handle jars dating to the end of the 7th century BCE is, for Ben-Shlomo, not significant.[91]

An alternative view to both views is that there was a 7th century BCE occupation at the site only during the Assyrian period of dominance. This is based on the observation that the three Strata VIII, VII and VI are clearly distinguishable stratigraphically, yet their ceramics are similar. Stratum VIII was destroyed by Sargon II in 712/11 BCE. Stratum VII followed the destruction of VIII and was also destroyed. Although a sparsely built layer, Stratum VI is distinctly discernable, also displaying evidence for a destruction.

The local ceramics of Strata VII and VI compare best with regional assemblages of the Iron Age IIB and the early Iron Age IIC. Local pottery types of Iron Age IIB continued into the first half of the 7th century BCE as for example in Tell Qudadi, Megiddo III and in the Assyrian building at Ashdod Ad Halom;[92] for Ashdod Ad Halom see below. Iron Age IIC types do occur in Ashdod Stratum VI,[93] however there is absolutely no evidence for Cypriot Basket-Handle jars and East Greek pottery which are typical for the second half of the 7th century BCE in coastal sites in the Levant (for example, Ashkelon). In fact, neither at Ashdod, nor at Ashdod Ad Halom (below) was a single sherd of East Greek pottery found. Contra Ben-Shlomo, this is a significant observation at a coastal site in the Southern Levant. We thus propose that Ashdod Stratum VII was founded after the destruction of Stratum VIII in 711 BCE and continued into the first half of the 7th century BCE. After the destruction of Stratum VII, Stratum VI was built shortly after and continued until ca. 635 BCE when Psammetich I besieged Ashdod.

Relevant transport-jars for our discussion were found in Tel Ashdod Strata VIII through VI (for Ashdod Ad Halom, see below, under 'other sites'). At Tel Ashdod, only some of the types discussed here were recorded. Only types TJ-2a and TJ-2b were recorded in Stratum VIII (see the Catalogue). An almost complete example of TJ-2 still occurred in Stratum VII. Type TJ-5 was recorded in Ashdod Stratum VII together with examples of TJ-9. In Ashdod Stratum VI, one type TJ-4a and one TJ-9 was found. According to Aznar, with one exception all these jars were produced at the "Phoenician" coast north of Rosh ha-Niqrah.[94] One of the most typical jars of our assemblage 6 (TJ-7) is not attested in Ashdod Strata VII and VI. To conclude, the absence of East Greek pottery and Basket-Handle jars as well as the distribution of TJ types discussed here confirm that while Ashdod definitely existed in the first half of the 7th century BCE, it did not last until the last third of the 7th century BCE.

1.2. *Ashkelon*

Ashkelon was the main port-city of Philistia. According to the Babylonian Chronicle, the city was destroyed by the Babylonians in Nebuchadnezzar's 1st regnal year, 604 BCE. The attribution of the extensive destruction of Stratum 2 to the Babylonian conquest, most probably in 604 BCE, is unanimously accepted.[95]

89 Ben-Shlomo 2003; Finkelstein – Singer-Avitz 2001; 2004.

90 Finkelstein – Singer-Avitz 2001, pp. 247-248.

91 Ben-Shlomo 2003, pp. 95-99.

92 Fantalkin – Tal 2015, p. 188; Finkelstein 1994, pp. 169-172.

93 For example, cooking pots with everted rims: Dothan 1971, fig. 55.20; Dothan – Freedman 1967, fig. 40.19.

94 Aznar 2005; see the Catalogue here.

95 Fantalkin 2006, n. 81; 2008, p. 84; Faust – Weiss 2005; Kerschner – Schlotzhauer 2005; Stager – Master – Schloen 2011, pp. 3-11; Waldbaum 2011.

The destruction deposits of Stratum 2 provide one of the most important contexts for dating various categories of pottery represented in it, including transport-jars. The local pottery represents a typical Iron Age IIC assemblage.[96] Unfortunately, the majority of the considerable quantities of TJs which were excavated in this level were not published and only very few of them were illustrated in the site report.[97] Two jars are relevant for our discussion, one is a TJ-7a type jar,[98] and the other is of TJ-9d type.[99] Ashkelon Stratum 2 has also produced Cypriot Basket-Handle jars[100] and abundant Ionian and other Greek wares.[101]

1.3. *Batash, Tell*

Tell Batash (ancient Timnah) is located in the eastern Shephelah. The excavations unearthed transport-jars relevant for our study in Strata III-II, a period during which the site's affiliation with either the Judahite or Philistine cultural sphere and possibly domination it not entirely clear.[102] The only stratum of interest here is Stratum II, which produced several TJ's in primary contexts.[103] This stratum has been dated by the excavator to the 7th century, mainly based on similarity to the Lachish II ceramic horizon, which we discuss below;[104] its destruction was assigned to the Babylonians and dated 604/3 BCE, in accordance with Ashkelon's destruction date.[105]

Similarly to the situation at Ashkelon, we consider the destruction of Stratum II at ca. 600 BCE a chronological peg for the same reasons cited above for Ashkelon and because of the occurrence of Ionian and Corinthian fine wares and Greek cooking pots.[106] The latter phenomenon is attributable everywhere in the Southern Levant to the last quarter of the 7th century BCE, best datable at Ashkelon.[107] For a recent geomagnetic demonstration of the rough contemporaneity of the destruction of Tell Batash II with other destruction levels attributed to the Babylonians based on historical and ceramic considerations according to Vaknin *et alii*.[108]

The destruction deposits of Stratum II at Tel Batash produced mainly various sub-types of TJ-9 and most probably one example of TJ-7a (see the Catalogue in Appendix 2). The TJ-7a jar has been assigned stratigraphically to either Stratum II or I but the second option can be ruled out since it is a Persian-period occupation, a period in which TJ-7 did not occur anymore.

The fabric groups identified for the jars at Tell Batash seem to us problematic as all the vessels discussed here were identified as products from southern Israel. From the report it is impossible to know which individual vessel of a particular fabric group was in fact analyzed with petrography.[109] When Carolina Aznar

96 Stager – Master – Schloen 2011, pp. 71-96.

97 Master 2003; Stager – Master – Schloen 2011, 97-102.

98 Stager – Master – Schloen 2011, fig. 6.10.

99 Stager – Master – Schloen 2011, fig. 6.11.

100 Stager – Master – Schloen 2011, fig. 7.57.

101 Waldbaum 2011, pp. 127-338.

102 Mazar – Panitz-Cohen 2001, pp. 278-282.

103 From the previous, 8th-century Stratum III (Mazar – Panitz-Cohen 2001, table on p. X), only one small fragment has been illustrated, of TJ-2a (Mazar – Panitz-Cohen 2001, pl. 25.19).

104 Summary in Mazar – Panitz-Cohen 2001, p. 275 tab. 55.

105 See above, Mazar – Panitz-Cohen 2001, p. 282; for very slightly divergent dates, e.g., Na'aman 1992.

106 Fantalkin 2008, pp. 268-270.

107 See above, also Fantalkin 2008, pp. 202-203; Gitin 2015a; Waldbaum 2011, especially pp. 133, 135; 2015.

108 See Vaknin *et al.* 2022, e.g. fig. 1.

109 Mazar – Panitz-Cohen 2001, pp. 15-24.

restudied one TJ-9c jar,[110] the provenance of this vessel was identified as being from the "Phoenician" coast north of Rosh ha-Niqrah.[111]

1.4. *Beth-Shemesh*

In the Late Iron IIA and IIB, Beth-Shemesh, in the northeastern Shephela, was a provincial Judahite administrative center. The renewed Beth-Shemesh excavations distinguished two destruction levels at Beth-Shemesh, Levels 3 and 2. In terms of relative chronology, the last phase of Level 3 and its destruction was attributed to the Late Iron Age IIA and the early Iron Age IIB.[112] In absolute dates, the destruction of Level 3 was dated by the excavators to ca. 790 BCE, related to the struggle between Jeohash and Amaziah. Others attributed this destruction to ca. 760 BCE. Both arguments relied on readings and interpretations of biblical narratives.[113] Radiometric dates pertaining to the end of level 3 fall within the Hallstatt Plateau and cannot offer the required resolution.[114] The destruction/abandonment of Level 2 was attributed to Sennacherib's 3rd campaign in 701 BCE, both on ceramic and historical considerations.[115] The ceramics of Level 2 are attributed to the Iron Age IIB.

We consider Level 2 a chronological anchor since the ceramics found in the destruction deposits are attributable to the "Lachish III-Beersheba II" horizon associated with Sennacherib's campaign in 701 BCE. The end of Level 3 is debated, as mentioned, and cannot, for the time being, be resolved on typological examination alone. We, however, consider a date ca. 760 BCE more plausible than the date of 790 BCE offered by the excavators.[116] This is because one radiocarbon determination from an advanced stage in Level 3 produced a date somewhere in the Hallstatt Plateau, showing that this level probably extended at least till 760 BCE.[117]

There are only two jars relevant for our discussion. One jar of type TJ-2 with an incomplete rim was found in the Level 3 destruction.[118] Since the rim is decisive for distinguishing sub-types of this type of jar, this vessel can only be identified generally as TJ-2. The jar was found alongside so-called 'Proto-lmlk' jars.[119] If the proposed date of 790 BCE for the destruction of Level 3 is correct, this would be one of the earliest examples for the occurrence of TJ-2 in the Levant. The second relevant transport-jar from Beth-Shemesh is of type TJ-4b and was found in the Level 2 destruction.[120]

1.5. *Ekron (Tel Miqne)*

In the 7th century BCE, Philistine Tel Miqne/Ekron was one of the largest and most important cities in the southern Levant, though much smaller and rather unimportant in the 8th century BCE.[121] There is very little information regarding Iron Age IIA. The 7th century occupation has been divided into three phases:

110 Mazar – Panitz-Cohen 2001, pl. 36.1.

111 Aznar 2005, sample SJ 09Dii.

112 The debate regarding the construction date of the Level 3 does not concern us here (see Bunimovitz – Lederman 2016, pp. 283, 367).

113 Bunimovitz – Lederman 2016, pp. 50-52, 381, with references, 687.

114 Boaretto – Sharon – Gilboa 2016, p. 683, fig. 23.1.

115 Bunimovitz – Lederman 2016, pp. 382, 452.

116 Adopted by Vaknin *et al.* 2022.

117 Boaretto – Sharon – Gilboa 2016, fig. 23.1.

118 Bunimovitz – Lederman 2016, fig. 9.96.4.

119 Bunimovitz – Lederman 2016, figs. 9.64, 9.70.

120 Bunimovitz – Lederman 2016, fig. 12.38.11.

121 Gitin – Dothan – Garfinkel 2017.

Stratum IC (ca. 700-625 BCE according to the excavators); IB: ca. 625–604, ending in a 'classic' Babylonian destruction; and IA, a post-destruction ephemeral occupation, dated ca. 604-586 BCE.[122] We consider the destruction of Stratum IB a chronological peg for the end of the 7th century, similarly to the excavators and the prevailing consensus.

Although not many "Phoenician" jars have been excavated at the site, they create an important sequence: A TJ-4c example in a pre-Stratum IC context;[123] a TJ-7a specimen in Stratum IC;[124] and one TJ-7c example in the Babylonian destruction of Stratum IB.[125]

1.6. *Gezer*

Egyptian and Assyrian sources, as well as the Hebrew bible, indicate that Gezer, situated in the northeast part of the Shephelah, was a prominent city during the Iron Age. It was conquered and most probably destroyed by the Assyrians as depicted in a relief at Nimrud, almost unanimously assigned to Tiglath-pileser III.[126] The latest of two (unstratified) Akkadian tablets found at the site, dated to 649 BCE, provides a *terminus post quem* for the end of the post-destruction occupation. The earlier tablet (651 BCE), was dated by its writers to the Limmu of the previous year, indicating some disruption of communication with the imperial center, and perhaps that Gezer was nearing its end.[127]

The Iron Age Stratigraphy at Gezer is a subject of a long-standing controversy.[128] Two strata are of interest here: the earlier is Stratum VIA with an administrative center that includes an industrial complex and a sizeable four-room house (Stratum 6 of the HUC excavations, suggested to date to the 8th century BCE).[129] The subsequent late Iron Age Stratum V (Stratum 5 of the HUC excavations) consisted only of a large deep silo, but currently other remains interpreted as an Assyrian administrative building are also attributed to this phase.[130] Alternatively, Gitin[131] divided Stratum V into two substrata: Stratum VB dated to the late 8th-7th century BCE, and Stratum VA, to the 7th-6th centuries BCE. In addition, there is also an intermediate Stratum VB-VA dated to the same time span as Stratum VB.[132]

The attribution of the destruction of Stratum VIA to Tiglath-pileser III's campaigns between 734 and 732 BCE is now widely accepted and we concur.[133] Thus we consider it a key Stratum. Singer-Avitz' suggestion for a lower date of this stratum[134] was recently rejected by Wolff and by Shalvi and Gilboa.[135]

The transport-jars from Gezer relevant for our discussion are listed in the Catalogue. They are compatible with the sequence we suggest here: TJ-2 jars of various sub-types were found in Stratum VIA (Type 5A-B)[136], most of them in the above-mentioned recently excavated four-room house ending with Tiglath-pileser

122 Gitin 2015a, p. 383, tab. 3.5.1.

123 Gitin 2017, fig. 4A.21.1.

124 Gitin 2017, fig. 4A.21.2.

125 Gitin 2015a, pl. 3.5.14.4.

126 For a comprehensive discussion with references, see recently Wolff 2021.

127 For the tablets, Horowitz – Oshima – Sanders 2006, pp. 55-60 with references; similarly, Ornan – Ortiz – Wolff 2013, p. 21.

128 For summary, see Ortiz – Wolff 2012, p. 7.

129 Wilson 2017.

130 Ortiz – Wolff 2012, p. 16; Reich – Brandl 1985.

131 Gitin 1990.

132 Gitin 1990, pp. 17, 446.

133 Wolff 2021, pp. 73-74.

134 Singer-Avitz 2018, pp. 196-197.

135 Wolff 2021; Shalvi – Gilboa 2022a, p. 266 n.18.

136 Gitin 1990, p. 124.

III. TJ-2b jars still appeared in the intermediate Stratum VB-VA[137] but they were entirely replaced by TJ-4b and TJ-4c in the following Stratum VA (Type 6).[138] No TJ type of the second half of the 7th century (TJ-6 and TJ-7), nor any example of TJ-9 have yet been uncovered by the various Gezer excavations, which would be compatible with the suggestion that it did not last into the second half of the 7th century BCE, though in the current excavations this may be due to the limited exposure of Stratum 5.[139]

1.7. *Hazor*

Hazor (Tell el-Qedah or Waqqas), the prominent northern fortified urban center of the late 10th?/9th and 8th centuries BCE Israelite Kingdom, is a primary source for studying the beginning of the transport-jars phenomenon in the southern Levant. The destruction of Israelite Hazor by the Assyrians is mentioned in biblical sources and attributed to a campaign of the Assyrian king Tiglath-Pileser III.[140] Assyrian historical sources do not mention this destruction specifically though they do relate to the subjugation of Pekah King of Israel at that time and Assyrian conquests in Galilee.[141]

The well excavated and well-stratified site of Hazor offers a high-resolution perspective for the gradual development of a royal administrative center during the Iron Age IIA-IIB in Substrata X-V, followed by a poor non-urban occupation in late Iron Age Stratum IV.[142] Recently, Shochat and Gilboa offered a different view of the Hazor conventional chrono-stratigraphic scheme,[143] arguing that the entire Strata VIII-V sequence should be understood as one continuous stratum representing gradual developments of the Israelite center at Hazor after the abandonment of the Stratum X-IX enclosure. They define the VIII-V continuum as Substrata of one Stratum (Stratum VIII-V), which is the concept and terminology we follow here. This process spans the entire Iron Age IIB chronological horizon, the 8th century BCE. A *terminus post quem* for the start date of this sequence is provided by ^{14}C determinations of the preceding Substrata (X-IX) in the last third of the 9th century BCE.[144] As well, during the life of Stratum VIII-V, some buildings in Substratum VI were destroyed by an earthquake that can plausibly be dated ca. 760 BCE based on correlation with biblical texts.[145]

Regarding the end of Substratum V (Yadin's Stratum V), its termination and destruction by Tiglath-pileser III, probably in 732 BCE is unanimously agreed upon by archaeologists and historians, [146] and thus we consider the destruction deposits of Substratum VA key contexts. In the post-destruction Stratum IV Hazor was resettled after a short (if at all) gap. Stratum IV remains indicate a dramatic occupational decline, denoted by the re-inhabiting of some Substrata VII-V buildings and their partial repair. The characteristic ceramic repertoire displays a clear continuation of the Iron Age IIB types supplemented by the addition of a few new Iron Age IIC types.[147]

137 Gitin 1990, pl. 23.5.

138 Gitin 1990, p. 125.

139 Sam Wolff personal communication.

140 2 Kings 15:29.

141 Bagg 2011, pp. 216-219 and n. 150 on p. 219; Tadmor – Yamada 2011.

142 Ben-Tor 2016; Yadin 1972.

143 Shochat – Gilboa 2018.

144 Shochat – Gilboa 2018, pp. 378-378, fig. 9.

145 Austin – Franz – Frost 2000; Ben-Ami 2012, p. 235; Shochat – Gilboa 2018, tab. 2.

146 Cfr., for example, Bagg 2011, p. 219; see summary and references in Shalvi – Gilboa 2022b.

147 Hazor II, Yadin 1960, pp. 58-63.

The excavations at Hazor recorded substantial quantities of transport-jars, starting with our type TJ-2. A first attempt to identify the provenance of type TJ-2 at Hazor was a study by Shulamit Geva, who concluded that these are '*Hazorite*' (i.e., Israelite-made) jars, produced in the kingdom of Israel and exported to Tyre.[148] Geva's study rested mainly on typological reasoning and was immediately critiqued by Patricia Bikai who interpreted the very large amounts of TJ-2 sherds at Tyre and Sarepta as kiln wasters;[149] she maintained that the TJ's from both sites were Tyrian. Subsequently Gilboa, Karasik, Sharon and Smilansky demonstrated with computational tools that the TJ's from Tyre and Hazor largely differ in small morphological details,[150] mainly in their rims, and therefore cannot be considered 'the same'; they could not, however, determine whether the difference was regional or chronological. Four TJ-2 jars from Hazor Substrata VII and VI were petrographically analyzed by Aznar who identified all four of them as originating at the "Phoenician" coast north of Ras en-Naqurah/Rosh ha-Niqrah.[151]

Transport-jars of various sub-types of TJ2 are attested by the dozens in primary contexts of Substrata VII-V, especially in the latter, but not in later contexts. In addition, four TJ's of later types have been assigned to Substrata VI-V: (1). A near-complete TJ-4c has been attributed to Stratum VI.[152] It belongs to a disturbed room (Locus 144a) adjacent to the Casemate wall from the east.[153] This locus lacks any stratigraphic description and it also produced another 'late' TJ-9.[154] These are the only two vessels that seem to be in primary deposition in this context, which otherwise produced only potsherds. Already Thomas McClellan concluded that this context has probably been affected by reoccupation activities.[155] We suspect an undetected pit. (2) A fragment of a TJ-4b jar in the renewed Hazor excavations has been attributed to Stratum Vc.[156] It was found in Room 3551 of Building 3550. This too is a problematic context since the pavement of this room is at level 231.20, higher than the top elevation of the adjacent Wall 2142 with which it is associated in the report (at 230.85).[157] Above this pavement, no surfaces have been attributed to Stratum V.[158] Also, pavement 3551 is missing in the northern corner of the room and seems to have been disturbed. (3) In addition, half a TJ-7 has been attributed by Yadin's expedition to Stratum V.[159] There is nothing to indicate a disturbance in this context (though very little has been written about it), but since in our extensive data base this is the only attestation of this type of jar in such an early context, we must infer an undetected disturbance or another problem.

Post Substratum V, a few complete jars or large jar fragments in Stratum IV belong to types TJ-4, TJ-6 and TJ-9.

148 Geva 1982.

149 Bikai 1985.

150 Gilboa *et al.* 2004.

151 Aznar 2005, SJ-H-27,30,31,32, the four samples were published after Aznar completed her study as Hazor 6, figs. 3.20.24, 4.3.13-14, 4.3.16.

152 Yadin 1960, pl. LXXIII.4.

153 Yadin 1960, pl. CCII.

154 Yadin 1960, pl. LXXV.15.

155 McClellan 1975, p. 68; Shalvi – Gilboa 2022a; cfr. Shochat – Gilboa 2018.

156 Sandhaus 2012, fig. 4.33.6.

157 Sandhaus 2012, p. 318, plan 4.22.

158 Sandhaus 2012, p. 320, plan 4.23.

159 Hazor III-IV, Yadin 1961, pl. CCXXX.29.

Type	TJ-2a	TJ-2b	TJ-2c	TJ-3	TJ-4b	TJ-4c	TJ-6	TJ-7a	TJ-9a
Substr. VII	1	4	2	1					
Substr. VI	10	18	1	1		1*			
Substr. V	16	28	3	6	1*			1*	1**
Str. IV		1	4			1	1		2
Total	27	53	10	8	1	2	1	2	2

* Disturbed context, see text. ** Probably disturbed context, see text.

Tab. 1. Distribution of Transport-Jars at Hazor.

1.8. *Kabri, Tel*

Tel Kabri is an inland site located in the ʻAkko Plain, near Nahariya, and some 16 km north of Tell Keisan. Excavations produced evidence for an occupation during the Iron Age with the oldest levels dating to the Late Iron Age IIA.[160] The most relevant context for this study is the destruction level of a fortress, Stratum E2a, with large quantities of restorable ceramics. Stratum E2 is divided into two phases, E2a (upper) and E2b. In the ruins of the destroyed fortress, Stratum E2a, large quantities of "Phoenician" and Cypriot ceramics, mostly in primary deposition, were found associated with East Greek pottery.[161] The closest parallels for the local pottery were found at Tell Keisan Niveau 4a. Stratum E2b represents an earlier floor level of the same fortress. The pottery found in this level comprises significant less quantities of vessels which was also more fragmentary than Stratum E2a.

The fortress of Stratum E2a was most probably destroyed either as early as 604 BCE[162] or later around 585 BCE, when the Babylonians laid siege to Tyre.[163] The end of Tel Kabri Str. E2a is another a chronological anchor in our study, attributed to the Babylonian conquest. The Greek pottery at Tel Kabri connects this destruction with the destruction levels of Ashkelon Stratum 2 and Mezad Hashavyahu.[164] Cypriot Basket-Handle jars were also recorded in Strata E2a and E2b; their Cypriot origin was established with petrographic analysis.[165] These, too, relate these contexts to the Babylonian destruction context of Ashkelon.

The catalogue of transport-jars from Kabri in the current paper does not include all unpublished jars from Kabri. The total numbers demonstrate that transport-jars accounted for 48% of all diagnostic sherds from Strata E2a and E2b.[166] Among the transport-jars, type TJ-9 with all its sub-types represented 56% of all jars. It is difficult to distinguish type TJ-6 from TJ-7c if only the rim is preserved; rims with these features make up 10% of the transport-jars. Type TJ-7a appears first in Stratum E2b (unpublished evidence) and accounts for 7% of all transport-jars. Notably, types TJ-4 and TJ-5 are not attested in Strata E2a and E2b.

1.9. *Keisan, Tell*

The prominent mound of Tell Keisan is situated in the midst of the ʻAkko Plain in southern Phoenicia,[167] but in the Iron Age the Mediterranean shore was significantly closer than it is today.[168] Following the Iron Age IIA occupation, which currently has not produced jars that are relevant to this paper, there was apparently

160 Lehmann 2002a; 2002b; Yasur-Landau – Press – Arie 2016, p. 215.

161 Niemeier – Niemeier 2002.

162 Fantalkin 2001, pp. 128-147; Lehmann 2002a.

163 Elayi 2018, pp. 190-208; Katzenstein 1997, p. 328.

164 Fantalkin 2001, pp. 128-147.

165 Goren – Cohen-Weinberger 2002.

166 Lehmann 2002a, fig. 5.87.

167 Lehmann 2017.

168 E.g. Morhange *et al.* 2016.

an occupational gap during most of the Iron Age IIB.[169] The late Iron Age occupations – Niveaux 5-4 (see below) – produced significant assemblages of TJs. The stratigraphical framework and chronology of this sequence has been debated for a while.

Initially, in the site report, three strata have been defined, namely 5, 4b, and 4a, dated by the excavators 720-650 BCE (the Assyrian occupation period), 650-600 BCE, and 600-580 BCE, respectively.[170] Subsequent reconsideration led Jean-Baptiste Humbert to propose an 8th century date for Niveau 5,[171] suggesting that the end date of Niveau 4 be raised to about Ashurbanipal's days, ca. 644/643.[172] Notably, both scholars relied heavily on ceramic correlation of Tell Keisan with the Cypriot Iron Age chronology, which is to our minds methodologically wrong, being much more problematic than the Levantine chronology.

In 1991, Humbert proposed that Strata 5 and 4b represent one stratigraphical/chronological/cultural unit, followed by Niveau 4a.[173] We totally concur with this suggestion;[174] this is also supported by the current excavations at the site, which demonstrate that there are only two destruction layers at the site, terminating Niveaux 5 and 4.[175] After the destruction of Niveau 4a the site was abandoned again for about a century, to be resettled in the Persian period,[176] apparently shortly before 510 BCE.[177]

We consider the end of Niveau 4a a chronological anchor, assignable to the Babylonian conquest as initially proposed in the site report and defended by Salles. Today, 40 years after the publication of the report, this attribution is even clearer, since several of the ceramic aspects of Niveau 4a find parallels in occupations in the Levant who were undoubtedly destroyed by the Babylonians, most notably well-dated Ashkelon 2 (see above). This destruction also contained Cypriot Basket-Handle jars,[178] and 'East Greek', Ionian and Samian wares.[179] The occupational gap following Niveau 4a before an eventual revival in the Persian Period is also a phenomenon that repeats itself in many southern Levantine sites such as Al Mina or Tel Kabri.[180]

Identifying the TJ assemblage of Niveau 5/4b is very difficult since very few of them have been assigned with certainty to this stratum (see below Tab. 2 and the Catalogue; they are of types TJ-6 and TJ-9). A cautious assessment would point to the second half of the 7th century, in the range of SPP Assemblages 4-5. A In Stratum 4(a) the types represented are TJ-7 and TJ-9 – nine examples of each. This is compatible with the ca. 600 BCE date deduced from the rest of the pottery of this stratum, equaling SPP Assemblage 6.

In addition to the well-stratified jars mentioned above, 15 TJ's in the Tell Keisan report, about a third of the published ones and including nine complete/near complete examples, originate in pit 5049.[181] They are mainly of various sub-types of TJ-7, accompanied by TJ-8 and TJ-9 examples. Despite their attribution to Niveau 4 in the caption to that plate, the pottery in pit 5049 is of problematic stratigraphical attribution. Pit 5049 in fact comprises two pits, the upper one (5049a), apparently belonging to Niveau 4, cuts through

169 E.g., Arie 2020; Briend – Humbert 1980, p. 22.

170 Briend – Humbert 1980, p. 27, tab. 1.

171 Humbert 1981, pp. 384-388.

172 For a critique, with which we agree, see Salles 1985.

173 Humbert 1991, see also Chambon 1980, p. 177; 1991, p. 590.

174 As explained in Gilboa 1995, p. 2.

175 For these two destructions see also Briend – Humbert 1980, pp. 20-21; cfr. also the section drawing in fig. 4 on p. 19.

176 Briend – Humbert 1980, p. 27, tab. 1.

177 Martin – Shalev 2022.

178 Salles 1980, pls. 23-24.

179 Fantalkin 2001; 2008; Salles 1980, pl. 35.9-10; Waldbaum 2011.

180 For a full discussion see Martin – Shalev 2022.

181 Humbert 1980, pl. 27.

pit 5049b of Niveau 5. The jars, however, could not be attributed with certainty to either sub-pit.[182] Assuming that all the jars from the pit represent one stratum (and perhaps one depositional event) their best attribution would be SPP 5.[183] This would suggest that Niveau 5 dates ca. 670-640 BCE, which is indeed very plausible. However, an attribution to Niveau 4 cannot be ruled out, as is the possibility that the jars in the pit represent more than one stratum.

Another problem is the date of Locus 403. The excavators attributed Locus 403 with a type TJ-6 to the destruction level of Niveau 4. Yet, it is possible that Locus 403 with the jar represents debris of Niveau 5. The elevations of Niveaux 4 and 5 in the area of Locus 403 were often only 10 cm apart.[184] Wall W5210 defined the relevant architectural remains of Niveau 4, but the excavators did not publish the elevations of this wall. W5210 was built over the remains of wall W5244 of Niveau 5.[185] The top elevations of W5244 are at 40.15 m near Locus 403. This means that the lowest course of Niveau 4 wall W5210 must have been above 40.15 m. Locus 403 Basket 4015 with the ceramics in questions is however at 40.00 m, 15 cm below the foundations of the Niveau 4 wall. Locus 403 Basket 4015 in fact connects well with the Niveau 5 Locus 511 Basket 5212.[186]

In summary, in our view, the late Iron Age sequence at Tell Keisan comprises two strata: 5/4b and 4a.

The transport-jars included in the Catalogue (Appendix 2) comprise vessels from the French excavations[187] as well as unpublished jars from the new excavations at Tell Keisan.[188]

Type	TJ-6	TJ-7	TJ-7a	TJ-7b	TJ-7c	TJ-7d	TJ-8	TJ-9
Keisan Niv. 5	2				1			3
Keisan Fosse 5049		2	6	2		1	1	3
Keisan Niv. 4		2	2		4	1		9

Tab. 2. Distribution of Transport-Jars at Tell Keisan.

1.10. *Lachish*

During the Iron Age IIB-C, Lachish, identified at Tell ed-Duweir, in Israel's Shephelah region, was a major administrative site of the Kingdom of Judah. Transport-jars relevant for our research were uncovered there in Strata III and II. The settlements of both strata ended in destructions. The destruction of Stratum III is nowadays unanimously attributed to Sennacherib's campaign of 701 BCE and that of Stratum II to the Babylonian conquest ca. 587/6 BCE, based on several lines of evidence – textual and archaeological.[189] The ceramic assemblages of these strata are considered major pegs in South-Levantine ceramic chronology, and we use them as key strata.

Lachish Stratum III: Among the 15 published transport-jars relevant for this research there are six TJ-4c (see the Catalogue). This typological profile is very similar to that identified in the contemporary Stratum II

182 Humbert 1980, pp. 17-18; see also fig. 2 on p. 15 and fig. 3 on p. 17.

183 Shalvi – Gilboa 2022b.

184 Briend – Humbert 1980, p. 21.

185 Briend – Humbert 1980, see plans figs. 39 and 43.

186 Briend – Humbert 1980, see plan fig. 43.

187 Briend – Humbert 1980.

188 Directed by D. Schloen (Oriental Institute, University of Chicago), G. Lehmann (Ben-Gurion University) and B. Schipper (Humboldt University of Berlin).

189 Singer-Avitz 2016, p. 656; Ussishkin 2004, vol. I, pp. 88-92.

at Tel Sheva.[190] One jar is reported from Lachish Strata III-II,[191] most probably belonging to Stratum III since it seems unlikely that type TJ-4c was still in use in Stratum II. Two examples of type TJ-5 are published from Stratum III. This is the earliest well-dated attestation of some variant of TJ-5 in the Southern Levant. As well, eight examples of type TJ-9 occur in Stratum III. Here too, this is the earliest securely dated context for type TJ-9 and demonstrates that this ubiquitous transport-jar of the 7th century BCE commenced before 700 BCE.

Lachish Stratum II: after the destruction of Stratum III, only two TJ-9 transport-jars were recorded (see the Catalogue).

1.11. *Megiddo*

Situated in the fertile Western Jezreel valley, Megiddo was a major administrative center of the Kingdom of Israel from the late 10th/early 9th to the 8th century BCE (Strata V-IV). The demise and at least partial violent destruction of Megiddo IVA is today unanimously associated with the 734-732 campaigns of the Assyrian king Tiglath-pileser III.[192] Thus we consider this stratum a chronological peg. Subsequently, the site was rebuilt as the Assyrian provincial center of Magiddu (Strata III-II). This is the last significant occupation on the tell, other than a Persian-period village, Stratum I.[193] Both the beginning and end dates of the Strata III-II continuum have been debated. Regarding the beginning, since Assyrian Megiddo is already mentioned under Sargon II,[194] the question is whether it was established as a provincial center under Sargon's II reign (721-705 BCE)[195] or earlier, close to Tiglath-pileser's III conquest of the region (reign 744-727).[196]

As for the end dates of Strata III and II: The only safe anchor for this sequence is the fact that the center of Magiddu survived at least till 679 BCE: its governor was named eponym of this year.[197] The end of these strata was attributed by the excavators, reservedly, to 650 BCE and 600 BCE respectively.[198] The current consensus is that the Strata III-II range in its entirety should be understood as the city rebuilt by the Assyrians after the dismantling and partial destruction of the Stratum IVA administrative center.[199]

All the dates cited above were based on a combination of historical considerations and very general ceramic considerations at best. Inter alia this involved some, usually implicit association between the end of the Strata III-II sequence and the encounter of Joshia, King of Judah and Necho II of Egypt near Megiddo around 609 BCE.[200]

Some years ago, Lily Singer-Avitz sought to refine the dates of the Megiddo Strata III-II occupation.[201] We consider her paper the best attempt thus far to extract chronological and historical information from the transport-jars in question. We, however, disagree with several aspects of Singer-Avitz' methodology:

190 See below; for their rough contemporaneity, see also Vaknin *et al.* 2022.

191 Tufnell 1953, p. 127.

192 Faust 2018, p. 30; Finkelstein – Ussishkin – Halpern 2000, p. 322 with references; Gilboa 2015; Halpern 2000, pp. 563-564; see further Singer-Avitz 2014, p. 123; Stern 2001, p. 7.

193 Stern 2001, pp. 376-378.

194 Radner 2006, p. 61; see recently Zilberg 2018, pp. 18, 20 and tab. 3.12.9, 28.

195 For this opinion see for example Peersmann 2000, p. 532; Stern 2001, p. 48.

196 Halpern 2000; Finkelstein – Ussishkin – Halpern 2000, pp. 319, 322 with references; Halpern (2000, p. 577) thought that the town was settled in earnest (i.e., beyond the administrative buildings) only under Esarhaddon.

197 E.g., Radner 2006, p. 61.

198 Lamon 1935, pp. xi, xxvii, 62, 83-87.

199 Gilboa 2015; Macchi 1994; Peersmann 2000; Singer-Avitz 2014. A rare exemption is Stern (2001, p. 48) who thought that only Stratum III represents the Assyrian center.

200 2 Chronicles 35:21-24; e.g., Halpern 2000, p. 569; Lamon – Shipton 1939, p. 87; Singer-Avitz 2014, p. 124.

201 Singer-Avitz 2014.

1. Her uncritical acceptance of the Lamon and Shipton typology and consequently of the stratigraphical range assigned by them for each type they defined. As is well known, in the Oriental Institute Megiddo publications, the types are generally represented by one illustration only of a complete vessel and there is no way to assess the morphological variability (e.g., in rim shape) allowed within a "type". Examples abound and here we provide one that is relevant to the present study: the jar in Megiddo Volume I (our type TJ4a)[202] is marked in the report's Distributing of Pottery list as continuing into Stratum I (of the Persian period), with three examples in safe loci of that stratum. As we demonstrate here, a Persian-period date is impossible for this type, as we think will be accepted by all ceramic experts.[203]

2. Since Singer-Avitz's point of departure was Megiddo, she did not consider important data emanating from types that are absent from this site but exist at other, oftentimes better-datable sites. Additionally, Singer-Avitz was naturally unacquainted with the important sequences at Shiqmona and Dor, partially published, or only recently so. The former has been processed only from 2019 and the latter was among the sites she decided not to deal with.[204]

3. Her preference of (rather fuzzy) historical information over clearer archaeological data. Though she admits[205] that the archaeological evidence indicates an end of Megiddo II before the late 7th century BCE, ultimately her chronological anchor for the end of Stratum II is based on a geopolitical interpretation.[206]

4. Finally, at times, our typological definitions differ from that of Singer-Avitz, which to our minds is not detailed enough. For example, she compares TJ-5 (her Subtype 5) from Megiddo II to several variants of TJ-7 from Strata 5 and 4 at Tell Keisan.[207] Consequently, as explained in the main text, in some cases we agree with Singer-Avitz's chronological and historical suggestions and in others we do not.

As mentioned, we agree that there is very little doubt regarding the association of the end of Stratum IV with the effects of the 734-732 Assyrian campaigns. Regarding Strata III-II: it is impossible to our minds to date the foundation of the Assyrian center precisely based on archaeological considerations, since very little pottery can be associated with it based on the current publications. However, regarding the end date of this sequence, we think that it may be informed by the analysis of the transport-jar sequence as discussed in the present study.

The relevant transport-jars for our study from Megiddo are listed in the Catalogue. Unfortunately, almost all the data regarding transport-jars in Strata IV-II has been forthcoming from the 'old' Oriental Institute excavations at the site. We catalogued only transport-jars illustrated in the site reports, the typology of which we can assess ourselves.

The report of the excavations in Area Q during 2008-2014 provides new data regarding the dates of "Phoenician" transport-jars during the Iron Age II.[208] Unfortunately, our types TJ-1 and TJ-2a are not distinguished in the report and are both identified as SJ37A.[209] The sherd and vessel count reports two complete jars of 'type' SJ37A and one body sherd of type SJ37B (= TJ-2b) for Level Q-4 (= Str. VA-IVB). According to

202 Lamon – Shipton 1939, pl. 16.80.

203 Singer-Avitz (2014, fig. 4.4) ignores the fact that this jar type reportedly appears till Stratum I, and also that it is marked as starting in secure loci of Stratum III; the type is assigned by her to Stratum II only. There are other inaccurate assignations by her: For example, the type in Lamon – Shipton 1939, pl. 16.81, assigned in the report to the IV-I range, is attributed by Singer-Avitz (2014, fig. 4.4) to the IV-II range only, when in fact the only example listed and illustrated is the one from an unsafe locus of Stratum III.

204 Singer-Avitz 2014, p. 137.

205 Singer-Avitz 2014, p. 138.

206 Singer-Avitz 2014, p. 139.

207 Singer-Avitz 2014, p. 135.

208 Homsher – Kleiman 2022; Kleiman 2022.

209 Kleiman 2022, p. 928, fig. 23.27.

our classification, these two jars belong to two entirely different types, TJ-1 and TJ-2a. This is so far the only case in which these two types were found associated with each other. Both complete jars were found together in a destruction layer on a pavement. This would be the earliest context for type TJ-2a, which appears here in a Late Iron Age IIA layer. Note that Kleiman also counted one TJ-2 body sherd for this layer.

To understand the complexity of the chronological issues involved one needs to consider also the Cypriot imports at Megiddo Level Q-4. Anna Georgiadou assigned a number of vessels to the Cypriot Type IV which is usually assigned to the Cypro-Archaic I period.[210] This period is generally considered to have commenced around 750 BCE, which is not compatible with the Late Iron Age IIA evidence at Megiddo and several other recent excavations in the Levant.[211]

To sum up the Megiddo sequence: Megiddo conforms to the relative sequence attested elsewhere: TJ-2, followed by T-4 and TJ-5 (only one illustrated). Notably, after extensive excavations at the site by several expeditions, not one example of the ubiquitous TJ-7 nor TJ-9 has been reported,[212] though these types are well-attested at other, much smaller sites, in Megiddo's vicinity. This indicates that 7th century BCE Megiddo did not survive into the second half of that century.

Furthermore, Megiddo lacks most pottery types that are characteristic for the end of 7th century in destruction layers attributed to Nebuchadnezzar II of other coastal and lowland sites in the Southern Levant, such as Cypriot Basket-Handle jars. Singer-Avitz explicitly addressed this absence,[213] but finally reached the conclusion that, notwithstanding, Megiddo II must have survived till Nebuchadnezzar's days.[214] In recent excavations at Megiddo a small number of East Greek sherds were found which are not yet published, but there is still no evidence for a larger settlement at the site and its destruction by the Babylonians.[215]

On present and rather abundant evidence we conclude that Megiddo was abandoned before the Babylonian destructions at Ashkelon, Metzad Hashavyahu and Kabri between 604 and 586 BCE.

Stratum	TJ-1	TJ-2	TJ-4a	TJ-4c	TJ-5
VA-IVB (Q-4)	1	2			
IVA		4			
IVA-III		2			
III		1		1	
II			1		1

Tab. 3. Illustrated Transport-Jars from Megiddo.

1.12. *Mezad Hashavyahu*

Mezad Hashavyahu is a small fortress north of Ashdod and south of Yavneh-Yam, on Israel's southern coast which was excavated in 1960 by Naveh and in 1986 by Reich.[216] Recent excavations by Daniel Ein-Mor in 2017 add additional data.[217] The site had either one phase of occupation (Fantalkin) or two as the recent excavations suggest. Fantalkin and Ein Mor agree that Mezad Hashavyahu was not destroyed but aban-

210 Georgiadou – Kleiman – Finkelstein 2022.

211 Georgiadou – Kleiman – Finkelstein 2022, p. 1090.

212 See the detailed discussion in Shalvi – Gilboa 2022b.

213 Singer-Avitz 2014, p. 372.

214 Similarly, recently Faust 2019, p. 310.

215 Assaf Kleiman, personal communication.

216 Fantalkin 2001.

217 Ein-Mor personal communication.

doned.[218] The site is famous for its Greek pottery finds which was dated to the second half of the 7th century BCE.[219] The pottery assemblage is homogeneous and if there were two settlement phases, both must have been very close in time. The ceramics at the site are very similar to those in the 604 BCE destruction assemblage at Ashkelon and the end of Mezad Hashavyahu is most probably contemporary with the Babylonian destruction levels at Ashkelon Stratum 2, Tel Kabri Stratum E2a and Tell Keisan Niveau 4. Therefore, we consider it a key context.

The transport-jars include complete East Greek types, local jars from the southern coast of Israel and transport vessels of our type TJ-9.[220] The pottery count demonstrates that TJ-9 was the main "Phoenician" transport-jar type at the site.[221] The renewed excavations found also evidence for TJ-7a.[222]

1.13. *Rosh Zayit, Horbat*

The Late Iron IIA small fortress at Horbat Rosh Zayit, identified by the excavators as ancient Kabul, is situated on the southern margins of lower Galilee, overlooking the ʿAkko Plain to its south. It is variously characterized as a "Phoenician"[223] or Israelite fortress.[224]

The destruction layer of a fortified tower in Stratum IIa (the last occupation of the fortress) produced the largest known concentration of type TJ-1 examples, all in primary deposition (see the Catalogue). The excavators, Gal and Alexandre, considered these jars, which they identify as type SIIV, the antecedent of our type TJ-2.[225]

Gal and Alexandre debated the destruction date of the fort (Stratum IIa), considering ceramic typology, but in the end establishing it mainly on biblical/historical consideration. In the excavation report they claim that the fortress was established under Solomon in ca. 960/950 BCE and generally functioned into the 9th century. Regarding the end, they considered two alternatives:[226] 880 BCE and 841 BCE (Aramaeans and Shalmaneser III respectively). But they did not, in fact commit to a destruction date.[227]

Here we are interested only in Stratum IIa that produced the TJ-1 examples. Horbat Rosh Zayit is the only site where transport-jars in our sequence are directly associated with radiocarbon dates produced from clusters of burnt seeds.[228] Four of the jars[229] originate in the same contexts that produced samples 3797, 3798, 3799.[230] The calibrates ranges (produced by multiple measurement of each sample), in 2 σ (95%) are, respectively, 900-813, 913-827 and 907-817 BCE, with a weighted average of 907-817.[231] This establishes a firm 9th century range for these jars at Rosh Zayit. The three distributions (and weighted average) present

218 Fantalkin 2001, p. 49.

219 Fantalkin 2001, pp. 128-136.

220 Fantalkin 2001, fig. 25.9-12 (Fantalkin's SJ1).

221 Fantalkin 2001, pp. 63-64 type SJ1, 101.

222 Ein-Mor personal communication.

223 Gal – Alexandre 2000, p. 199.

224 Kleiman 2017.

225 Gal – Alexandre 2000, pp. 52-53.

226 Gal – Alexandre 2000, p. 199.

227 Gal – Alexandre 2000, pp. 151-153.

228 Sharon *et al.* 2007.

229 Gal – Alexandre 2000, figs. 3.86.14 and 3.87.2, both from the same locus, 3.94.3, 3.92.4.

230 Sharon *et al.* 2007, tabs. 2, 7, 8.

231 We used here the current calibration curve (Reimer *et al.* 2020) and newer OxCal software of the 2021 version by Bronk Ramsey and thus the ranges differ minimally (and insignificantly) from those published in Sharon *et al.* 2007.

a 'twin peak' configuration (Fig. 2), with the highest peak ca. 830 BCE, which may be indeed close to the mark. This question is discussed in a publication of Tel Shiqmona by Shalvi and Gilboa.[232]

Later, TJ-2 types were uncovered in various houses of the Rosh Zayit village post-dating the fort, attributed by its excavators to the 9th and mainly the 8th century BCE.[233] We do not consider these chronological pegs, but on the other hand the appearance of only TJ-2 type jars and the total absence of later ones, largely support the excavators' claim for the village termination during Tiglath-Pileser III's campaign in 732 BCE.[234]

1.14. *Sheva, Tel*

During Iron Age II, Tel Sheva in the Beersheba Valley (identified by some scholars as biblical Beersheba) was a prominent Judahite administrative center. It produced, only from Stratum II, more than 20 transport-jars in primary deposition and additional fragmentary ones. This is by far the largest such assemblage in Judah. It highlights, as argued on several occasions by Singer-Avitz, the commercial role of the Beersheba valley as a main commercial artery during Iron Age II, especially from the 8th century and on.[235] The destruction of Stratum II, concurrently with Stratum III at Lachish, is nowadays undisputedly assigned to Sennacherib's campaign to Judah in 701 BCE.[236] It thus provides a *terminus ante quem* for the jars buried in its debris and a useful chronological datum for the types represented.

In her report on the pottery of Tel Sheva, Singer-Avitz collapses our types TJ-2 and TJ-4 into one type, her SJ-9.[237] Eleven jars were analyzed with petrography by Mark Iserlis and Yuval Goren.[238] While seven were found to originate in Lebanon, four jars were assigned to a group containing Hamra soil originating in the central coastal plain of Israel. Of the latter four, one jar was also analyzed by Aznar,[239] who identified the same jar as from the "Phoenician" coast north of Rosh ha-Niqrah.[240]

Among the types identified by us at Tel Sheva, there is only one type TJ-2b in Stratum II.[241] Most of the transport-jars in this stratum belong to type TJ-4: there are four TJ-4a variants, six TJ-4b jars, while the 13 examples of sub-type TJ-4c represent the majority of the "Phoenician" transport-jars in Stratum II (see the Catalogue). In addition, one jar is equivocal, either type TJ-4 or TJ-5.[242] Notably, the only type TJ-9 jar is apparently a very early and not typical variation.[243]

1.15. *Shiqmona, Tel*

Tel Shiqmona (Tell es-Samak) is a modest-sized mound of ca. one hectare, situated on a small, rocky headland between the Carmel Mountains and the Mediterranean Sea. Joseph Elgavish's excavations of the tell were carried out between 1963 and 1977, during which an area of ca. 800 sq m has been excavated.[244]

232 Shalvi – Gilboa in press.

233 Gal – Alexandre 2000, pp. 200-201.

234 Gal – Alexandre 2000, pp. 177-178; Gal – Frankel 1993, p. 130.

235 Singer-Avitz 1999; 2010.

236 See above and summary with references to previous scholarship in Singer-Avitz 2016, p. 656.

237 Singer-Avitz 2016, pp. 616-617.

238 Iserlis – Goren 2016.

239 Aznar 2005, fig. 12.83.6.

240 Aznar 2005, sample SJ-BS-14 Beersheba reg. n. 3704/2.

241 Singer-Avitz 2016, pp. 616-617; fig. 12.55.14.

242 Singer-Avitz 2016, fig. 12.112.10.

243 Singer-Avitz 2016, fig. 12.148.14.

244 Elgavish 1994, p. 33.

They revealed, among other things, a very dense Iron Age stratigraphical sequence and many dozens of transport-jars, many of them in primary deposition.

Recently, the Iron Age settlement sequence has been reanalyzed and reconstructed, revealing that purple dye was produced at Tel Shiqmona during the entire Iron Age. This function probably explains the frequent destructions and other upheavals the site underwent. Consequently, the site's stratigraphy is very detailed and thus we consider Tel Shiqmona a key site for sequencing and dating "Phoenician" transport-jars.

The relevant new Iron Age stratigraphic schema is presented in Tab. 4.[245]

Stratum	Architecture	Period	Proposed date
14	Village, purple dye production, destroyed?	Early Iron Age IIA	Second half of the 10th century BCE
13	Casemate enclosure, purple dye industry, violently destroyed	Late Iron Age IIA	9th century BCE
12	Casemate enclosure, purple dye industry, oil production	Late Iron Age IIA	End of the 9th century BCE
11	Casemates only partly used, *extra muros* settlement extension, purple dye industry, oil production, violently destroyed	Iron Age IIB	First half of the 8th century BCE
10	Large Four Room House with olive oil press, purple dye production (?), destroyed	Iron Age IIB	Second half of the 8th century BCE
9	Poor architecture, renewal of purple dye industry	Iron Age IIC	Early 7th century BCE
8	Purple dye and olive oil industrial quarter	Iron Age IIC	Mid-7th century BCE
7	Residential buildings (?)	Iron Age IIC	End of the 7th century BCE

Tab. 4. Iron Age stratigraphical-chronological sequence of Tel Shiqmona based on recent research.

Shalvi and Gilboa based their proposed relative chronology of Iron Age II strata on ceramic parallels with sites in the Southern Levant representing four well-dated destructions horizons:

1. Stratum 13 has pottery parallels in strata of the Late Iron Age IIA horizon in the Southern Levant, including some which were destroyed at the end of the period, toward the end of the 9th century. These are primarily (north to south) Hazor X-IX, Horbat Rosh Zayit IIb-a, Yoqneʿam XIV, Megiddo VA-IVB[246] and Tel Rehov V-IV. In Phoenicia it parallels Sarepta Trench Y/D2-D1, Tyre IX-VIII, Tell Keisan Niveau 7, and the Ir2a horizon at Dor G/6a, D2/8b, B/8.
2. Stratum 11, also totally destroyed, corresponds to Iron Age IIB strata such as Hazor VII-V, Yoqneʿam XII, Megiddo IVA, Beth She'an P-8 – P-7 and Rehov III-II. All these occupations ended in what appears to be Assyrian destructions ca. 730 BCE.[247] Other contexts contemporary with Tel Shiqmona Stratum 11 are Horbat Rosh Zayit Areas A-C, Sarepta C2 and Tyre IV-III. It produced abundant pottery in primary deposition.
3. Transport-jars found in Stratum 10 – destroyed as well – have parallels in the destruction layers attributed to Sennacherib in Judah and the Shephelah. As argued in Shalvi and Gilboa,[248] it seems that Stratum 10 survived the onslaught of Tiglath-pileser III on Israel and was destroyed only later by Sennacherib in 701 BCE.
4. Stratum 7 closes the Iron Age sequence with ceramic features typical of the destruction layers associated with the Neo-Babylonian conquest of the Southern Levant in ca. 600 BCE. Among these destruction layers are Ashkelon Stratum 2, Lachish II, Tel Miqne-Ekron Ib, Tel Kabri E2a, and Tell Keisan Niveau 4.

245 See full discussion in Shalvi – Gilboa 2022a; 2022b.

246 Including levels Q-4 – Q-5; H7-H5; K-3 – K-2.

247 E.g., Ben-Tor – Zarzecki-Peleg 2015, p. 135 and see above.

248 Shalvi – Gilboa 2022a.

In between those horizons, Strata 12, 9 and 8 were fitted, also considering further available archaeological and historical data.[249]

Stratum	TJ-1	TJ-2	TJ-4	TJ-5	TJ-7	TJ-8	TJ-9
13	2						
12	1						
11		8					
10		2	5				1
9		1	1	4			1
8					7		5
7					7	1	15

Tab. 5. Complete transport-jars at Tel Shiqmona.

Beyond the mostly complete jars listed in Appendix 2, Tel Shiqmona produced many dozens of TJ fragments of these types. The typological development of the transport-jars and their sequence at Tel Shiqmona can be summarized in six steps:[250]

1. Strata 13 and 12 contain only TJ-1.
2. In Stratum 11, TJ-2 jars first appear and are the only type attested.
3. The main TJ- addition in Stratum 10, which distinguishes it from the previous stratum, are the TJ-4 jars, which are then dominant.
4. In Stratum 9, the main characteristic of the TJ repertoire – which distinguishes it from Stratum 10 – is the first appearance of TJ-5, which joins TJ-2 and TJ-4.
5. In the well-preserved Stratum 8, TJ-7 commenced, providing a clear differentiation between Strata 9 and 8. At Tel Shiqmona, three TJ-7 sub-types are in evidence, TJ-7a-c.
6. Stratum 7 is distinguished by a significant increase in the number of the "bullet shaped" TJ-9 jars (a process that started already in Stratum 8), alongside the first appearance of Cypriot Basket-Handle jars.

Since Tel Shiqmona's occupations can be dated to timespans of one to two generations, we consider all of them as key contexts.

2. Category B: Other Sites

2.1. *Ashdod Ad Halom*

The Assyrian-period city of Ashdod was flanked by an Assyrian administrative building at Ashdod Ad Halom, at the western outskirts of the city.[251] This building was possibly built in the time of Sargon II for an Assyrian governor when Ashdod became an Assyrian province after the destruction of Ashdod Stratum VIII.[252] According to the ceramic assemblages, the two phases of this building, Ashdod Ad Halom Stratum 7a and 7b, appear to be contemporary with Ashdod Stratum VII. When Ashdod Stratum VII was destroyed and Stratum VI was constructed, there was a squatters' settlement at Ashdod Ad Halom Stratum 6 above the ruins of the Assyrian building. As at Tel Ashdod, there was no further construction at Ashdod Ad Halom after ca. 635 BCE.

249 Shalvi – Gilboa 2022b.

250 For more details see Shalvi – Gilboa 2022a; 2022b; Shalvi – Gilboa in press.

251 Kogan-Zehavi 2005.

252 Tadmor 2011.

At Ashdod Ad Halom more TJ types were recoded than on the tell but most of them are only small sherds. Types TJ-2a and TJ-2b were in use in Stratum 7a with small fragments of rims appearing also in Strata 7b and 6. Several fragments of TJ-4c and TJ-6 occurred as early as Str. 7b while the "bullet"-shaped TJ-9 commenced with Str. 7b. Notably, a large fragment of TJ-7a was recorded in the destruction level of Stratum 7b.

The chronology of TJ jars developed here is compatible with the sequence at Ashdod Ad Halom. The earlier phase of the Assyrian building at Ashdod Ad Halom, Stratum 7a, can be attributed to the SPP assemblages 2 through 3. This would cover the period beginning with Sargon II through at least the time of Sennacherib. The second phase, Stratum 7b, should date to SPP assemblage 4, the "Esarhaddon ceramic horizon". Stratum 6 should be attributed to SPP assemblage 5, the "Ashurbanipal ceramic horizon".

Type	TJ-2a	TJ-2b	TJ-4a	TJ-4b	TJ-4c	TJ-5	TJ-6	TJ-9
Str. 7a	2	4		1	3			
Str. 7b	3	2		1	7			5
Str. 6			1			3	1	5
Total	5	6	1	2	10	3	1	10

Tab. 6. Transport-Jars at Ashdod Ad Halom (mostly fragments).

2.2. *Beirut*

At Beirut, a major port-city on the central Lebanese coast, an almost complete building, so-called the Casemate-Wall Building, was discovered on top of the "abandonment" level to the west of the Casemate Wall connected with the Fifth Fortification Wall level.[253] The southern wall, W877, of the building abuts against wall W 508. The building was destroyed in a fire, the black ashes of which were found in Rooms A-C. Rooms A and B were a storage facility with "more" than 33 transport-jars found *in situ*, the exact number is not reported. Note that Room B[254] is mentioned as appearing on fig. 40a, where the room appears as "Room C" in the captions. The building also contained bowls, juglets and closed shapes as well as Cypriot and Greek imports. Badre dated the so-called Casemate-Wall Building around the middle of the 7th century BCE.[255]

Most of the transport-jars found *in situ* in the Casemate-Wall Building belong to our type TJ-9. Three jars can be attributed to type TJ-9a, while type TJ-9d represents the majority with 15 examples (see the Catalogue for more details and references). A few other types also found in the Casemate-Wall Building are type TJ-4b and TJ-4c,[256] type TJ-5[257] and possibly type TJ-6.[258]

A few other types of transport-jars are not discussed in detail in the present study, and we mention them only in passing. One jar[259] has a parallel at Achziv Phase 5. Another one[260] has parallels at Tyre Stratum II[261] and Lachish Str. III.[262] A third jar[263] can also be compared with a jar from Tyre II.[264]

253 Badre 1997, pp. 76-88.
254 Badre 1997, p. 80.
255 Badre 1997, p. 88.
256 Badre 1997, fig. 44.3-4.
257 Badre 1997, fig. 44.5.
258 Badre 1997, fig. 44.6.
259 Badre 1997, fig. 43.1.
260 Badre 1997, fig. 43.2.
261 Bikai 1978, pl. 4.6.
262 Zimhoni 2004, fig. 26.22.10.
263 Badre 1997, fig. 44.4.
264 Bikai 1978, pl. 4.6.

Also of interest is a complete Greek SOS Amphora found in the Casemate-Wall Building.[265] The SOS amphora is of a relatively early type attributed to about 750-650 BCE and confirms the date of the Casemate-Wall Building assemblage to the first half of the 7th century BCE.[266]

These parallels make a date of the Casemate Building in the first part of the 7th century BCE most probable. Somewhat exceptional is the appearance of a Cypriot Basket-Handle jar.[267] Such amphorae appeared in the Southern Levant usually only after ca. 650 BCE,[268] but this vessel is an earlier type of Basket-Handle jar such as the ones found in Salamis Tomb 79.[269] Summing up: we suggest that the combination of jars and amphoras in the "Casemate Building" is compatible with SPP Assemblage 4, possibly slightly later. Thus, we generally agree with the date offered by Badre.

2.3. *el-Burak, Tell*

Tell el-Burak is an anchorage site located in south Lebanon about 9 km south of Sidon. Excavations (and their publication) there are ongoing. Regarding the Iron Age, three preliminary reports have been published so far.[270] These reports present relevant material for our discussion from Area 3 where a sequence of late Iron Age occupations has been revealed. Settlement remains were excavated which begin in Phase E, during the 8th century BCE. The end of this stratum has been dated ca. 650 BCE.[271] "Phoenician" transport-jars (mainly of Phase D, see below) are a main focus of study at that site. Phase D is dated by the site's excavators ca. 650-580 BCE[272] and C, 650-580 BCE, ending before 500/480. According to the preliminary reports, Phases E and D both ended in destruction with in-situ finds, but so far only rim sherds of transport-jars have been published from Phase E.[273]

At present, the main evidence regarding transport-jars originates from the destruction layer of House 3 in Phase D.[274] Forty-two transport-jars, some of which are complete or almost complete, were published.[275] The pottery from this destruction layer resembles contexts that date to the late 7th century BCE at Kabri Stratum E2a and Tell Keisan Niveau 4,[276] with a preponderance of different variants of TJ-9 (Type A-02 of Tell Burak) and only a single, complete TJ-7a. Until the Phase D assemblage and contextual data are fully published it is difficult to date its duration and destruction more precisely.

Importantly, Stratum E produced fragments of TJ-2, in addition to several fragments of TJ-9, and a few TJ-4. Since the excavation and publication of Tell Burak is ongoing, we do not presume to suggest a date for this stratum. Conspicuously, however, and similarly, for example, to Sarepta (below), TJ-5 and TJ-6 are currently absent in both Strata E and D, possibly indicating a hiatus in occupation in the first half of the 7th century BCE. Future excavation and publication may change this picture. Since these types occurred in Lebanese sites such as Tyre and Beirut, their absence at Tell el-Burak is not of regional significance, but probably chronological.

265 Badre 1997, fig. 46.2.

266 Brann 1961, n. P3, pl. 13; 1962, 32, n. 23, pl. 2.23 attributed to the late 8th century BCE; Pratt 2015, pp. 214-215, fig. 1.

267 Badre 1997, fig. 42.6.

268 Shalvi – Gilboa 2022b.

269 Karageorghis 1973-1974, pls. 221-224.

270 Sader – Schmitt – Kamlah 2021; Schmitt 2019; Schmitt *et al.* 2018.

271 Kamlah – Sader 2016, tab. 1; Schmitt *et al.* 2018.

272 Kamlah – Sader 2016, tab. 1; Schmitt *et al.* 2018, p. 57.

273 Sader – Schmitt – Kamlah 2021, pl. 4 for bowls from Phases E and D.

274 Schmitt *et al.* 2018, pp. 63-64.

275 Schmitt 2019, fig. 5; Schmitt *et al.* 2018, figs. 8-9.

276 Briend – Humbert 1980; Kamlah – Sader 2016, pp. 96-98; Lehmann 2002a.

Stratum	TJ-2a	TJ-2b	TJ-4a	TJ-4b	TJ-4c	TJ-7	TJ-9
E	9	18	4	-	1	-	14
D Foundation	-	-	1	3	8		93
D Destruction						1	

Tab. 7. Transport-Jars from Tell el-Burak (Schmitt *et al.* 2018 based on the online).

2.4. *Dor*

Dor (Tel Dor, Tell el-Burj) was the main anchorage along Israel's Carmel coast for millennia. The current excavators have divided the long Iron Age occupation at the site into three general cultural sequences/episodes: the "Phoenician" town existed from early Iron Age I to a certain point in Late Iron Age IIA (Ir1a-Ir2a early in the terminology employed at Dor).[277] In terms of absolute chronology this is between ca. the mid-12th century and the mid-9th century BCE or slightly later in that century.[278] During this time span, Dor was one of the most active maritime centers around the Mediterranean; and through most of this sequence transport-jars of the early Iron Age were very frequent. Most of them were made at Dor, while others arrived from the 'Akko Plain and south Lebanon.[279] These jars seem to dwindle, however, after Iron Age IB (Ir1b); after this horizon they are represented only by small fragments of simple rims who might be re-deposited and are also very difficult to assign to specific jar shapes.[280]

Generally speaking, however, in the Early Iron Age IIA horizon and the subsequent Late Iron Age IIA horizons at Dor (Ir1|2 and Ir2a early) – rather curiously – not many vessels that can be defined as transport-jars have been identified, tough extensive maritime contacts are amply attested, for example by large quantities of Cypriot pottery.[281] A few reinforced bases in Ir1|2[282] belong to jars of unclear shapes and so is their possible association with the TJ phenomenon.

The next horizons – a late phase within Late Iron IIA and Iron Age IIB (Ir2a late and Ir2b) represent the period when Dor was under the domination of the Kingdom of Israel – starting, as mentioned, ca. the mid-or second half of the 9th century BCE. This center was abandoned in the second half of the 8th century.[283] Though it is customary to attribute the end of Israelite Dor to Tiglath-pileser III, it is quite possible that it had already been deserted a few decades earlier.[284] Contexts belonging to the early part of this sequence (Ir2a late) hardly exist, and thus the transport-jars 'situation' is unknown. Subsequently, during Ir2b, various types of TJ-2 are well attested in several excavation areas for the first time, but not in large numbers (see the Catalogue).

Under the Assyrians, Dor (Du'ru) became part of the imperial apparatus, mostly serving maritime trade up and down the Levantine coast – an Assyrian *kāru*.[285] It is mentioned in Assyrian records of the reigns of Tiglath-pileser III, Sargon II or Ashurbanipal and Esarhaddon, the latter is a specific maritime context.[286]

277 See for example Gilboa – Sharon 2003, tab. 21.

278 For a detailed chronology for his sequence, e.g., Gilboa *et al.* 2018, charts in frontispiece; for the latter suggestion, see Shochat 2017.

279 Gilboa 2018, pp. 115-116, 118: TJ 4 and TJ 5 and SJ6=JR8; 2022; Gilboa – Sharon – Boaretto 2008: Types A and C, figs. 6.2-3, 9.8-9; Waiman-Barak – Gilboa 2016.

280 But see a complete jar of this general type in an Ir2a (Late Iron Age IIA horizon in Gilboa 2018, pl. 20.50.2).

281 E.g., Waiman-Barak – Georgiadou – Gilboa 2021.

282 Gilboa 2018, pl. 20.7, 10.

283 Gilboa – Sharon – Bloch-Smith 2015; for the later date see Shochat 2017.

284 Gilboa – Sharon – Bloch-Smith 2015.

285 Gilboa – Sharon 2016.

286 Gilboa – Sharon 2016, p. 241, both with reference; Na'aman 2009, pp. 95-99.

It is difficult to pinpoint the beginning of Assyrian center at Dor (not earlier than Tiglath-pileser III, not later than Sargon II).[287] Its end has been previously dated ca. 650/630 BCE, taking into account both historical and archaeological data.[288] Because of these uncertainties regarding the beginnings and ends of the Iron IIB and Iron IIC phases at Dor, the site cannot provide pegs of absolute chronology.

Matching the written records, and as opposed to the previous Ir2b horizon, the quantities of transport-jars at Dor during the Neo-Assyrian period are overwhelming. In fact, they are the best-attested ceramic shape in most contexts. Most of them, however, are represented as fragments in refuse pits, some very large and deep – in Area B/Phase 6-5c – a pit which cut the corner of the Phase 7a four-chamber gate and D2/Phase 6a,[289] and in many smaller pits in Areas D2 and D5.[290] Relatively few complete shapes were found in primary deposition, either in the above-mentioned pits, or on surfaces relating to the Assyrian-period two-chambered gate in Area B/Phase 5b.[291] The Catalogue lists mostly published or soon-to be published examples.

Contexts belonging to the large "Assyrian pits" produced, in conjunction, nearly all the types in this study excepting TJ-2 that is unattested after Phase 7a (and the small TJ-3 has not been recognized among the fragments). The best-attested transport-jars are the various subtypes of TJ-4 (and related rim shapes), T-5, TJ-6 and TJ-7a (but no differentiation has been made between TJ-6 and TJ-7b). TJ-8 and TJ-9 are rare. On the other hand, among the primary assemblages unearthed on the surfaces relating to the four-chamber gate, the range of shapes is significantly more limited. The ubiquitous TJ-4 and TJ-5 are nor represented anymore, but only TJ-7a, TJ-8 and one example each of TJ-9c and TJ-9d.

The current study offers new insights about the Neo-Assyrian context at Dor. As expected, the latest phase of the Israelite center (Phase 7 in Area B) produced only TJ-2; this, however, cannot determine whether the town was terminated by Tiglath-pileser III or somewhat earlier. The large "Assyrian pit" that cuts the Phase 7a gate did not produce a single example of TJ-2, is dominated by TJ-4 and TJ-7a, and has a few examples of TJ-9. This seems to indicate a long process of the filling-in of this pit, encompassing Assemblages 3-5, though a beginning during late Assemblage 2 cannot be ruled out. In calendric terms this would mean Sargon's days or the beginning of Sennacherib's. This, however, does not reflect automatically on the beginning of Du'ru, which could still be earlier.

By the conjunction of *in situ* vessels on the latest surfaces of the two-chamber gate, relating to its abandonment, and by general dearth of TJ-9 at Dor, the end of Assyrian Dor represents Assemblage 5, i.e. Ashurbanipal's days, as previously suggested by the excavators based mainly on the absence of Cypriot Basket-Handle jars and East Greek wares.

2.5. *Kinet Höyük (Ancient Issos)*

The harbor or anchorage site of Kinet Höyük is located in the Northern Levant in eastern Cilicia, modern Turkey. It is one of the few sites in the coastal northern Levant which provides a continuous stratigraphy from the Bronze Age through the Hellenistic period with destruction levels relevant for our discussion. The data presented here is unpublished and was provided by M.H. Gates.

Period 9 represents a regional administrative center possibly serving the kingdom of Adana during the Middle Iron Age (corresponding to the Iron Age IIB in the Southern Levant). The buildings of this period were violently destroyed.

287 Support for Sargon's reign can be found in Stern 2000, p. 130.

288 Gilboa – Sharon 2008, p. 167.

289 Some examples Eliyahu-Behar *et al.* 2008.

290 Yet unpublished other than two in Shochat 2017 (Phase 6b).

291 For the gate see Stern 2000, pp. 132-134, figs. 74-77.

During the following Transitional 8/9 Period the site was prepared for buildings of the Assyrian period. Much of the original Period 9 pottery was found redeposited in this level. The level contains debris of Period 9 and first finds of the Assyrian Period 8, in contexts in which the foundations for Assyrian structures were laid and which predate the first Period 8 floor levels.

Period 8 has two major phases of which the last one was violently destroyed. The following levels of Period 7, 6 and 5 are all characterized by a significant percentage of East Greek ceramics. Period 6 ended in a destruction.

Novák and Fuchs suggest that Cilicia was incorporated into the Assyrian empire under Shalmanesar V at some time between 728 and 723 BCE,[292] which could have caused the violent end of Period 9. The destruction level contained large quantities of Cypro-Archaic I pottery and significant amounts of Greek Late Geometric I ceramics such as Pendent Semi-Circle skyphoi.[293]

The end of Period 8 was probably shortly after 631 BCE, which is the date of the last textual mention of Assyrians in Que in a post-canonical eponym of Marduk-šarru-uṣur, a governor of Que.[294] The destruction of Period 6 must be connected with the Neo-Babylonian empire, but there are several campaigns by Babylonian kings in the region during the first half of the 6th century BCE and it is difficult to identify with certainty the one that caused the end of Period 6.[295] The fact that there were two sub-phases for period 7 and three sub-phases for Period 6 suggests that some time must have passed between the beginning of Period 7 around ca. 630 BCE and the destruction of Period 6. Period 5 is an elusive and poor level, which contains Greek imports of the second half of the 6th century BCE. For our study this is a very important context since the relevant South Levantine sites have hardly produced evidence of this timespan.

Transport-jars of type TJ-2 occurred at Kinet only in Period 9 and among the redeposited Period 9 pottery of the Transitional 8/9 level. Notably, the Transitional 8/9 level contained also the earliest examples of type TJ-9 at Kinet, which were found under the first floor of the Assyrian level Period 8. During the Assyrian Period 8, Types TJ-4, TJ-6 and TJ-9 were recorded. In Period 7 there were still sherds of TJ-4 and TJ-6. TJ-7a appeared for the first time in this level, but now TJ-9 is the dominant jar type relevant for our study. This trend continues in Period 6 (the one TJ-4 sherd may be intrusive in this level). While TJ-7a is present in Period 6, most jars belong to type TJ-9. By the mid-6th century BCE, in Period 5, most of types in our study have disappeared and only TJ-9 continued.

The evidence at Kinet Höyük supports the chronological development of transport-jars proposed in this paper. TJ-2 types occurred at Kinet only during Period 9 in the time of an independent Cilician monarchy, the kingdom of Adana. With the first Assyrian building activities TJ-9 appeared, possibly around 700 BCE. TJ-4 and TJ-6 are mainly recorded in the Assyrian Period 8. Beginning with the middle of the 7th century BCE, during Period 7 and continuing in Period 6, TJ-7 commenced in tandem with East Greek pottery and Cypriot Basket-Handle jars. In this phase, TJ-9 became the dominant Levantine transport-jar at Kinet Höyük.

292 Novák – Fuchs 2021, p. 72.

293 Gimatzidis – Gates – Lehmann in press.

294 Reade 1998, pp. 256-257.

295 Gates – Gates in press.

Types	TJ-2	TJ-4	TJ-6	TJ-7a	TJ-9	SPP Assemblage
Period 9	2					2
Trans. 8/9	6				2	
Period 8		4	2		5	3-4
Period 7		1	1	1	10	5
Period 6		1		2	38	6
Period 5					10	7

Tab. 8. Distribution of Transport-Jars at Kinet Höyük (mostly rim sherds).

2.6. *Tel Kinrot / Tell el-ʻOreimeh*

Excavation by Volkmar Fritz between 1982-1985 revealed two main Late Iron Age occupations – Strata II and I, both dated by their pottery to the 8th century BCE. According to the excavator, the Stratum II center was destroyed by Tiglath-pileser III and subsequently a small short-lived settlement was constructed (Stratum I)[296] Fritz suggested that this final settlement existed, under the Assyrians, until the early 7th century, subsequently to be destroyed in association with the Sennacherib campaign. The relatively small Stratum I produced about 13 "Phoenician" transport-jars – all of them variants of type TJ-2.[297] This suggests that the Stratum I occupation did not reach the end of the 8the century BCE, when SJ-4 is prevalent (and perhaps is not an Assyrian-period occupation at all).

2.7. *Salamis Royal Tomb 1*

The "Royal Tomb 1" at Salamis is included here since it is one of the few locations outside of the Southern Levant where TJ-1 was found associated with Cypriot and Greek Middle Geometric pottery.

The tomb dating to the very early Cypro-Archaic I containing a TJ-1 type is a rectangular chamber with a dromos. There are two burials in this tomb with two associated burial layers of horses, each comprising a chariot, which we are distinguishing as "Burial 1" and "Burial 2".

Anna Georgiadou attributes almost all Cypriot pottery of "Royal Tomb 1" to the early Cypro-Archaic I period with only some vessels of Type III and transitional ones of Type III-IV, yet most of the Cypriot pottery should be attributed to Type IV.[298] The transport-jar TJ-1 was found associated with vessel numbers 135-148 of the second chariot burial (Burial 2) on the dromos. According to Georgiadou, the Cypriot vessels in this group should be revised to Type IV and not III, as published. Since the pottery of both burials, Burial 1 and 2, is almost contemporary, both burials can be attributed to about the same period of time being buried shortly one after the other.

In the dromos, two TJ-1 jars were found next to each other.[299] These vessels were placed on a layer of soil deposited in the dromos during the second chariot burial of the tomb (Burial 2).[300] One of them is of the type defined here as TJ-1,[301] the other jar is similar to the TJ-1 example yet not exactly assignable to type TJ-1.[302]

The context of "Royal Tomb 1" is significant for its association of transport-jar TJ-1 with Greek Middle Geometric II and Cypriot ceramics of the early Cypro-Archaic I period. The Greek pottery was found in

296 Fritz 1990, p. 181.

297 Fritz 1990, pls. 65.9-10, 68.9-10, 74.1-5, 79.2, 80.6, 82.5-6.

298 Anna Georgiadou personal communication.

299 Later published by Bikai 1987, nn. 611-612; Dikaios 1963, nn. 135-136.

300 Dikaios 1963, pp. 161-164.

301 Dikaios 1963, n. 135 = Bikai 1987, n. 611.

302 Dikaios 1963, n. 136 = Bikai 1987, n. 612.

several contexts: in the chamber (Burial 1): nn. 2-3, 6, 19, 22-23, 28-29, 55, 57, 59, 62, 67, 203-207, 222; from the dromos associated with the second chariot (Burial 2) items: nn. 98, 106, 109, 111-112, 117-119, 121-123, 127; from the dromos on the northern side of the tomb entrance associated with transport-jar TJ-1 (n. 135) and the second chariot burial (Burial 2): item 138. There are three main stylistic groups:

- Attic Middle Geometric II: from the chamber (Burial 1): 19, 22-23, 28-29, 55, 59, 67, 203, 222; from the dromos above the chariot (Burial 2): 98, 109, 111-112, 117-118, 121-123, 127.[303]
- Pendent Semi-Circle skyphoi from the dromos above the chariot (Burial 2): 106 and 119. These skyphoi were most probably produced on Euboea and both of them are of Kearsley's type 5a.[304] In Euboea, Type 5a are attributed to Subprotogeometric IIIb and Late Geometric Ia.[305]
- Pendent Semi-Circle plates from the chamber (Burial 1): 2-3, 6, 57, 62, 204-207; and from the dromos (Burial 2): 138. Pendant Semi-Circle plates are among the less-well dated early Aegean Geometric forms, because of insufficient stratigraphic and contextual evidence. They were mainly produced on Euboea from Late Protogeometric to Subprotogeometric IIIb. The Salamis examples represent the later versions attributed to Subprotogeometric III.[306]

Middle Geometric II pottery occurred thus in both burials, but all the complete Pendent Semi-Circle plates were found with Burial 1 in the chamber and only one plate fragment was found with Burial 2 in re-use as a lid. In contrast, Pendent Semi-Circle skyphoi are associated only with the Burial 2 on the dromos.[307] The finds associate our type TJ-1 with the earliest Cypro-Archaic I period, the Attic Middle Geometric II[308] and the Euboean Subprotogeometric III-Late Geometric I.[309]

2.8. *Sarepta (Modern Tell Sarafand)*

The excavations by James B. Pritchard were one of the earliest modern excavations of an Iron Age site in Lebanon.[310] The publications of the ceramics of Area II/Y by William P. Anderson include a meticulous analysis of the pottery,[311] which was followed by the study of Isam Khalifeh analyzing the pottery of Area II/X.[312] These studies constituted in their time, alongside the excavation report of Tyre by Bikai[313] the first firm foundations for an understanding of "Phoenician" pottery. Despite this, Sarepta cannot be considered a key-site for dating pottery. Firstly, because it does not provide pegs for absolute chronology,[314] and also due to the oftentimes problematic character of the stratigraphy with its often disturbed and mixed contexts.

The pottery of Area II/Y was published as type statistics and as individual vessels on plates in their stratigraphic contexts. Anderson was well aware of the variability in the TJ shapes and especially rims. The typology of transport-jars at Sarepta is not entirely compatible with our typology. Our TJ-2 seems to corre-

303 Coldstream 2008, p. 21; Gjerstad 1977, p. 25.

304 Kearsley 1989, nn. 195-196 with references.

305 Gimatzidis 2010, pp. 147-163; Gimatzidis – Gates – Lehmann in press.

306 Gimatzidis 2010; Nitsche 1986-1987, p. 32, fig. 8.D.1; cfr. Popham – Lemos 1996, pl. 103, pyre 14.16 and tomb 79A.

307 Dikaios 1963, p. 162.

308 Coldstream 2008, p. 330.

309 Gimatzidis 2010; Vacek 2012.

310 Pritchard 1978.

311 Anderson 1988.

312 Khalifeh 1988.

313 Bikai 1978.

314 Anderson 1988, pp. 416-419 for Stratum C, pp. 421-422 for Stratum B.

spond with Anderson's SJ-15A and SJ-16 and type TJ-4 is comparable to Anderson's SJ-17. Our type TJ-9 conforms with Anderson's SJ-18.[315] There is no reference in the Sarepta statistics to any other of the transport-jar types discussed here.

In addition to the type statistics, there are plates with material from stratigraphic contexts. The relevant types on these plates are listed in our Catalogue. The transport-jars relevant for our discussion and catalogued here include three TJ-2 variants in Substrata C1 and one in C2. There are three TJ-4 variants from Substratum C1 and a TJ-9 type from Substratum B or A2.

The sole appearance of TJ-2 in Substratum C2 suggests its end before the Assyrian conquests of ca. 730/720 BCE, i.e. SPP Assemblage 2, but its beginning is uncertain. The joint appearance of TJ-2 along with TJ-4 (and the absence of later types) seems to indicate an end of Substratum C1 around 700 BCE, SPP Assemblage 3. Nevertheless, bowls from Substratum C1 have parallels at Tell Keisan Niveau 5 and Tyre Stratum I. Substratum C1 may, thus, have continued into the first half of the 7th century BCE.

The date of the subsequent Stratum B is problematic since it was heavily disturbed and consequently mixed.[316] Anderson offered a date for it in the 6th/5th centuries BCE.[317] Yet, Stratum B includes 7th century BCE pottery.[318] The pottery statistics for transport-jars[319] allows attributing Stratum B to the early 7th century BCE with numerous TJ-9 examples (Anderson's SJ-18) but decreased quantities of TJ-2 and TJ-4. The fact that there is not a single rim of TJ-5, TJ-6 or TJ-7 can be explained by a settlement hiatus during the mid to second half of the 7th century BCE. It is unclear whether the jar on Khalifeh's plate 28 SJ-23 represents our TJ-7 but note that the author dates the level of this jar, Period VII, to ca. 1025-800 BCE!

The dates proposed here are compatible with some of Anderson's conclusions for Stratum C, yet not for his dates of Stratum B. A late 7th century BCE date for Stratum B is proposed by the Tell el-Burak expedition.[320] The absence of jar types TJ-5, TJ-6 or TJ-7 suggest however that Stratum B should be attributed to the early 7th century only, ending before the mid-7th century BCE.

2.9. *Shipwrecks: Tanit and Elissa*

The two shipwrecks named "Tanit" and "Elissa" were discovered in 1997 off the Mediterranean coast of Egypt in a depth of about 400 m.[321] Both ships sank while sailing 33 nautical miles offshore beyond sight of land. The "Tanit" contained 385 visible transport-jars of which 16 were recovered. The "Elissa" carried 396 transport-jars of which 7 were retrieved.

The underwater photography of both ships suggests that the transport-jars were all of our type TJ-2. Only four jars were published from both boats (see the Catalogue). The two examples form the "Tanit" are of type TJ-2a and TJ-2c, the two vessels from the "Elissa" are of type TJ-2b(?) and TJ-2c. It is unclear whether the ships carried more sub-types of TJ-2 or any other type of TJs. Petrography suggested a coastal, central-Levantine, most probably Lebanese origin for the items examined.[322] The excavators suggested a date in the second half of the 8th century BCE, which is corroborated by our study.

315 Anderson 1988; Khalifeh 1988.

316 Anderson 1988, p. 419.

317 Anderson 1988, p. 421.

318 Anderson 1988, pl. 38.13-24.

319 Anderson 1988, tab. 9 A.

320 Sader – Schmitt – Kamlah 2021, p. 28.

321 Ballard *et al.* 2002.

322 Ballard *et al.* 2002; Daniel Master personal communication.

2.10. *Tyre*

Tyre's Iron Age sequence, excavated and published by Patricia Maynor Bikai, [323] is still the most important stratigraphical sequence of pottery in south Lebanon, or "Central Phoenicia" according to Elayi's terminology,[324] even more so since Tyre was one of the main participants in the "Phoenician" 'expansion' to the west. Thus dating accurately the city's Iron Age pottery bears directly on the foundation chronology of Tyrian holdings around the Mediterranean. Relevant ceramics for our discussion were also excavated by Aubet in the Tyre al-Bass cemeteries on the mainland opposite the ancient island.[325]

Bikai's excavations exposed a relatively small area. Due to the limited size, 'strata' designations oftentimes represent very localized depositional events. For example, Stratum V is the foundation trench and floor of the new ashlar building of Stratum IV and the deposits dubbed Stratum IV, too, are very confined.[326] On the other hand, much pottery has been excavated by Bikai, mainly because in some strata she encountered remains of a potter's workshop and/or refuse pits. The ceramic profile of the different strata, however, is very uneven. Stratum III, for example, produced few jars only (4% of all the indicatives), significantly less than in other strata. Stratum II and Stratum I, again, had been exposed only minimally, but Stratum II, particularly, produced dozens of restorable transport-jars, tens of thousands of body fragments thereof and kiln wasters. This is also the only stratum, from which many TJ's have been illustrated in the report.[327] In contrast, one jar has been illustrated from Stratum IV, none from Stratum III and three from Stratum I.

For our discussion only Strata IV through I are relevant since none of the TJ types discussed here have been recorded earlier. Bikai dated this sequence as follows:[328] Stratum IV: around the mid-8th century BCE, ca. 760-740; Strata III-II, which she considered very close in time: ca. 740-700 BCE; Stratum I: ca. 700 BCE, after which the area has been apparently levelled in the Persian period.[329]

Here we do not comment on these dates, since – as Bikai herself admitted – there were very few chronological anchors to cling to, and some of her considerations are indeed dated.[330] Thus, we do not think that Tyre can provide absolute pegs for our sequence, but rather vice versa.

The pottery has been published with remarkable typological detail and extensive accompanying quantitative data. Bikai was well aware of the morphological variability of the transport-jars and their rims. She was the first to apply a comprehensive statistical analysis in her pottery studies.

Unfortunately, Bikai's typology does not match ours exactly and some of her types can only roughly be compared with our typology. Bikai's SJ 1 is probably mainly our TJ-7a in a light yellowish fabric, but the rim is also similar to our TJ-6 that was produced in a dark brown fabric. Bikai's SJ 2 is clearly our TJ-9. Some of the jars classified as SJ 4 seem to match our TJ-4, but also TJ-5. The drawings of Bikai's type SJ 5 are difficult to compare with the three variants of our corresponding type TJ-4, mainly because they lack the necessary detail regarding the rim shapes. Bikai's SJ 6 is our TJ-2 type, mainly sub-types TJ-2b and TJ-2c. Finally, SJ 7 corresponds to our TJ-2a.

323 Bikai 1978.

324 Elayi 2018, *passim*.

325 Aubet 2004; 2015; Aubet – Núñez Calvo – Trellisó 2014.

326 Bikai 1978, pp. 12-13.

327 Bikai 1978, pls. II-IV.

328 Bikai 1978, p. 67 and tab. on p. 68.

329 Bikai 1978, p. 14.

330 Such as the Cypro-Archaic chronology in Nikolaou 1976.

Bikai 1978 Type (pl. 94)	SPP Type
SJ 1	TJ-6 or TJ-7
SJ 2	TJ-9
SJ 4	TJ-4 (pl. 3.7) or TJ-5 (pl. 3.8)
SJ 5	The verbal description identifies it with the shape and the square ridged rim of TJ-4c, though in the drawing in pl. 94.5 this is not entirely clear
SJ 6	TJ-2b/TJ-2c
SJ 7	TJ-2a

Tab. 9. Bikai 1978 typology compared to the SPP TJ typology.

Following Bikai's typological designations and her quantitative data,[331] the following development of transport-jars at Tyre can be outlined:

In Stratum IV, jars are ca. 8% of all the indicatives. Only one TJ-2a rim piece has been illustrated.[332]

Stratum III, as mentioned, was low on jars. According to Bikai's table 10, all types are represented in very low numbers, apparently in fragments; none has been illustrated.

The huge concentration of transport-jars in Stratum II, in obvious primary deposition, produced the lion's share of the illustrated jars from Tyre, most of them of complete shapes. The jars of this level represent 15% of all the indicatives. The majority in the counts are of our type TJ-4 and TJ-5, but it is not totally clear if a difference between these two close types has been maintained in the counts. Most of the illustrated complete jars, about 20 examples,[333] belong to the various sub-types of our TJ-4, and two of TJ-5.[334]

Lastly, Stratum I is dominated by the different variants of the "bullet shaped" type TJ-9, followed by TJ-7. Thus, Tyre lends support to the chrono-typological development we suggest here, but the excavations do not provide any peg of absolute chronology.

In Tab. 10 we present a framework for an absolute chronology we reconstruct for the Tyre sequence based on our studies. We submit that this is the first time a chronology with a sound basis can be proposed. It is compared to the dates offered by Bikai in the site report; amended ones she proposed in 2003 after studying the "Phoenician" pottery of Kition and dates proposed by Francisco J. Núñez.[335]

The burials of Tyre al-Bass were dated by the excavators from the mid-11th century through the 6th century BCE.[336] Only a few transport-jars are relevant for our discussion since transport-jars were generally a rare grave good in the burials (see the Catalogue). One type TJ-1 was found in Tomb 175/176[337] that produced a ^{14}C determination in the 9th century BCE; a transport-jar in Burial U237 resembles TJ-1[338] and a body fragment of a TJ-2 type was recorded in Deposit 9.[339]

One transport-jar from Tyre was analyzed with Neutron Activation Analysis[340] sample TC16. The sherd was described as «body sherd from a storage jar of the crisp ware type, Tyre Storage Jar type 4, 5, 6, or

331 Bikai 1978, p. 44 tab. 10.

332 Bikai 1978, pl. 14.10.

333 Bikai 1978, pls. 2.1-10, 3.4-6.

334 Bikai 1978, pl. 3.7-8.

335 See also the chronology suggested by Núñez Calvo 2020; see commentary in Shalvi – Gilboa 2022b.

336 Aubet – Núñez Calvo – Trellisó 2016.

337 Aubet 2015, p. 53, fig. 30: vessel U.1-1.

338 Núñez Calvo 2021, fig. 3A: vessel U237-1.

339 Aubet – Nuñez Calvo – Trellisó 2014, fig. 2.84.

340 Bieber 1978.

7». Although this description is not very useful, the Tyrian sample clusters with a type TJ-2 body sherd from the destruction debris of Kinet Höyük Period 9 (KT15949-01 NAA sample GLT055).

Stratum	Bikai 1978	Bikai 2003	Núñez 2020	This study	
				Horizon	Date BCE
IV	~760	800-750	~760-740 = Hazor VI and earlier	'The Sennacherib Destructions Ceramic Horizon'	~730-700
III	~740-700	750-700 Related to the destructions of the second half of the 8th century BCE	~740-700 Largely Megiddo IVa, preceded by a gap	'The Esarhaddon Ceramic Horizon'	~700-670
II			Early 7th century	'Late Esarhaddon/ Early Ashurbanipal Ceramic Horizon'	~670-660/650
I	~700	700-650 Related to Tell Keisan 5	Second half of 7th century, ending after 600?	A few decades earlier than the 'Nebuchadnezzar Destructions Ceramic Horizon'	~660/650- ~630/620

Tab. 10. Tyre proposed chronologies.

References

Anderson 1988 = W.P. Anderson, *Sarepta 1: A Stratigraphic and Ceramic Analysis of the Late Bronze and Iron Age Strata of Sounding Y at Sarepta (Sarafand, Lebanon)*, Beirut 1988.

Arie 2020 = E. Arie, *Phoenicia and the Northern Kingdom of Israel: The Archaeological Evidence*, in B. Gür – S. Dalkiliç (edd.), *Anadolu prehistoryasına adanmış bir yaşam: Jak Yakar'a armağan / A Life Dedicated to Anatolian Prehistory: Festschrift for Jak Yakar*, Ankara 2020, pp. 1-20.

Aster – Faust 2018 = S.Z. Aster – A. Faust (edd.), *The Southern Levant under Assyrian Domination*, Winona Lake (IN) 2018.

Aubet 2004 = M.E. Aubet (ed.), *The Phoenician Cemetery of Tyre - Al Bass: Excavations 1997-1999*, Beirut 2004 («Bulletin d'Archéologie et d'Architecture Libanaises, Hors Serie», 1).

Aubet 2015 = M.E. Aubet, *La Necrópolis fenicia de Al-Bass (Tiro): Informe preliminar de campaña de excavaciones de 2008/2009*, Barcelona 2015 («Cuadernos de Arqueología Mediterránea», 22).

Aubet – Núñez Calvo – Trellisó 2014 = M.E. Aubet – F.J. Núñez Calvo – L. Trellisó, *The Phoenician Cemetery of Tyre-Al Bass II: Archaeological Seasons, 2002-2005*, Beyrouth 2014 («Bulletin d'Archéologie et d'Architecture Libanaises, Hors série», 9).

Aubet – Núñez Calvo – Trellisó 2016 = M.E. Aubet – F.J. Núñez Calvo – L. Trellisó, *Excavations in Tyre 1997–2015: Results and Perspectives*, in «Berytus» 56, 2016, pp. 3-14.

Austin – Franz – Frost 2000 = S.A. Austin – G.W. Franz – E.G. Frost, *Amos's Earthquake: An Extraordinary Middle East Seismic Event of 750 B.C.*, in «International Geology Review» 42, 2000, pp. 657-671.

Aznar 2005 = C.A. Aznar, *Exchange Networks in the Southern Levant during the Iron Age II: A Study of Pottery Origin and Distribution*, Unpublished PhD Thesis, Harvard University, Cambridge (MS) 2005.

Badre 1997 = L. Badre, *Bey 003 Preliminary Report: Excavations of the American University of Beirut Museum 1993-1996 [at Beirut]*, in «Bulletin d'Archéologie et d'Architecture Libanaises» 2, 1997, pp. 6-94.

Bagg 2011 = A.M. Bagg, *Die Assyrer und das Westland: Studien zur historischen Geographie und Herrschaftspraxis in der Levante im 1. Jt. v. u. Z.*, Leuven 2011 («Orientalia Lovaniensia Analecta, 216»).

Ballard *et al.* 2002 = R.D. Ballard – L.E. Stager – D. Master – D. Yoerger – D. Mindell – L.L. Whitcomb – H. Singh – D. Piechota, *Iron Age Shipwrecks in Deep Water off Ashkelon, Israel*, in «AJA» 106 (1), 2002, pp. 151-168.

Ben-Ami 2012 = D. Ben-Ami, *The Iron Age II (Strata VIII–VII)*, in A. Ben-Tor – D. Ben-Ami – D. Sandhaus (edd.), *Hazor VI: The 1990-2009 Excavations: The Iron Age*, Jerusalem 2012, pp. 154-285.

Ben-Shlomo 2003 = D. Ben-Shlomo, *The Iron Age Sequence of Tel Ashdod: A Rejoinder to "Ashdod Revisited" by I. Finkelstein and L. Singer-Avitz*, in «TelAvivJA» 30 (1), 2003, pp. 83-107.

Ben-Tor 2016 = A. Ben-Tor, *Hazor: Canaanite Metropolis, Israelite City: 'The Head of All Those Kingdoms' (Joshua 11:10)*, Jerusalem 2016.

Ben-Tor – Zarzecki-Peleg 2015 = A. Ben-Tor – A. Zarzecki-Peleg, *Iron Age IIA–B: Northern Valleys and Upper Galilee*, in Gitin 2015b, pp. 135-188.

Bieber 1978 = A.M. Bieber, *Neutron Activation Analysis [of Samples from the Tyre Excavations]*, in Bikai 1978, pp. 88-90.

Bikai 1978 = P.M. Bikai, *The Pottery of Tyre,* Warminster 1978.

Bikai 1985 = P.M. Bikai, *Observations on Archaeological Evidence for the Trade between Israel and Tyre: Short Note*, in «BASOR» 258, 1985, pp. 71-72.

Bikai 1987 = P.M. Bikai, *The Phoenician Pottery of Cyprus*, Nicosia 1987.

Boaretto – Sharon – Gilboa 2016 = E. Boaretto – I. Sharon – A. Gilboa, *Radiocarbon Dating of the Iron Age Stratigraphic Sequence at Beth Shemesh*, in Bunimovitz – Lederman 2016, pp. 680-687.

Brann 1961 = E. Brann, *Protoattic Well Groups from the Athenian Agora*, in «Hesperia» 30 (4), 1961, pp. 305-379.

Brann 1962 = E. Brann, *Late Geometric and Protoattic Pottery: Mid 8th to Late 7th Century B.C.*, Princeton (NJ) 1962 («Athenian Agora», 8).

Briend – Humbert 1980 = J. Briend – J.-B. Humbert, *Tell Keisan (1971-1976): une cité phénicienne en Galilée*, Fribourg-Göttingen 1980 («Orbis Biblicus et Orientalis, Series Archaeologica», 1).

Bunimovitz – Lederman 2016 = S. Bunimovitz – Z. Lederman, *Tel Beth-Shemesh: A Border Community in Judah: Renewed Excavations 1990-2000: The Iron Age*, Jerusalem 2016 («Monograph Series of the Sonia and Marco Nadler Institute of Archaeology, Tel Aviv University», 34).

Chambon 1980 = A. Chambon, *Le Niveau 5*, in Briend – Humbert 1980, pp. 157-179.

Chauveau 2011 = M. Chauveau, *Le saut dans le temps d'un document historique: des Ptolemees aux Saites*, in D. Devauchelle (ed.), *La XXVIe dynastie: continuités et ruptures. Promenade saite avec Jean Yoyotte. Actes du colloque international* (Villeneuve d'Ascq, 26-27 novembre 2004), Paris 2011, pp. 39-45.

Coldstream 2008 = J.N. Coldstream, *Greek Geometric Pottery: A Survey of Ten Local Styles and Their Chronology*, Exeter 2008.

Dikaios 1963 = P. Dikaios, *A 'Royal' Tomb at Salamis, Cyprus*, in «AA» 1963 (2), pp. 126-210.

Dothan 1971 = M. Dothan, *Ashdod II-III: The Second and Third Seasons of Excavations 1963, 1965*, Jerusalem 1971 («Atiqot», 9).

Dothan – Ben-Shlomo 2005 = M. Dothan – D. Ben-Shlomo, *Ashdod VI: The Excavations of Areas H and K (1968-1969)*, Jerusalem 2005 («Israel Antiquities Authority, Reports », 24).

Dothan – Freedman 1967 = M. Dothan – D.N. Freedman, *Ashdod I: The First Season of Excavations 1962*, Jerusalem 1967 («Atiqot», 7).

Dothan – Porath 1982 = M. Dothan – Y. Porath, *Ashdod IV: Excavation of Area M. The Fortifications of the Lower City*, Jerusalem 1982 («Atiqot», 15).

Elayi 2018 = J. Elayi, *The History of Phoenicia*, Atlanta (GA) 2018.

Elgavish 1994 = J. Elgavish, *Shiqmona on the Seacoast of Mount Carmel*, Tel Aviv 1994 (Hebrew).

Eliyahu-Behar *et al.* 2008 = A. Eliyahu-Behar – S. Shilstein – N. Raban-Gerstel – Y. Goren – A. Gilboa – I. Sharon – S. Weiner, *An Integrated Approach to Reconstructing Primary Activities from Pit Deposits: Iron Smithing and Other Activities at Tel Dor under Neo-Assyrian Domination*, in «JASc» 35, 2008, pp. 2895-2908.

Fantalkin 2001 = A. Fantalkin, *Mezad Hasavyahu: Its Material Culture and Historical Background*, in «TelAvivJA» 28, 2001, pp. 3-165.

Fantalkin 2006 = A. Fantalkin, *Identity in the Making: Greeks in the Eastern Mediterranean during the Iron Age,* in A. Villing – U. Schlotzhauer (edd.), *Naukratis: Greek Diversity in Egypt. Studies on East Greek Pottery and Exchange in the Eastern Mediterranean*, London 2006, pp. 199-208.

Fantalkin 2008 = A. Fantalkin, *Contacts between the Greek World and the Southern Levant during the Seventh-Sixth Centuries BCE*, Unpublished PhD Thesis, Tel Aviv University 2008 (Hebrew).

Fantalkin – Tal 2015 = A. Fantalkin – O. Tal, *Tell Qudadi: An Iron Age IIB Fortress on the Central Mediterranean Coast of Israel (with References to Earlier and Later Periods)*, Leuven 2015 («Colloquia Antiqua», 15).

Faust 2018 = A. Faust, *The Assyrian Century in the Southern Levant: An Overview of the Reality on the Ground*, in Aster – Faust 2018, pp. 20-54.

Faust 2019 = A. Faust, *Iron Age II*, in A. Faust – H. Katz (edd.), *Archaeology of the Land of Israel: From the Neolithic to Alexander the Great, Volume 2* / מבוא לארכיאולוגיה של ארץ-ישראל: משלהי תקופת האבן ועד כיבושי אלקסנדר כרך ב, Raanana 2019, pp. 197-321 (Hebrew).

Faust – Weiss 2005 = A. Faust – E. Weiss, *Judah, Philistia, and the Mediterranean World: Reconstructing the Economic System of the Seventh Century B.C.E,* in «BASOR» 338, 2005, pp. 71-92.

Finkelstein 1994 = I. Finkelstein, *The Archaeology of the Days of Manasseh,* in M.D. Coogan – J.C. Exum – L.E. Stager (edd.), *Scripture and Other Artifacts. Essays on the Bible and Archaeology in Honor of Philip J. King*, Louisville (KY) 1994, pp. 169-187.

Finkelstein – Martin 2022 = I. Finkelstein – M. Martin (edd.), *Megiddo VI: The 2010-2014 Season*, University Park (PA) 2022.

Finkelstein – Singer-Avitz 2001 = I. Finkelstein – L. Singer-Avitz, *Ashdod Revisited*, in «TelAvivJA» 28 (2), 2001, pp. 231-259.

Finkelstein – Singer-Avitz 2004 = I. Finkelstein – L. Singer-Avitz, *'Ashdod Revisited' - Maintained*, in «TelAvivJA» 31 (1), 2004, pp. 122-135.

Finkelstein – Ussishkin – Halpern 2000 = I. Finkelstein – D. Ussishkin – B. Halpern (edd.), *Megiddo III: The 1992-1996 Seasons*, Tel Aviv 2000.

Fritz 1990 = V. Fritz, *Kinneret: Ergebnisse der Ausgrabungen auf dem Tell el-'Oreme am See Genesareth 1982-1985*, Wiesbaden 1990 («Abhandlungen des Deutschen Palästina-Vereins», 15).

Gal – Alexandre 2000 = Z. Gal – Y. Alexandre, *Horbat Rosh Zayit: An Iron Age Storage Fort and Village*, Jerusalem 2000 («Israel Antiquities Authority, Reports», 8).

Gal – Frankel 1993 = Z. Gal – R. Frankel, *An Olive Oil Press Complex at Hurvat Ros Zayit (Ras ez-Zetun) in Lower Galilee*, in «ZDPV» 109, 1993, pp. 128-140.

Gates – Gates in press = M.-H. Gates – C. Gates, *After the Assyrians, Before the Persians: Kinet Höyük and its Cilician Context,* in *Festschrift Geoffrey Summers*, in press.

Georgiadou – Kleiman – Finkelstein 2022 = A.P. Georgiadou – A. Kleiman – I. Finkelstein, *Cypriot Pottery from Area Q*, in Finkelstein – Martin 2022, pp. 1067-1094.

Geva 1982 = S. Geva, *Archaeological Evidence of Trade Relations between Israel and Tyre?*, in «BASOR» 248, 1982, pp. 69-72.

Gilboa 1995 = A. Gilboa, *The Typology and Chronology of the Iron Age Pottery and the Chronology of Iron Age Assemblages,* in E. Stern (ed.), *Excavations at Dor, Final Report. Vol. I B: Areas A and C: The Finds*, Jerusalem 1995, pp. 1-49.

Gilboa 2015 = A. Gilboa, *Iron Age IIC: Northern Coast, Carmel Coast, Galilee, and Jezreel Valley*, in Gitin 2015b, pp. 301-326.

Gilboa 2018 = A. Gilboa, *The Iron Age Pottery of Phases 10-5: Sequence, Contexts, Typology, Cultural Affinities and Chronology*, in A. Gilboa – J.R. Zorn – S. Matskevich (edd.), *Excavations at Dor, Final Report. Volume IIB: Area G, the Late Bronze and Iron Ages: Pottery, Artifacts, Ecofacts and Other Studies*, Jerusalem 2018, pp. 97-172.

Gilboa 2022 = A. Gilboa, *The Southern Levantine Roots of the Phoenician Mercantile Phenomenon*, in «BASOR» 387, 2022, pp. 31-53.

Gilboa *et al.* 2004 = A. Gilboa – A. Karasik – I. Sharon – U. Smilansky, *Towards Computerized Typology and Classification of Ceramics,* in «JASc» 31, 2004, pp. 681-694.

Gilboa – Sharon 2003 = A. Gilboa – I. Sharon, *An Archaeological Contribution to the Early Iron Age Chronological Debate: Alternative Chronologies for Phoenicia and Their Effects on the Levant, Cyprus and Greece,* in «BASOR» 332, 2003, pp. 7-80.

Gilboa – Sharon 2008 = A. Gilboa – I. Sharon, *Between the Carmel and the Sea: Dor's Iron Age Reconsidered*, in «Near Eastern Archaeology» 71, 2008, pp. 146-170.

Gilboa – Sharon 2016 = A. Gilboa – I. Sharon, *The Assyrian kāru at Dor (Ancient Du'ru),* in J. MacGinnis – D. Wicke – T. Greenfield (edd.), *The Provincial Archaeology of the Assyrian Empire*, Oxford 2016, pp. 241-252.

Gilboa – Sharon – Bloch-Smith 2015 = A. Gilboa – I. Sharon – E. Bloch-Smith, *Capital of Solomon's Fourth District? Israelite Dor*, in «Levant» 47, 2015, pp. 51-74.

Gilboa – Sharon – Boaretto 2008 = A. Gilboa – I. Sharon – E. Boaretto, *Tel Dor and the Chronology of Phoenician 'Pre-Colonisation' Stages*, in C. Sagona (ed.), *Beyond the Homeland: Markers in Phoenician Chronology*, Louvain 2008, pp. 113-204.

Gilboa *et al.* 2018 = A. Gilboa – I. Sharon – J.R. Zorn – S. Matskevitch (edd.), *Excavations at Dor, Final Report. Volume IIA: Area G, The Late Bronze and Iron Ages: Synthesis, Architecture and Stratigraphy*, Jerusalem 2018 («Qedem Reports», 10).

Gimatzidis 2010 = S. Gimatzidis, *Die Stadt Sindos: Eine Siedlung von der späten Bronze- bis zur Klassischen Zeit am Thermaischen Golf in Makedonien*, Rahden 2010 («PAS», 26).

Gimatzidis – Gates – Lehmann in press = S. Gimatzidis – M.-H. Gates – G. Lehmann, *Aegean and Aegeanizing Geometric Pottery at Kinet Höyük: New Patterns of Greek Pottery Production, Exchange and Consumption in the Mediterranean*, in «AnSt», in press.

Gitin 1990 = S. Gitin, *Gezer III: A Ceramic Typology of the Late Iron II, Persian and Hellenistic Periods at Tell Gezer*, Jerusalem 1990.

Gitin 2015a = S. Gitin, *Iron Age IIC: Philistia*, in Gitin 2015b, pp. 383-418, 732-733.

Gitin 2015b = S. Gitin (ed.), *The Ancient Pottery of Israel and Its Neighbors from the Iron Age through the Hellenistic Period*, Jerusalem 2015.

Gitin 2017 = S. Gitin, *The Iron Age IIC Pottery*, in Gitin – Dothan – Garfinkel 2017, pp. 69-193.

Gitin – Dothan – Garfinkel 2017 = S. Gitin – T. Dothan – Y. Garfinkel, *Tel Miqne-Ekron Field IV Lower: The Elite Zone, The Iron Age I and IIC, The Early and Late Philistine Cities: Volume 9, Part 2: The Iron Age IIC Late Philistine City*, Winona Lake (IN) 2017 («Tel Miqne-Ekron Final Field Reports», 9.2).

Gjerstad 1977 = E. Gjerstad (ed.), *Greek Geometric and Archaic Pottery found in Cyprus*, Stockholm 1977 («Skrifter utgivna av Svenska institutet i Athen», 26).

Goren – Cohen-Weinberger 2002 = Y. Goren – A. Cohen-Weinberger, *Clay Analyses: Petrographic Analyses of Selected Wares*, in Kempinski *et al.* 2002, pp. 435-443.

Halpern 2000 = B. Halpern, *Megiddo's Role in Transit, Administration and Trade*, in Finkelstein – Ussishkin – Halpern 2000, pp. 535-575.

Homsher – Kleiman 2022 = R.S. Homsher – A. Kleiman, *Area Q: Levels Q-6 to Q-1*, in Finkelstein – Martin 2022, pp. 119-150.

Horowitz – Oshima – Sanders 2006 = W. Horowitz – T. Oshima – S. Sanders, *Cuneiform in Canaan: Cuneiform Sources from the Land of Israel in Ancient Times*, Jerusalem 2006.

Humbert 1980 = J.-B. Humbert, *Les fouilles: objectives, méthode, stratigraphie*, in Briend – Humbert 1980, pp. 13-36.

Humbert 1981 = J.-B. Humbert, *Recent travaux a Tell Keisan (1979-1980)*, in «RB» 88 (3), 1981, pp. 373-398.

Humbert 1991 = J.-B. Humbert, *Essai de classification des amphores dites "a anses de panier"*, in «RB» 98, 1991, pp. 574-590.

Iserlis – Goren 2016 = M. Iserlis – Y. Goren, *Petrographic Analyses,* in Z. Herzog – L. Singer-Avitz (edd.), *Beer-Sheba III: The Early Iron IIA Enclosed Settlement and the Late Iron IIA - Iron IIB Cities*, Jerusalem 2016, pp. 1029-1040.

Kamlah – Sader 2016 = J. Kamlah – H. Sader, *The Tell el-Burak Archaeological Project: Preliminary Report on the 2011, 2013 and 2014 Seasons in Area 3*, in «Bulletin d'Archéologie et d'Architecture Libanaises» 16, 2016, pp. 79-130.

Karageorghis 1973-1974 = V. Karageorghis, *Excavations in the Necropolis of Salamis, Volume III*, Nicosia 1973-1974 («Salamis», 5).

Katzenstein 1997 = H.J. Katzenstein, *The History of Tyre*, Beer Sheva 1997.

Kearsley 1989 = R.A. Kearsley, *The Pendant Semi-Circle Skyphos*, London 1989 («Bulletin of the Institute of Classical Studies, Supplement», 44).

Kempinski *et al.* 2002 = A. Kempinski – N. Angel-Zohar – R. Oren – N. Scheftelowitz (edd.), *Kabri: The 1986-1993 Excavation Seasons*, Tel Aviv 2002 («Tel Aviv University, Sonia and Marco Nadler Institute of Archaeology. Monograph Series», 20).

Kerschner 1995 = M. Kerschner, *Die ostgriechischen Vogelschalen und Verwandtes: Studien zu Chronologie und Verbreitung der ostgriechischen Keramik*, Unpublished PhD Thesis, Ruhr-Universität Bochum 1995.

Kerschner – Schlotzhauer 2005 = M. Kerschner – U. Schlotzhauer, *A New Classification System of East Greek Pottery*, in «AncWestEast» 4, 2005, pp. 1-56.

Khalifeh 1988 = I.A. Khalifeh, *Sarepta 2: A Stratigraphic and Ceramic Analysis of the Late Bronze and Iron Age Periods from Area II, Sounding X, A/B-8/9, at Sarepta (modern Sarafand)*, Beirut 1988.

Kleiman 2017 = A. Kleiman, *A North Israelite Royal Administrative System and Its Impact on Late-Monarchic Judah,* in «Hebrew Bible and Ancient Israel» 6, 2017, pp. 354-371.
Kleiman 2022 = A. Kleiman, *The Iron II Pottery from Area Q*, in Finkelstein – Martin 2022, pp. 894-1054.
Kogan-Zehavi 2005 = E. Kogan-Zehavi, *An Assyrian Building North of Tel Ashdod*, in «Qadmoniot» 38, 2005, pp. 87-90 (Hebrew).
Lamon 1935 = R.S. Lamon, *The Megiddo Water System*, Chicago (IL) 1935 («OIP», 32).
Lamon – Shipton 1939 = R.S. Lamon – G.M. Shipton, *Megiddo I: Seasons of 1925-34, Strata I-V*, Chicago 1939 («OIP», 42).
Lehmann 2002a = G. Lehmann, *Pottery: Late Bronze Age, Iron Age*, in Kempinski *et al.* 2002, pp. 176-222.
Lehmann 2002b = G. Lehmann, *Stratigraphy and Architecture, Part 4. Area E*, in Kempinski *et al.* 2002, pp. 73-87.
Lehmann 2017 = G. Lehmann, *Keisan, Tell,* in *Encyclopedia of the Bible and Its Reception, Vol. 15*, Berlin-Boston 2017, pp. 102-103.
Macchi 1994 = J.-D. Macchi, *Megiddo à l'époque assyrienne: remarque à propos du dossier archéologique*, in «Transeuphratène» 7, 1994, pp. 9-31.
Martin – Shalev 2022 = S.R. Martin – Y. Shalev, *The Reoccupation of Southern Phoenicia in the Persian Period: Rethinking the Evidence*, in U. Davidovich – N. Yahalom-Mack – S. Matskevich (edd.), *Material, Method, and Meaning: Papers in Eastern Mediterranean Archaeology in Honor of Ilan Sharon*, Münster 2022, pp. 101-116.
Master 2003 = D.M. Master, *Trade and Politics: Ashkelon's Balancing Act in the Seventh Century B.C.E.,* in «BASOR» 330, 2003, pp. 47-64.
Mazar – Panitz-Cohen 2001 = A. Mazar – N. Panitz-Cohen, *Timnah (Tel Batash) Final Reports 2: The Finds from the First Millennium BCE,* Jerusalem 2001 («Qedem», 42).
McClellan 1975 = T.L. McClellan, *Quantitative Studies in the Iron Age Pottery of Palestine,* Unpublished PhD Thesis, University of Pennsylvania 1975.
Morhange *et al.* 2016 = C. Morhange – M. Giaime – N. Marriner – A. Abu Hamid – H. Bruneton – A. Honnorat – D. Kaniewski – F. Magnin – A.V. Prorotov – J. Wante – D. Zviely – M. Artzy, *Geoarchaeological Evolution of Tel Akko's Ancient Harbour (Israel)*, in «Journal of Archaeological Science Reports» 7, 2016, pp. 71-81.
Na'aman 1992 = N. Na'aman, *Nebuchadnezzar's Campaign in Year 603 BCE,* in «Biblische Notizen» 62, 1992, pp. 41-44.
Na'aman 2009 = N. Na'aman, *Was Dor the Capital of an Assyrian Province?*, in «TelAvivJA» 36, 2009, pp. 95-109.
Niemeier – Niemeier 2002 = B. Niemeier – W.-D. Niemeier, *Archaic Greek and Etruscan Pottery*, in Kempinski *et al.* 2002, pp. 233-252.
Nikolaou 1976 = K. Nikolaou, *The Historical Topography of Kition*, Göteborg 1976 («SIMA», 43).
Nitsche 1986-1987 = A. Nitsche, *Bemerkungen zu Chronologie und Herkunft der protogeometrischen Importkeramik von Tyros*, in «HambBeitrA» 13-14, 1986-87, pp. 7-49.
Novák – Fuchs 2021 = M. Novák – A. Fuchs, *Azatiwada, Awariku from the 'House of Mopsos', and Assyria: On the Dating of Karatepe in Cilicia,* in A. Payne – S. Velhartická – J. Wintjes (edd.), *Beyond all Boundaries: Anatolia in the First Millennium B.C.*, Leuven 2021, pp. 363-429.
Núñez Calvo 2020 = F.J. Núñez Calvo, *The Phoenicians: Stratigraphy of Ceramics through Archaeology*, in «Revue Phénicienne» 100, 2020, pp. 28-42.
Núñez Calvo 2021 = F.J. Núñez Calvo, *Local Amphorae from the Tyrian Cemetery of al-Bass: Typology, Chronology, Function and Mediterranean Connections*, in «PolAMed» 30 (2), 2021, pp. 129-180.
Ornan – Ortiz – Wolff 2013 = T. Ornan – S.M. Ortiz – S.R. Wolff, *A Newly Discovered Neo-Assyrian Cylinder Seal from Gezer in Context*, in «IEJ» 63, 2013, pp. 6-25.
Ortiz – Wolff 2012 = S.M. Ortiz – S.R. Wolff, *Guarding the Border to Jerusalem: The Iron Age City of Gezer*, in «Near Eastern Archaeology» 75 (1), 2012, pp. 4-19.
Peersmann 2000 = J. Peersmann, *Assyrian Magiddu: The Town Planning of Stratum III*, in Finkelstein – Ussishkin – Halpern 2000, pp. 524-534.
Popham – Lemos 1996 = M.R. Popham – I.S. Lemos (edd.), *Lefkandi 3: The Toumba Cemetery: The Excavations of 1981, 1984, 1986 and 1992*, London 1996 («British School at Athens, Supplementary Volumes», 29).
Pratt 2015 = C.E. Pratt, *The 'SOS' Amphora: An Update*, in «BSA» 110 (1), 2015, pp. 213-245.

Pritchard 1978 = J.B. Pritchard, *Recovering Sarepta, a Phoenician City: Excavations at Sarafand, Lebanon, 1969-1974, by the University Museum of the University of Pennsylvania*, Princeton 1978.

Radner 2006 = K. Radner, *Provinz. C. Assyrien*, in M.P. Streck (ed.), *Reallexikon der Assyriologie und Vorderasiatischen Archäologie, Band 11*, Berlin-New York 2006, pp. 42-68.

Reade 1998 = J.E. Reade, *Assyrian Eponyms, Kings and Pretenders, 648-605*, in «Orientalia» 67, 1998, pp. 255-265.

Reich – Brandl 1985 = R. Reich – B. Brandl, *Gezer under Assyrian Rule*, in «PEQ» 117, 1985, pp. 41-54.

Reimer *et al.* = P.J. Reimer – W.E.N. Austin – E. Bard *et al.*, *The IntCal20 Northern Hemisphere Radiocarbon Age Calibration Curve (0–55 cal kBP)*, in «Radiocarbon» 62.4, pp. 725-757.

Sader – Schmitt – Kamlah 2021 = H. Sader – A. Schmitt – J. Kamlah, *The Tell el-Burak Archaeological Project: Preliminary Report on the 2015, 2017, and 2018 Excavation Seasons*, in «Bulletin d'Archéologie et d'Architecture Libanaises» 21, 2021, in press.

Salles 1980 = J.-F. Salles, *Le Niveau 4*, in J. Briend – J.B. Humbert (edd.), *Tell Keisan: 1971-1976: une Cite phenicienne en Galilee*, Fribourg 1980, pp. 131-156.

Salles 1985 = J.-F. Salles, *A Propos du Niveau 4 de Tell Keisan*, in «Levant» 17, 1985, pp. 203-204.

Sandhaus 2012 = D. Sandhaus, *The Iron Age II (Strata VI–V)*, in A. Ben-Tor – D. Ben-Ami – D. Sandhaus (edd.), *Hazor VI: The 1990-2009 Excavations: The Iron Age*, Jerusalem 2012, pp. 286-401.

Schipper 2010 = B.U. Schipper, *Das ägyptische Zwischenspiel (7./6. Jahrhundert)*, in M. Weippert (ed.), *Historisches Textbuch zum Alten Testament*, Göttingen 2010, pp. 397-402.

Schmitt 2019 = A. Schmitt, *The Ceramic Material from the Phoenician Settlement at Tell el-Burak: New Data for a Pottery Sequence from the Second Half of the 8th until the First Half of the 4th Century from the Phoenician Homeland*, in «Carthage Studies» 11, 2019, pp. 9-26.

Schmitt *et al.* 2018 = A. Schmitt – K.P. Badreshany – E. Tachatou – H. Sader, *Insights into the Economic Organization of the Phoenician Homeland: A Multi-Disciplinary Investigation of the Later Iron Age II and Persian Period Phoenician Amphorae from Tell el-Burak*, in «Levant» 50 (1), 2018, pp. 52-90.

Shalvi – Gilboa 2022a = G. Shalvi – A. Gilboa, *The Last Four-Room House in Israel: Stratum 10 at Tel Shiqmona in Context*, in U. Davidovich – N. Yahalom-Mack – S. Matskevich (edd.), *Material, Method, and Meaning: Papers in Eastern Mediterranean Archaeology in Honor of Ilan Sharon*, Münster 2022, pp. 251-312.

Shalvi – Gilboa 2022b = G. Shalvi – A. Gilboa, *The Long Seventh-Century BCE at Tel Shiqmona (Israel): A High Resolution Chronological Tool for the Levant and the Mediterranean*, in «Levant» 54 (2), 2022, pp. 190-216. https://doi.org/10.1080/00758914.2022.2104525.

Shalvi – Gilboa in press = G. Shalvi – A. Gilboa, *Between Israel and Phoenicia: The Iron Age IIA-B Fortified Purple-dye Production Plant at Tel Shiqmona*, in «TelAvivJA», in press.

Sharon *et al.* 2007 = I. Sharon – A. Gilboa – T.A.J. Jull – E. Boaretto, *Report on the First Stage of the Iron Age Dating Project in Israel: Supporting a Low Chronology*, in «Radiocarbon» 49 (1), 2007, pp. 1-46.

Shochat 2017 = H. Shochat, *A Cultural Change at Dor in the Iron Age II: The Annexation of Dor to the Kingdom of Israel: Stratigraphical and Typological Analysis of the Findings from Area D2*, Unpublished MA Thesis, University Haifa 2017 (Hebrew).

Shochat – Gilboa 2018 = H. Shochat – A. Gilboa, *Elusive Destructions: Reconsidering the Hazor Iron Age II Sequence and Its Chronological and Historical Implications*, in «Levant» 50 (3), 2018, pp. 363-386.

Singer-Avitz 1999 = L. Singer-Avitz, *Beersheba: A Gateway Community in Southern Arabian Long-Distance Trade in the Eighth Century B.C.E.*, in «TelAvivJA» 26 (1), 1999, pp. 3-74.

Singer-Avitz 2010 = L. Singer-Avitz, *A Group of Phoenician Vessels from Tel Beersheba*, in «TelAvivJA» 37 (2), 2010, pp. 188-199.

Singer-Avitz 2014 = L. Singer-Avitz, *The Pottery of Megiddo Strata III-II and a Proposed Subdivision of the Iron IIC Period in Northern Israel*, in «BASOR» 372, 2014, pp. 123-145.

Singer-Avitz 2016 = L. Singer-Avitz, *Pottery from Strata III-I: The Iron IIB Period*, in Z. Herzog – L. Singer-Avitz (edd.), *Beer-Sheba III: The Early Iron IIA Enclosed Settlement and the Late Iron IIA - Iron IIB Cities*, Jerusalem 2016, pp. 583-991.

Singer-Avitz 2018 = L. Singer-Avitz, *On Phoenicia's Trade Relations with Philistia and Judah under the Assyrian Hegemony: The Ceramic Evidence*, in Aster – Faust 2018, pp. 186-215.

Stager – Master – Schloen 2011 = L.E. Stager – D.M. Master – J.D. Schloen, *Ashkelon 3: The Seventh Century B.C.*, Winona Lake (IN) 2011 («Harvard Semitic Museum Publications», 3).

Stern 2000 = E. Stern, *Dor: Ruler of the Seas: Twelve Years of Excavations at the Israelite-Phoenician Harbor Town on the Carmel Coast*, Jerusalem 2000.

Stern 2001 = E. Stern, *Archaeology of the Land of the Bible: The Assyrian, Babylonian, and Persian Periods, 732-332 BCE*, New York 2001 («Anchor Bible Reference Library»).

Tadmor 2011 = H. Tadmor, *Philistia under Assyrian Rule*, in H. Tadmor (ed.), *"With my Many Chariots I Have Gone up the Heights of the Mountains": Historical and Literary Studies on Ancient Mesopotamia and Israel*, Jerusalem 2011, pp. 633-651.

Tadmor – Yamada 2011 = H. Tadmor – S. Yamada, *The Royal Inscriptions of Tiglath-pileser III, King of Assyria (744-727 BC) and Shalmaneser V (726-722 BC), Kings of Assyria*, Winona Lake (IN) 2011 («The Royal Inscriptions of the Neo-Assyrian Period»).

Tufnell 1953 = O. Tufnell, *Lachish III (Tell ed-Duweir): The Iron Age*, London-New York-Toronto 1953 («Wellcome-Marston Archaeological Research Expedition to the Near East»).

Ussishkin 2004 = D. Ussishkin (ed.), *The Renewed Archaeological Excavations at Lachish (1973-1994)*, Tel Aviv 2004 («Monograph Series of the Sonia and Marco Nadler Institute of Archaeology, Tel Aviv University», 22).

Vacek 2012 = A. Vacek, *Greek and Related Pottery from Al Mina: A Case Study of Production, Consumption and Distribution of Greek Pottery in the Eastern Mediterranean from the 9th to the End of the 7th Century BC*, Unpublished PhD Thesis, University of Oxford, School of Archaeology, Merton College 2012.

Vaknin *et al.* 2022 = Y. Vaknin – R. Shaar – O. Lipschits – A. Mazar – A.M. Maeir – Y. Garfinkel – L. Freud – A. Faust – R.E. Tappy – I. Kreimerman – S. Ganor – K. Covello-Paran – O. Sergi – Z.e. Herzog – R. Arav – Z. Lederman – S. Münger – A. Fantalkin – S. Gitin – E. Ben-Yosef, *Reconstructing Biblical Military Campaigns using Geomagnetic Field Data*, in «PNAS Proceedings of the National Academy of Sciences of the United States of America» 119, 2022, pp. 1-7. https://doi.org/10.1073/pnas.2209117119.

Waiman-Barak – Georgiadou – Gilboa 2021 = P. Waiman-Barak – A.P. Georgiadou – A. Gilboa, *Regional Mineralogical and Technological Characterization of Cypriot Iron Age Pottery: A View from Tel Dor*, in «Levant» 53, 2021, pp. 236-261. https://doi.org/10.1080/00758914.2021.1972609.

Waiman-Barak – Gilboa 2016 = P. Waiman-Barak – A. Gilboa, *Maritime Transport Containers: The View from Phoenician Tell Keisan (Israel) in the Early Iron Age*, in S. Demesticha – A.B. Knapp (edd.), *Maritime Transport Containers in the Bronze-Iron Age Aegean and Eastern Mediterranean*, Uppsala 2016, pp. 169-193.

Waldbaum 2011 = J.C. Waldbaum, *Greek Pottery*, in Stager – Master – Schloen 2011, pp. 127-338.

Waldbaum 2015 = J.C. Waldbaum, *Iron Age I-II: Greek Imports*, in Gitin 2015b, pp. 509-531, 732-733.

Wilson 2017 = C.H. Wilson, *An Iron Age IIB Elite Four-Room House at Gezer: Finds, Function, and Comparanda*, Unpublished MA Thesis, Southwestern Baptist Theological Seminary 2017.

Wolff 2021 = S.R. Wolff, *The Date of Destruction of Gezer Stratum VI*, in «TelAvivJA» 48, 2021, pp. 73-86.

Yadin 1960 = Y. Yadin, *Hazor II: An Account of the Second Season of Excavations 1956*, Jerusalem 1960 («James A. de Rothschild Expedition at Hazor»).

Yadin 1961 = Y. Yadin, *Hazor III-IV: An Account of the Third and Fourth Seasons of Excavations 1957-1958*, Jerusalem 1961 («James A. de Rothschild Expedition at Hazor»).

Yadin 1972 = Y. Yadin, *Hazor: The Head of All Those Kingdoms*, London 1972 («The Schweich Lectures of the British Academy», 1970).

Yasur-Landau – Press – Arie 2016 = A. Yasur-Landau – M.D. Press – E. Arie, *Rethinking Tel Achziv: An Iron II Architectonic and Ceramic Sequence from Southern Phoenicia*, in «TelAvivJA» 43, 2016, pp. 188-220.

Zilberg 2018 = P. Zilberg, *The Assyrian Provinces of the Southern Levant: Sources, Administration, and Control*, in Aster – Faust 2018, pp. 56-88.

Zimhoni 2004 = O. Zimhoni, *The Pottery of Levels III and II*, in Ussishkin 2004, pp. 1789-1899.