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A Crisis? What Crisis? Challenging Times at Tell el-Dab'a during the Second Intermediate Period

Sarah Vilain

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Changing Clusters and Migration
in the Near Eastern Bronze Age



Harrassowitz



The Enigma of the Hyksos

Volume IV

Changing Clusters and Migration
in the Near Eastern Bronze Age

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Table of Contents

Preface	9
<i>by Manfred Bietak and Silvia Prell</i>	
Inter-cultural Connections and Changing Relations from the Late Chalcolithic to the Early Bronze Age in Eastern Anatolia	13
<i>by Marcella Frangipane</i>	
Developing Connections and Changing Clusters: The Levant between c. 2600 and 1900 BCE	31
<i>by Marta D'Andrea</i>	
Changing Clusters and Migrations in the Central Jezirah Region (NE Syria)	83
<i>by Rafał Koliński</i>	
About a Particular Type of Tomb in the Syrian Jezirah and at Tell el-Dab'a in Egypt	107
<i>by Önhan Tunca and Sophie Léon</i>	
The Spiritual Roots of the Hyksos Elite: An Analysis of their Sacred Architecture, Part II	121
<i>by Manfred Bietak</i>	
The Role of Kamid el-Loz in the Beqa'a Plain of Lebanon in the History of Avaris or Did the Hinterland of the Northern Levant Have Any Bearing on the Delta Affairs?	149
<i>by Marlies Heinz and Antonietta Catanzariti</i>	
Looking for Cultural Borders during the Middle Bronze Age in Lebanon: Preliminary Observations	175
<i>by Hanan Charaf</i>	
Sidon and Tell Dab'a – an Example of Levantine/Egyptian Commercial and Cultural Relations: A Step Towards the Understanding of the Hyksos Phenomenon	223
<i>by Claude Doumet-Serhal and Vanessa Boschloo</i>	
Egyptian-Levantine Relations in the Hyksos Period: The Southern Levant vs. the Northern Levant	243
<i>by Daphna Ben-Tor</i>	
Difficult Times and Drastic Solutions: The Diffusion of Looted Middle Kingdom Objects Found in the Northern Levant, Egypt and Nubia	253
<i>by Alexander Ahrens and Karin Kopetzky</i>	
A Crisis? What Crisis? Challenging Times at Tell el-Dab'a during the Second Intermediate Period	315
<i>by Sarah Vilain</i>	
The Functional and Social Role of the Levantine Painted Ware at Middle Bronze Age Tel Ifshar	333
<i>by Ezra S. Marcus</i>	

The Middle Bronze Age Settlement Pattern in the Wadi Tumilat (Eastern Nile Delta)	365
<i>by Aleksandra E. Ksiezak</i>	
Clusters of Asiatics in the Nile Delta in the Early 2 nd Millennium BCE: A View from the Wadi Tumilat	395
<i>by Maura Sala</i>	
Duration or Cessation? Dealing with Temporal Uncertainty in the Study of Ancient Settlements ...	417
<i>by Silvia Gómez-Senovilla</i>	
Weights and Weight Systems in Tell el-Dab'a in the Middle and Late Bronze Age	437
<i>by Silvia Prell, Lorenz Rahmstorf and Nicola Ialongo</i>	
Transforming Egypt into the New Kingdom: The Movement of Ideas and Technology across Geopolitical, Cultural and Social Borders	457
<i>by Anna-Latifa Mourad</i>	
Contribution of Bioanthropology to Defining the Tell el-Dab'a Population in the Eastern Delta: Preliminary Findings	477
<i>by Arwa Kharobi, Nina Maaranen, Chris Stantis, Sonia Zakrzewski and Holger Schutkowski</i>	
Hurrians and the Hurrian Language – Migration or the Diffusion of a Language?	491
<i>by Gernot Wilhelm</i>	
Hurrian and Hurrians in the Southwest. Cuneiform Evidence for the Middle and Late Bronze Ages	503
<i>by Thomas Richter</i>	
Concluding Remarks	545
<i>by Manfred Bietak and Silvia Prell</i>	

A Crisis? What Crisis?

Challenging Times at Tell el-Dab'a during the Second Intermediate Period

by Sarah Vilain¹

Abstract

During the Second Intermediate Period, Egypt faced new challenges with the loss of its central administration and the emergence of new regional powers within its territory. The complexity of the resultant sociopolitical transformations can be best investigated at Tell el-Dab'a, where an uninterrupted archaeological sequence offers a baseline from which one can evaluate later changes. This paper approaches three complementary aspects of the site – the settlement, the funerary material and the imported ceramics – and investigates their various developments throughout its stratigraphy. The new expansion which occurred at Avaris, at the start of Hyksos rule, led to significant shifts in the function of spaces and to a densification of the occupation, which became increasingly compressed in the last phases of the site. Concomitant evolutions in the funerary record suggest the occurrence of deep social and technological changes, some of which connect to broader cultural phenomena also documented in the Levant. Further insights, triggered by the import of Levantine and Cypriot ceramics and the circulation of Egyptian Tell el-Yahudiya juglets in the Eastern Mediterranean, question the site's foreign connections. Thus, a combination of political, social and economic factors might have weakened Hyksos power in the Eastern Nile Delta, ultimately contributing to the fall of the 15th Dynasty.

Introduction

Since the end of the 19th century, Egyptological narratives on the Second Intermediate Period have embedded discourses on both crisis and decline.² From the inscription of Kamose³ to the Manethonian tradition,⁴ the remnants of historical sources relating to the takeover, the rule and the fall of Hyksos kings feed the crisis perspective. From both an archaeological and anthropological point of view, a crisis may be defined as an event or a short-term process which creates a rupture in balance and, consequently, endangers the continued existence of the pre-existing condition. A crisis can take several forms (e.g.; political, economic, or ideological) and can be triggered by a mix of factors, either internal (such as violent conflict or elite mismanagement) or external (such as invasion, natural disaster, or depletion of resources).⁵ A crisis should be distinguished from a decline, which is a quantifiable weakening, or worsening, over a longer period. However, both crisis and decline may ultimately lead to collapse. To that extent, signs of crisis can be defined as the identification of elements of response to stress-induced phenomena. Taking this definition as a starting point, this paper offers an overview of the overall development of Tell el-Dab'a, while assessing if signs of the 'crisis narrative,' traditionally associated with the Second Intermediate Period, and especially Hyksos rule, can be identified in the site's archaeological record.

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² The expression 'Intermediate Period', coined by British Egyptologists at the end of the 19th century, has been criticized for its negative connotations, as it carries the preconceived idea of a culturally inferior transition between two more flourishing historical times. For further discussion, see RYHOLT 1997, 311–312; ILIN-TOMICH 2016. The Second Intermediate Period should be distinguished from Hyksos rule, as the 15th Dynasty constitutes only one of the several political entities coexisting at that time

³ REDFORD 1997 offers an overview of the historical sources of the Second Intermediate Period.

⁴ Authored by the Greek priest Manetho, *De Aegyptiaca* cultivates the vision of a brutal takeover of the Hyksos, a view which has been challenged by recent research. See MOURAD 2015, 9–11.

⁵ TAINTER 1988, 42, 89–90.

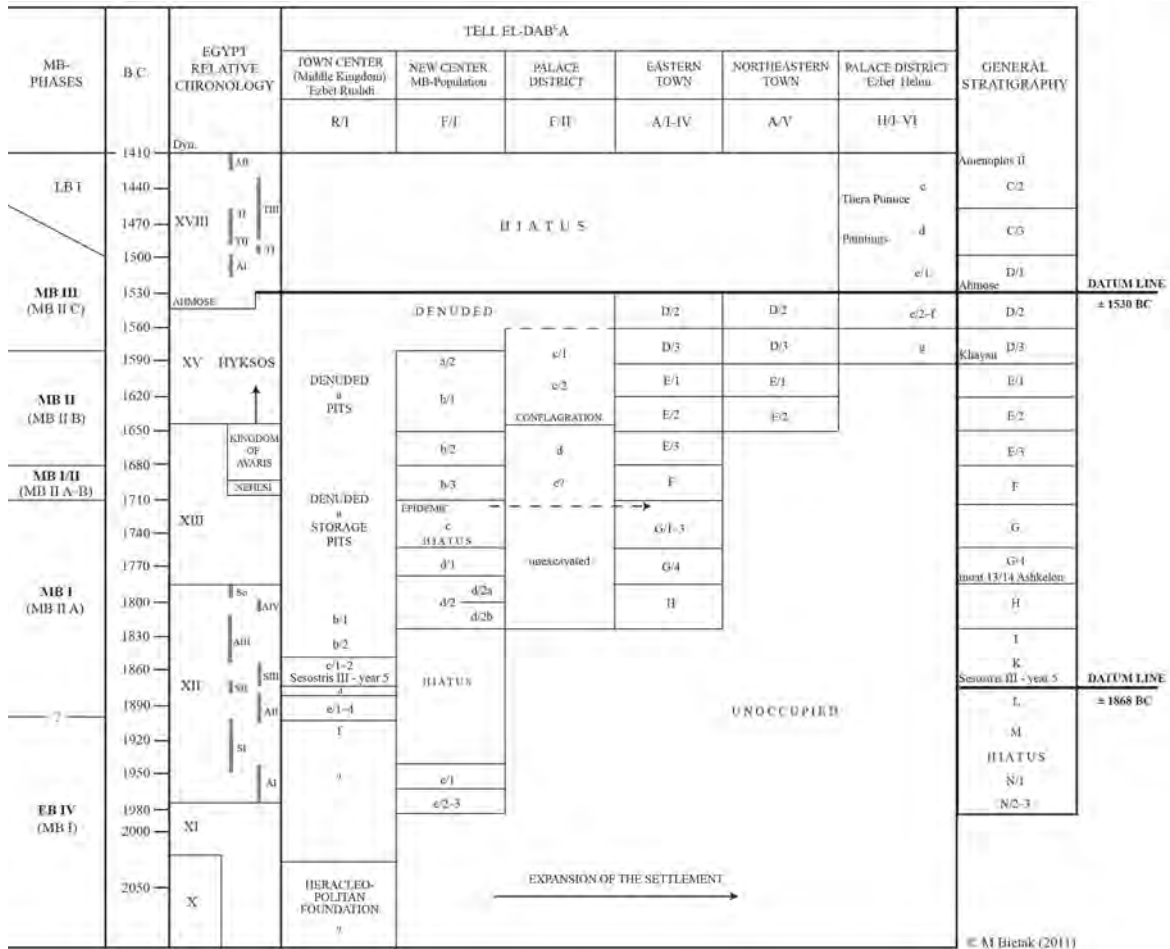


Fig. 1 The stratigraphy of Tell el-Dab'a (© BIETAK 2011)

A View from the Settlement

Signs of crisis can be expressed through several features, such as brutal changes in a settlement's size, shifts in the function of spaces, a lack of maintenance of public buildings, abandonments or destruction layers.⁶ Some of these characteristics can be observed across the stratigraphic sequence excavated at Tell el-Dab'a (Fig. 1). The initial settlement tripled in size between the 12th Dynasty and the late Middle Kingdom, before shrinking at the end of Phase G/1-3.⁷ However, no signs of abandonment or decay in the occupation have yet been identified. In both Areas F/I and A/II, the excavator came across numerous pit burials. The absence of pattern in their orientation, their shallowness and the fact that some of the bodies were apparently thrown in without caution, characterises them as emergency burials. The anthropological remains did not show any signs of injury, suggesting that the city was most likely

affected by an epidemic.⁸ And even if the nature of the illness has not been identified, the pathological studies suggest that the population of Tell el-Dab'a was generally in poor health, suffering from anaemia and deficiency diseases due to malnutrition, parasites and infectious illnesses in all phases of the site.⁹

Despite the shrinkage of the occupation, this crisis did not seem to have a long-lasting impact on the site's development, as suggested by the absence of interruption between Phase G/1-3 and the following Phase F, where a new house type, 'the villa', was introduced. In Area F/I, at some distance from these villas, less qualitative habitation units were built, marking a clear social differentiation in the settlement pattern. In Area A/II, a complete new building phase occurred, demonstrated by the construction of Temple III, its sacred precinct and the associated cemeteries.¹⁰ This stronger social stratification and the architectural renewal of Phase F may be perceived

6 For further details, see TAINTER 1988, 89; DRIESSEN 1995; 2002, 251-252.
 7 BIETAK 2010, 11. During this time lapse, the settlement expanded from c. 15-25 ha to c. 75 ha.

8 BIETAK 1991c, 34-38.
 9 WINKLER and WILFING 1991, 122-137, 140.
 10 BIETAK 1991b, 38-40; 2010, 18.



Fig. 2 Conflagration layer, Area F/II, L1421, Stratum d (© M. BIETAK, ÖAI archive)

as manifestations of political and societal changes provoked by the rise of independent dynasties in the Delta.¹¹ A pre-Hyksos palatial building was detected in Stratum d, correlating with the end of Phase E/3 or the beginning of Phase E/2 in the general stratigraphy of the site.¹² Some of its structures, identified with the northernmost part of a complex of magazines, were completely burned (Fig. 2).¹³ One can only speculate if this major destruction, which was likely intentional, might be linked to the takeover of the 15th Dynasty or other kinds of internal or external troubles. It is uncertain how long the building remained unoccupied after the fire, but it was finally demolished to make way for an early Hyksos Palace (Stratum c/2) with no evidence of squatter activity in-between.¹⁴

¹¹ The growing independence of the site in Phase F is also supported by innovations in local pottery shapes. See KOPEZKY 2010, 270–271.

¹² BIETAK et al. 2012/2013, 32. The mudbrick structures would have not been so strongly burned if the fire was accidental.

¹³ BIETAK et al. 2012/2013, 32–35, fig. 16B. Despite the looting, the preciousness and variety of materials discovered in the storerooms suggest that they were royal magazines. Among the remaining artefacts were objects of stone, faience, ivory and diverse raw materials such as lumps of quartz, obsidian and ochre.

¹⁴ Ibidem, 36.

At the start of Hyksos rule,¹⁵ the settlement increased again, reaching c. 250 hectares in Phase E/1.¹⁶ This significant change is mostly due to Avaris's new status as the Hyksos capital city.¹⁷ The early Hyksos palace complex does not display the symmetrical plan typical of Egyptian palaces, but was built in additive fashion with three rows of building sections.¹⁸ The structure exhibits several spaces for storage, including two rows of paved magazines (Unit A) in which numerous fragments of Canaanite Jars have been discovered, suggesting strong trade connections with the Levant.¹⁹ A further series of improvements was undertaken in the Eastern Quarter of the settlement during the early part of the 15th Dynasty (Phase E/1). In Area A/II, Temples III and V were renewed and Temple I was partly repaired.²⁰ And another temple was built in Area F/I: though severely denuded, the building's preserved foundations allow the reconstruction of a tripartite

¹⁵ The identification of the beginning of Hyksos rule, at some point of Phase E/2, is also supported by changes in the material culture. See BIETAK et al. 2001.

¹⁶ BIETAK 2010, 11. According to geomagnetic mapping, the Hyksos palatial complex of Area F/II (Stratum c/2, correlated with Phase E/1) reached c. 10,600 sq.m.

¹⁷ BIETAK et al. 2012/2013, fig. 2.

¹⁸ Ibidem, 19.

¹⁹ Ibidem, fig. 2.

²⁰ BIETAK 1991b, 41–42.

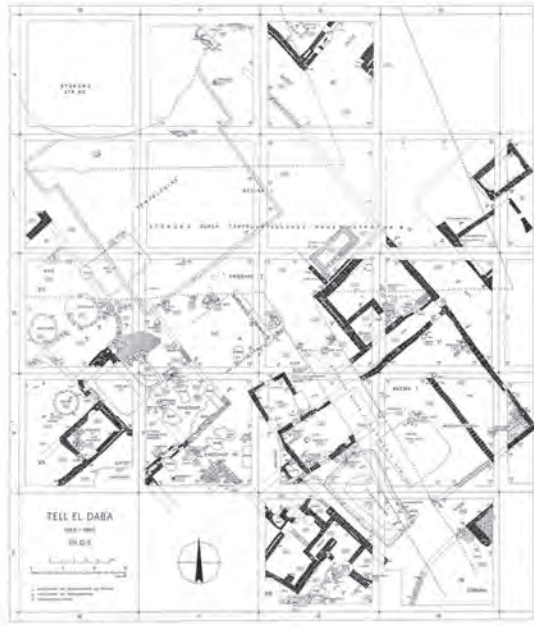


Fig. 3a Compressed settlement of Phase D/3, Area A/II (BIETAK 2010, fig. 17a)



Fig. 3b Compressed settlement of Phase D/2, Area A/II (BIETAK 2010, fig. 17b)

sanctuary in a layout very similar to the Egyptian temples of Area A/II.

A further reversal occurred during Phases D/3 and D/2. Temples III and V remained in use, but Temples I and II were no longer maintained and fell into ruin.²¹ In Area A/II, the settlement increased in size and density (Figs. 3a-b).²² As a result, the living quarters of the town expanded into the funerary area, implying a change in the function of space.²³ This functional shift, as well as the decrease of energy put into the maintenance and construction of buildings, may be respectively perceived as responses to an overwhelming population increase and a decrease of available space. From a ‘crisis perspective’, the compression of the settlement observed in Area A/II is a factor of exacerbation of social tensions. Higher population density leads to a greater need for coordination, centralised decision-making, supply organisation and may also produce higher levels of social conflict. To protect the city and its growing population, vulnerable parts of Avaris were fortified during the late Hyksos Period. At ‘Ezbet Helmi, the whole northern part of the town seems to have been defended by a wall with bastions towards the Nile. Other fortification remains were also identified

during the geophysical survey undertaken within the southern limits of the town.²⁴ Even if the distinction between a response to a threat or a gradual change for ideological purposes is archaeologically difficult to assess, it is likely that these walls had more than a symbolic dimension.²⁵

Indeed, further discoveries from Area F/II suggest that the Hyksos period was a time of conflict, if not warfare. Four pits, containing sixteen severed right hands, were discovered in Stratum c/1, outside the palatial complex.²⁶ Two more pits, containing one hand each, were found under the four-column building just at the front enclosure wall of the Palace. According to M. Bietak, severed hands could relate to the ‘gold of valour’, an Egyptian practice wherein soldiers were rewarded according to their performance in battle and, possibly, according to the number of slain enemies.²⁷ Scholars studying Middle Bronze Age legal texts have also argued that the severing of hands might have been used as a punishment for insubordination or rebellion against the king, maybe

21 MÜLLER 2002, 277.

22 BIETAK 1991b, 43, 45, 46; 2010, 18. The occupation seems to have been less compact in Area A/V. However, this phase was only reached in one square, which delivered domestic structures including semi-detached houses and round silos.

23 FORSTNER-MÜLLER 2010, 129.

24 FORSTNER-MÜLLER 2013, 245. In Spring 2012, auger drillings were undertaken in order to investigate the nature of these structures. At least a part of them consisted of mudbricks, suggesting that they were intentionally built and might have had a defensive function.

25 DRIESSEN 1995, 67. These defensive installations could be the expression of a ‘warchitecture’, a term used to design defensive structures or refuge settlements erected as a response to a threat.

26 BIETAK et al. 2012/2013, 19.

27 Ibidem, 32.

even a 'coup d'état'.²⁸ Historical sources support a complex political situation between the Hyksos kings in the Delta and their Theban counterparts in the South.²⁹ The building of a fortification system at Avaris in the later Second Intermediate Period may well be connected to this overall period of political instability.

An Insight into the Funerary Record

In the funerary record, signs of crisis may be perceived through different variables, such as an increase in mortality rate, a decline of quality in funerary architecture, the presence of emergency burials or shifts in funerary customs.³⁰ The earliest graves at Tell el-Dab'a are known exclusively from excavations in Area F/I. In Strata d/2 and d/1, built chamber graves constitute the vast majority of the discoveries.³¹ In Stratum d/1, in the cemetery south of the palace of Area F/I, some of the main tombs had a rectangular mud-brick superstructure that might have supported a chapel.³² Children were buried in small chambers of sandy mud-bricks, usually in Levantine amphorae, except for a child interred in a beer jar in Stratum d/2.³³ Donkeys, in this phase, were also found buried in pits next to men's graves as part of the so-called warrior burials tradition, a practice still attested in the early Hyksos period.³⁴ In Phase G/1–3, in Area A/II, graves were dug either within houses or under their courtyards. Small cemeteries or small tomb groups within rectangular structures attached to habitation units were also found.³⁵ As mentioned above, the discovery of emergency pit burials at the end of this phase suggests the city was stricken by a tragedy. Very little funerary material was associated with these pit burials, confirming that the deceased were hastily buried.³⁶ In Phase F, the social differentiation, already observed in the settlement, is also expressed in funerary customs, as shown by the discovery of



Fig. 4 Jar burial, A/II-k15-Grave 8, Area A/II, Phase D/3 (© M. BIETAK, ÖAI archive)

²⁸ CANDELORA 2019, 103.

²⁹ One of the main testimonial about political issues of the Second Intermediate Period is the inscription of Kamose (see HABACHI 1972; REDFORD 1997, 13–16), in which the Theban king relates how his kingdom is caught between the Hyksos in the Delta and the Kingdom of Kush in the South. See also RYHOLT 1997, 307–308.

³⁰ See TAINTER 1988, 89; DRIESSEN 1995; 2002, 251–252.

³¹ SCHIESTL 2009, 41. Chamber graves represent 73% of graves in Stratum d/2 and 93% in Stratum d/1.

³² BIETAK 1991b, 34.

³³ SCHIESTL 2009, 279. Tomb 18, F/I-o/19.

³⁴ PRELL 2019a, 107–110. Equid burials are still present in Phase E/1 of Tell el-Dab'a.

³⁵ BIETAK 1991b, 38.

³⁶ BIETAK 1991c, 36–37. Grave goods are particularly scarce: a pit with a woman lying on her back yielded one steatite scarab (Graves l/12, no. 4 [114]), while a man was buried with an imported Levantine juglet (Grave k/12, no.1 [185]).

servant burials in front of the entrance to the burial chambers of several graves.³⁷

From Phases E/3–E/2, the tradition of child interments in jars, buried either within houses or in courtyards, became a rule. In the eastern part of the settlement, cemeteries continued to develop around the sacred precinct of Temple III.³⁸ There were also tombs of adults within courtyards, even if the cemeteries were still in use. Most of the earlier funerary tradition persisted even after the Hyksos took over. Interestingly, Area A/II, Phase D/3 produced the highest rate of child burials (Fig. 4).³⁹ Seven graves from this phase were also excavated in Area A/V, six of which were child burials.⁴⁰ A

³⁷ BIETAK 1989, 31–39; FORSTNER-MÜLLER 2010, 132; 2002. The burial individuals are young females, placed in a pit outside the tomb chamber of the main tomb's owner. See for example grave A/II-p/14 L468, also associated with an equid burial. The origin of the servant burials is still debated, but this practice is attested both in Mesopotamia and in Nubia already during the 3rd millennium BCE.

³⁸ BIETAK 1991b, 41.

³⁹ FORSTNER-MÜLLER 2008, fig. 62.

⁴⁰ HEIN and JÁNOSI 2004, 35–61.



Fig. 5 Multiple burials, A/II-m/17-Grave 3, Area A/II, Phase D/2 (© M. BIETAK, ÖAI archive)

similar phenomenon was detected in Area A/I⁴¹ and in Area F/I, in Stratum a/2.⁴² The increase in population density might have been particularly favourable to the spread of diseases, increasing child mortality. Single burials for both adults and children were the general rule at Tell el-Dab'a, even if graves containing the remains of two to five individuals were occasionally attested throughout its stratigraphy.⁴³ Nevertheless, a higher concentration of collective burials seems to occur in the last phase of the site. Grave A/II-m/17, no. 3, discovered in Phase D/2, contained fourteen burials in what might have been a family tomb (Fig. 5).⁴⁴ In some cases, the funerary chamber was planned and built at the same time as the house. This transition from individual burials to family graves is well documented in the Levant in the Middle Bronze IIB period. At Tell el-Dab'a, the increased density of the settlement, at the end of the Second Intermediate Period, may also have favoured this phenomenon.⁴⁵

Unfortunately, Tell el-Dab'a's graves experienced a high rate of plundering, with up to 80% in Phase D/2 of Area A/II.⁴⁶ This uneven looting means that the artefact assemblages, from various periods, and perhaps those of different categories of persons, are not equally represented in the surviving evidence.⁴⁷ This situation affects any assessment of the initial composition of the funerary material. Being aware of this caveat, observations can still be made by relying on the assemblages of intact graves whenever possible. Metallic artefacts, in particular, are meaningful components of funerary assemblages, as they can be perceived through multiple prisms. Weapons, for example, may have been prized for the degree of technicity put into their production, the social status they provided for their owners or for the value of the metals themselves. According to the occurrences of bronze weapons, throughout the stratigraphy of the site, the highest ratios, per adult burials, were reached in the earliest phases (Phases

41 PRELL and RAHMSTORF 2019, 167–168.

42 KOPETZKY 1993, 26.

43 FORSTNER-MÜLLER 2010, 131.

44 See FORSTNER-MÜLLER 2008, 362–374 for the description of Grave A/II-m/17, no. 3. This grave is a vaulted tomb chamber, which rules out the hypothesis of an emergency multiple burial.

45 See HALLOTE 1995, 101; COHEN 2012, 312.

46 See BIETAK 1991c, 289–314; FORSTNER-MÜLLER 2008, 343–383 for the detail of the graves in Phase D/2 of Area A/II.

47 PHILIP 2006, 229.



Figs. 6a–b Warrior burial and its weapons, A/II-n/15-grave 1, Phases E/1–D/3
(© M. BIETAK, ÖAI archive)

H and G/4),⁴⁸ disregarding the attested looting in each phase. Other significant quantities of weapons were found in Phase F,⁴⁹ during the 14th Dynasty, and in Phase E/1 to early Phase D/3 (Figs. 6a–b)⁵⁰ during the early Hyksos Dynasty. This phenomenon can be interpreted in contradictory ways, as it may be argued that a high rate of weapons in funerary contexts is a direct reflection of their common use by warriors, while some scholars suggest that the deposition of weapons in graves is due to their lack of use in everyday life.⁵¹ Interestingly, Phases E/3–E/2, which directly precede Hyksos rule and may have experienced more political instability,⁵² yielded only

a few weapons, and less plundering of graves than those of Phase E/1.⁵³

Several typological changes can also be observed in the funerary material. Metal belts, socketed javelin heads, narrow-bladed axes of Philip's type 1⁵⁴ and daggers with five mid-ribs are less attested after Phases F–E/3, a phenomenon which coincides with the transition from the Middle Bronze IIA to IIB periods.⁵⁵ Middle Bronze IIB assemblages with weapon sets typically include narrow-bladed axes of Philip's types 2–3⁵⁶ and daggers of Philip's types 17, 18 and 34.⁵⁷ These types occasionally appear in Phases F–E/3 but mostly surface in Phases E/1–D/3, at the start of Hyksos rule.⁵⁸ A new shift is attested in Phase D/2. Weapon-related items are mostly limited to single edge knives.⁵⁹ A similar decrease in weapons is perceptible in both Areas A/II and A/V.⁶⁰ This phenomenon may relate to a general cultural development observed in the Levant,⁶¹ where the elite professional warrior was no longer associated with the socketed axe and the dagger. It has also been suggested that the ease of access to metals, with the development of long-distance trade and advances in metal technologies, led to a decline in the social prestige associated with metallic artefacts as grave goods.⁶² In both cases, new symbols of social status would have been expected to rise in proportion to the decline of weapons as tomb items.⁶³ According

48 The earliest graves of Tell el-Dab'a were published by SCHIESTL 2009. In Stratum d/2 (= Phase H) weapons are attested in six adult burials (F/I-p/20, no. 7, F/I-o/19, no. 8, F/I-j/21, no. 13, F/I-o/21, no. 6, F/I-n/21, no. 10, F/I-o/20, no. 17). Among the assemblage of this Stratum are a dagger, a fenestrated axe, a belt, a knife and seven spearheads. In Stratum d/1, weapons were attested in nine of the thirty-six burials and offering pits published by Schiestl (F/I-m/18, no. 3, F/I-p/18, no. 14, F/I-o/21, no. 4, F/I-p/17, no. 14, F/I-p/20, no. 2, F/I-p/18, no. 1, F/I-p/21, no. 1, F/I-o/17, no. 1, F/I-m/17, nos. 1 and 2). Of particular interest is a pair of spearheads, likely in silver, discovered in grave F/I-m/18, no. 3. Spearheads are usually associated with daggers, suggesting that the assemblage is incomplete, certainly due to plundering.

49 In Area A/II, nine graves from Phase F were published by BIETAK 1991c, 39–74 and sixteen graves by FORSTNER-MÜLLER 2008, 140–185. Weapons are encountered in four graves (A/II-l/12, no. 5 [181], A/II-m/10, no. 8 [204], A/II-p/14, no. 18 L468, A/II-l/16, no. 4). The overall assemblage constitutes two narrow-bladed socketed axes, four daggers and two belts. For the detail of the belts from Tell el-Dab'a and their parallels, see PRELL 2019b, 305–311, fig. 4. In Area F/I (= Stratum b/3) only one adult burial was equipped with a weapon (see KOPETZKY 1993).

50 Graves of Phase E/1 are mostly documented by publications from Area A/II. Twenty-six burials are detailed in BIETAK 1991c, 167–241 and eighteen in FORSTNER-MÜLLER 2008, 245–291. The weapon assemblage is composed of sixteen pieces (four narrow-bladed socketed axes, three daggers, and eight knife blades) discovered in five graves (A/II-l/12, no. 2 [367], A/II-l/14, no. 5, A/II-l/16, no. 1 and no. 2 and A/II-n/15, no. 1). Grave A/II-n/15, no. 1 (Phase E/1-beginning D/3), in particular, yielded the remains of three men, all of them equipped with weapons.

51 KLETTNER and LEVI 2016, 7.

52 According to Ryholt, the end of the 13th and the 14th dynasties are marked by ephemeral kings with short-term rules, suggesting a general climate of insecurity. See RYHOLT 1997, 300. The burned magazines of the palatial complex dated to the end of Phase E/3 or the beginning of Phase E/2 further supports the possibility of internal or external troubles in the pre-Hyksos period. On the contrary, early Hyksos rule might have brought a certain stability, confirmed by the improvements noticed in the occupation of Phase E/1.

53 In Area F/I, weapons are absent from both Stratum b/2 (= E/3) and Stratum b/1 (= E/2). See KOPETZKY 1993. Eighteen graves were discovered in Phase E/3 of Area A/II (BIETAK 1991c, 77–101; 107–154 (seven graves); FORSTNER-MÜLLER 2008, 191–214, 221–239 (eleven graves)). Weapon-related items are only attested in grave A/II-l/14, no. 7, that yielded a pair of spearheads and a knife blade. Among the published graves unearthed in Phase E/2 (BIETAK 1991c, 105–154 (seventeen graves); FORSTNER-MÜLLER 2008, 221–239 (fourteen graves)), weapons were only discovered in grave A/II-p/13, no. 15 L304 (one narrow-bladed axe and one dagger blade, see FORSTNER-MÜLLER 2008, 235).

54 PHILIP 2006, 139, table 2.

55 BIETAK et al. 2001, fig. 2.

56 PHILIP 2006, 139–140, table 2.

57 BIETAK et al. 2001, fig. 2; PHILIP 2006, 143, table 3.

58 BIETAK et al. 2001, fig. 2; PHILIP 2006, tables 2–3.

59 PHILIP 2006, 219.

60 Phase D/2 was reached in both Areas A/II and A/V. Area A/II (BIETAK 1991a, 289–316; FORSTNER-MÜLLER 2008, 343–384) yielded thirty-three graves, only one knife was encountered in this Phase (TD 8907, FORSTNER-MÜLLER 2008, 377). In Area A/V (HEIN and JÁNOSI 2004, 65–182), nineteen graves were discovered, none of them yielded any weapon-related item.

61 HALLOTE 1995, fig. 7.

62 COHEN 2012, 312.

63 HALLOTE 1995, 114: “While in MB IIA the society had intended to be perceived as militarily oriented, in the MB IIB and MB IIC periods the elite image was civilian and power oriented, and was associated with items such as jewellery, other adornments and scarabs (...).”

to A. Burke, as warrior burials evolved during the latter part of the Middle Bronze Age, the composite bow and chariot became the new markers of status.⁶⁴ Therefore, arrowheads should have been discovered in Phase D/2. However, the only example attested at Tell el-Dab'a was found in Phase E/1–D/3.⁶⁵ In the last phase of the site, in Area A/II, adornments are limited to small items, such as beads or toggle pins. The only exceptions are a necklace, in grave A/II-m/18, no. 1, and a silver earring, in grave A/II-m/17, no. 3.⁶⁶ If scarabs are present, they are usually made of faience or steatite; amethyst scarabs are no longer encountered after Phase E/1.⁶⁷

Further elements are highlighted in G. Philip's study on Tell el-Dab'a's metalwork. Due to the poor preservation of many of the smaller metal objects, the range of analysed samples was not fully representative.⁶⁸ Nevertheless, the results suggested a decrease of tin concentration in the composition of metallic artefacts, in particular axes and daggers, in Phases E/3 to D/2.⁶⁹ A low ratio of tin impacts the resistance of metal objects, making them more fragile and less suitable to fulfil their function.⁷⁰ No voluntary addition of arsenic was detected and, generally, the assemblage of metallic artefacts from all phases at Tell el-Dab'a show little evidence for high arsenic copper alloys.⁷¹ Interestingly, a substantial proportion of the sampled weapons is of unalloyed

copper or low arsenic copper alloys.⁷² Philip suggested that this phenomenon might have resulted from the decline of the symbolic value attributed to weapons, in particular daggers and axes.⁷³ Perhaps weapons deposited in funerary contexts at the end of the Middle Bronze Age were not meant to be used for daily activities and, therefore, were not submitted to solidity constraints, making the use of tin-bronze unnecessary. However, an examination of the composition of near-identical weapons from a contemporary cemetery at Jericho showed that tin-bronze was still used for manufacturing these types in the Middle Bronze IIB–C period.⁷⁴ Complementary analyses of bronze artefacts from Pella also pointed to a large use of tin-bronze during this period.⁷⁵ Tin-bronze was also known and used in Egypt during the Second Intermediate Period, as suggested by Cowell's analysis of twenty flat-axes, of Egyptian type, from the British Museum.⁷⁶

A similar lack of tin was noticed in the composition of a harpoon and a knife discovered in Phase D/3, suggesting that weapons were not the only metallic artefacts to be made of unalloyed copper or low arsenic copper alloys at the end of the Second Intermediate Period.⁷⁷ Tin was a pricey metal and, if finished products were imported, it might be assumed that artefacts made in less qualitative alloys were more affordable. If these weapons and tools were

64 BURKE 2008, 43.

65 PHILIP 2006, 69, no. 320.

66 FORSTNER-MÜLLER 2008, 373–374.

67 The presence of amethyst is only attested by two beads in Phase D/2 (grave A/II-m/13, no. 2 [578], BIETAK 1991c, 294).

68 PHILIP 2006, 205, 209. Philip's results were obtained through three different analytical programmes investigating the composition of metallic artefacts. 1) Twelve copper-base artefacts were analysed at the Rasthgen-Forschungslabor of the Staatliche Museen zu Berlin under the supervision of Prof. Riederer in 1982, prior to Philip's involvement in the project. 2) A programme of Atomic Absorption analysis was undertaken in 1985 by Cowell at the British Museum. It examined six silver and twenty-nine copper-based artefacts. Two more ingots were analysed using the same technique in 1989. 3) A second batch of eleven samples was analysed by X-Ray Fluorescence in 1991, again by Cowell. Samples from 2) and 3) were collected in the field by G. Philip.

69 PHILIP 2006, table 21. See also PHILIP 2006, tables 17–18 and, especially, nos. 3060, 3059, 3105, 3106, 4148, 339, 349, 359, 403, 2187, 4139, 350, 433, 461, 1356, 264, 387, 343.

70 NICHOLSON and SHAW 2000, 153. The use of unalloyed copper to cast weapons is not adapted from a technological point of view

71 PHILIP 2006, 214.

72 PHILIP 2006, 214. A clear distinction should be made between 1) unalloyed copper/low arsenic copper alloys, 2) arsenic copper alloys, and 3) tin-bronze. 1) The properties of low arsenic copper alloys (containing 1–2% of arsenic) should not have been different from those of unalloyed copper. The presence of low levels of arsenic might be due to the fact that smiths had access to copper from different sources, as arsenic is naturally present in many ore types (PHILIP 2006, 205). 2) In the case of arsenic copper alloys, arsenic is voluntarily added to obtain a greater hardness and facilitates the casting. Arsenic copper alloys might already have been used in the Old Kingdom. 3) The use of tin-bronze further increases both the hardness and the sharpness of copper alloyed tools and weapons and is technologically superior to arsenic copper alloys. In Egypt, tin-bronze is known from the Middle Kingdom but arsenic alloys might still be occasionally used during the New Kingdom (NICHOLSON and SHAW 2000, 152–153). In the Levant, arsenic alloys and tin-bronze are both used during the Middle Bronze I. However, tin-bronze is predominantly – if not exclusively – used during the Middle Bronze II period (COHEN 2012, 312).

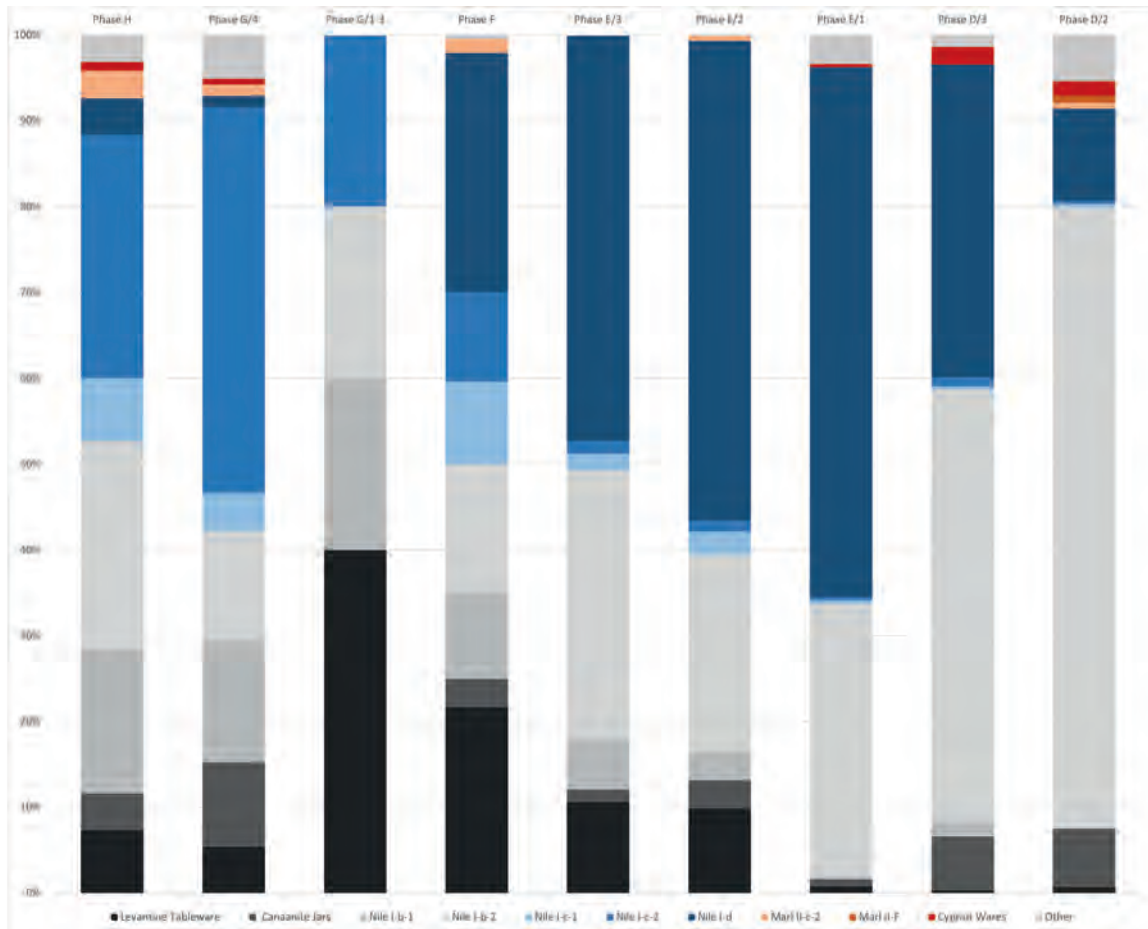
73 PHILIP 2006, 242.

74 PHILIP 1995, figs. 1–2.

75 PHILIP et al. 2003, 89.

76 COWELL 1987, 99; PHILIP 2006, 214. Unfortunately, the artefacts from Cornwell's study cannot be precisely dated within the Second Intermediate Period.

77 PHILIP 2006, table 18. The harpoon (no. 264) and the knife (no. 387) show a tin concentration inferior to 0.2% (PHILIP 2006, table 18, nos. 339, 264).



Figs. 7 Repartition of the different categories of ceramics in the funerary assemblages of Phases H to D/2, including Levantine Tableware (black) and Canaanite Jars (dark grey). (S. VILAIN, published data from areas A/II, A/V, F/I)

locally made at Tell el-Dab'a, one may consider the possibility that tin was deliberately spared due to economic considerations or accessibility issues. Tin might have been available sporadically, in limited quantities, or it might have been too precious to be acquired in large quantities.⁷⁸ Excavations at Tell el-Dab'a yielded only few indications of metallurgical activity at the end of the Second Intermediate Period, which may or may not reflect the presence of metallurgy at the site. Especially if access to raw materials was difficult, even broken metal objects may have had relatively high economic value, as they could be re-cast to create new items.⁷⁹ From a crisis perspective, the evolution of the composition

of metallic artefacts is noteworthy, as the choice of alloys seems to have been driven more by economic considerations than technological suitability, at least in the last phases of Tell el-Dab'a.⁸⁰

A Glance at Imported Wares

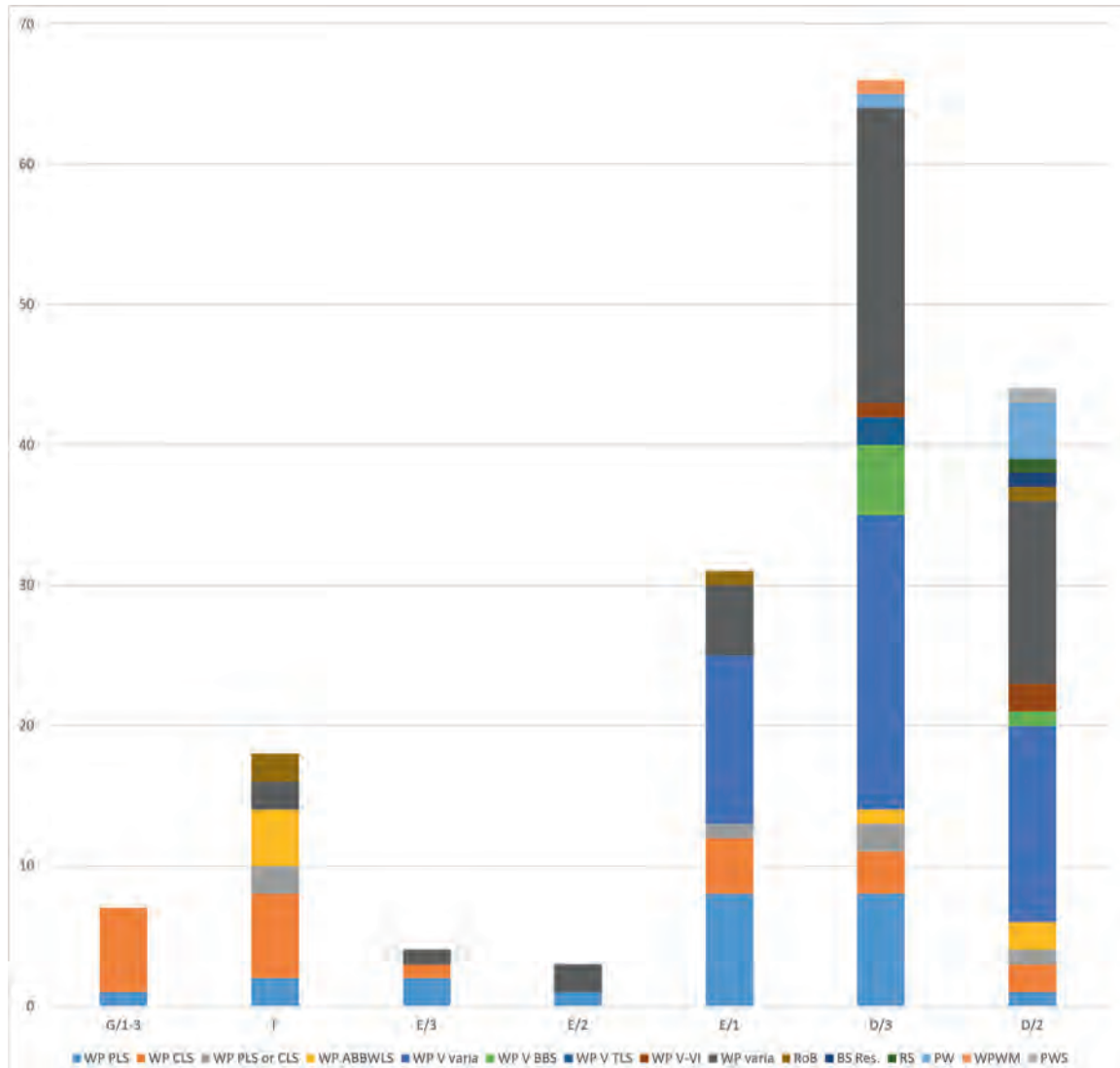
In trading connections, signs of crisis can be identified by monitoring *inter alia* the presence and diversity of imports, the multiplication or reduction of trading partners or the access to specific categories of raw materials.⁸¹ The establishment of foreign connections

⁷⁸ According to MUHLY 1985, 276–277 the price of tin was much higher than the price of copper during the Roman period. It might also have been the case in earlier times. See also GARENNE-MAROT 1984, 106–107; NICHOLSON and SHAW 2000, 171.

⁷⁹ A tuyere was discovered in Phase D/2 of Area A/II (PHILIP 2006, 199, no. 397).

⁸⁰ The analyses of two additional socketed axes of Philip's type 2, one from Khatana and one likely from Tell el-Yahudiya, showed that they also contained less than 0.1% of tin. The rate of arsenic, c. 1–2% is too low to change the properties of the metal, making it an unlikely voluntary addition. The use of unalloyed copper/low arsenic copper alloys might have been a regional phenomenon (see COWELL 1987, nos. 167–168).

⁸¹ See TAINTER 1988, 89; DRIESSEN 1995; DRIESSEN 2002, 251–252.



Figs. 8 The occurrence of Cypriot Wares by Phase at Tell el-Dab'a (S. VILAIN, updated data from MAGUIRE 2009, table 2 – Areas A/I, A/II, A/III, A/IV, A/V, F/I)

and the ability to maintain long distance trade are manifestations of both economic and political stability. The variety of traded commodities mentioned in historical sources suggests that many do not survive across time,⁸² giving us a truncated vision of the scale of exchanges. Being aware of this limitation, the best expression of trade at Tell el-Dab'a is foreign pottery, especially Levantine imports attested at the site from the late 12th Dynasty onwards. Statistically, these reach a peak in Phase F, before declining until

the end of the Second Intermediate Period.⁸³ Data from funerary contexts confirm this pattern (Fig. 7). Phase E/1, correlating with the beginning of Hyksos rule, delivered the lowest rate of Levantine imports in funerary assemblages. A shift in the repertoire of shapes accompanied the decline of Levantine ceramics. In Phases D/3 and D/2, imported tableware dramatically decreases in favour of transport jars, the contents of which could not be locally made.⁸⁴

⁸² REDFORD 1997, 14. According to the Second Stela of Kamose (lines 14–16), among the commodities shipped to Tell el-Dab'a are moringa-oil, incense, fat, honey, willow, wood-box, fine woods... "All the fine products of Retenu".

⁸³ KOPETZKY 2010, fig. 52. In Phase F, Levantine imports constitute 28.7% of the ceramic of domestic assemblages.

⁸⁴ Analyses on Canaanite Jars discovered in Egypt during the New Kingdom suggest that they were used to transport commodities such as wine, oil and resins (SERPICO et al. 2003). Analyses by R. Röttlander on samples discovered at Tell el-Dab'a highlighted the presence of animal and vegetal fat (ASTON and BIETAK 2012, 557–558).



Figs. 9 Area F/II, Locus 1421, Local imitations of Cypriot White Painted Pendant Line Style juglets
(© M. BIETAK, ÖAI archive)

The second most attested category of imports, present at Tell el-Dab'a from the 13th Dynasty, is of Cypriot type (Fig. 8). Cypriot White Painted Pendant Line Style and Cross Line Style jugs and juglets were already discovered in Phases G/1–3 and F, but are barely attested in Phases E/3 and E/2, which directly precede Hyksos rule.⁸⁵ It is during this period of scarcity of genuine imports that the earliest imitations of Cypriot ceramics are encountered, in one of the burned magazines of the abovementioned pre-Hyksos Palace in Area F/II (Fig. 9).⁸⁶ The presence of imitations in a palatial complex, where genuine imports would have been expected, suggests that their creation might have been stimulated by an impossibility to fulfil the demand for Cypriot ceramics.⁸⁷ However, from Phase E/1, the new capital city of Avaris experienced renewed connections, either direct or indirect, with the island of Cyprus.

One key to understanding trade patterns is the distribution of Tell el-Yahudiya juglets (Fig. 10), the typological development of which is well documented throughout the stratigraphy of Tell el-Dab'a. Tell el-Yahudiya juglets, classified into

the 'Levanto-Egyptian group,' are attested from Phases G/1–3 to E/2, their presence preceding Hyksos rule.⁸⁸ These types are encountered in the Northern Levant, especially in the region of Byblos and in the Beqa'a Valley.⁸⁹ Additional results from petrographic analyses show that over 20% of Levantine imports discovered at Tell el-Dab'a originate from the Byblos-Beirut area during the 13th Dynasty,⁹⁰ confirming strong connections between the two regions in the pre-Hyksos period.

Tell el-Yahudiya juglets belonging to the Late Egyptian category developed under Hyksos rule, from Phases E/2 to D/2.⁹¹ In the Northern Levant, they are only occasionally encountered in Ugarit

⁸⁵ MAGUIRE 2009, tables 2–3.

⁸⁶ VILAIN 2018.

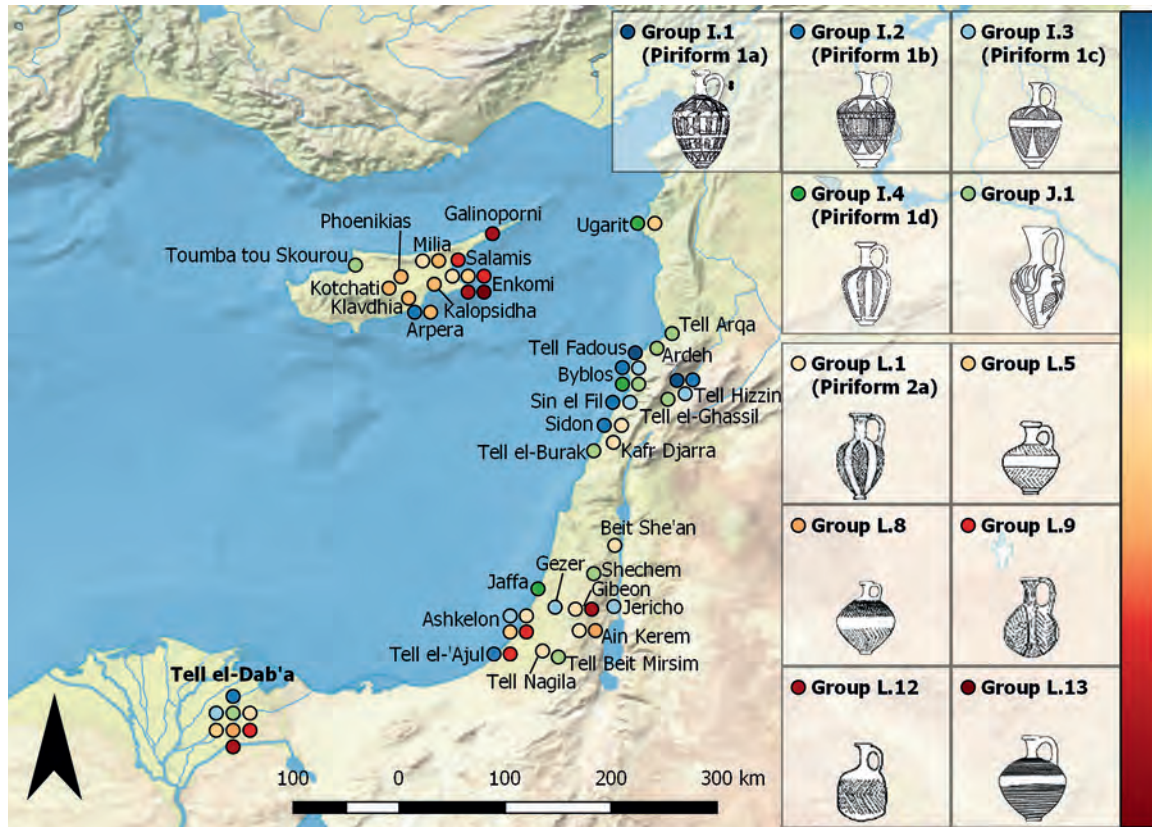
⁸⁷ VILAIN 2019a, 312.

⁸⁸ ASTON and BIETAK 2012, 142–200, fig. 253. The early Levantine Tell el-Yahudiya juglets and their Egyptian copies were very similar in their first stage of development, which led to their classification by Aston to a 'Levanto-Egyptian' category containing Branch I (types I.1 to I.4 corresponding Bietak's Piriform 1a–d within addition groups I.5 and I.6) and Branch J.

⁸⁹ GENZ and SADER 2010/2011, 136–137, fig. 7. Compare also the contributions by HEINZ and CATANZARITI as well as CHARAF in this volume.

⁹⁰ COHEN-WEINBERGER and GOREN 2004, fig. 3, Group D.

⁹¹ ASTON and BIETAK 2012, fig. 253.



Figs. 10 Typological distribution of Tell el-Yahudiya juglets of Levanto-Egyptian and Late Egyptian groups (Map: S. Vilain and P. Aparent)

and in the area of Sidon.⁹² Despite the limited distribution of these Tell el-Yahudiya types in this region, petrographic analyses on Canaanite Jars discovered at Tell el-Dab'a, Memphis and Kom el-Khilgan showed that imports from the Northern Levant reached the Delta in significant quantities until the end of the Second Intermediate Period.⁹³ It is important to note, however, that reliable Middle Bronze IIB data from the Northern Levant is lacking, which could, therefore, limit our understanding of Tell el-Yahudiya's distribution, especially in Syria.⁹⁴ It might also be considered that populations in the Northern Levant did not

need to import Late Egyptian Tell el-Yahudiya juglets, as they developed their own juglet production, the still poorly documented 'Late Syrian group'.⁹⁵ Moreover, they also had access to other kinds of small commodity containers, especially from Cyprus, the contents of which could have been close to those stored in Tell el-Yahudiya juglets.⁹⁶ By contrast, in the Southern Levant, Late Egyptian types are well attested, especially in the areas of Ashkelon and Tell el-Ajjul.⁹⁷ An increase in imported Canaanite Jars from this region discovered in the last phase of Tell el-Dab'a also points to escalating of exchanges with the Delta.⁹⁸

92 RABATE et al. 2011, 139–153; ASTON and BIETAK 2012, fig. 162.

93 OWNBY and BOURRIAU 2009; OWNBY 2012.

94 The Tell el-Yahudiya pottery discovered in Syria was recently reassessed as a part of the PhD. of S. Shammās (Ludwig-Maximilians-University Munich) defended in January 2020. Levanto-Egyptian juglets are only present at Ras-Shamra, where Late Egyptian juglets are also encountered. Apart from Ras Shamra, a Late Egyptian Tell el-Yahudiya juglet is found within Dar'a Museum collection, with no provenance. The rest of the Syrian material belongs mostly to the so-called 'Syrian Tell el-Yahudiya Ware' (S. SHAMMAS, personal communication).

95 ASTON and BIETAK 2012, 200.

96 At Tell Arqa, for example, the quantity of imported Tell el-Yahudiya is modest compared to the quantity of Cypriot imports (see CHARAF and OWNBY 2012, 591).

97 ASTON and BIETAK 2012. See in particular fig. 147 (Group L.1) and fig. 189 (Group L.9). A production of Levantine Tell el-Yahudiya Ware also occurred in the Southern Levant, at 'Afula (ZEVULUN 1990).

98 COHEN-WEINBERGER and GOREN 2004, fig. 2. The part of imports from coastal sites of the Southern Levant is higher in Phases E/2–D/3–2 than in Phases F–E/3.

In Cyprus, the earliest Tell el-Yahudiya types are encountered at two sites, *Toumba tou Skourou* and *Arpera Mosphilos*.⁹⁹ A concentration of Levanto-Egyptian type juglets is present in Eastern Cyprus, from where the White Painted Pendent Line Style and Cross Line Style, discovered at Tell el-Dab'a, mostly originated.¹⁰⁰ The category of Combed Ware juglets is chiefly encountered in Eastern Cyprus and in the Nile Delta.¹⁰¹ Another cluster of Late Egyptian Tell el-Yahudiya ware was identified in central Cyprus, at sites located close to the Troodos mining areas, and on the Southern coast of the island, at *Klavdhia Tremithos*. It has been argued newcomers from central Cyprus, familiar with copper mining, moved to the coast and founded *Klavdhia Tremithos* to benefit from the increasing demand for this metal in the Eastern Mediterranean.¹⁰²

While exchanges between the Eastern Nile Delta, the Levant and Cyprus are documented through the circulation of Tell el-Yahudiya juglets, Canaanite Jars and White Painted jugs, connections with Middle and Upper Egypt are more difficult to assess. In Egypt, outside the Nile Delta, Canaanite Jars are predominantly concentrated in the Memphite area. According to Bader, their presence drastically decreases after Phase VI, correlating with the start of Hyksos rule (Phases E/2–1 of Tell el-Dab'a).¹⁰³ At Tell el-Dab'a, Marl C vessels, which probably originated from the Memphis-Fayoum area, are scarce after Phase E/1, when they were presumably supplanted by Marl F ceramics, made in a local Marl clay.¹⁰⁴ The decrease of Canaanite Jars at Memphis, after Phase VII, and the concomitant decline of Marl C at Tell el-Dab'a, suggests limited contact occurred between the Delta and the Memphite area in the last part of Hyksos rule. This would explain why specific vessels, such as jars with a corrugated neck, are not attested at Tell el-Dab'a after Phase E/1, while they occur at Memphis until the end of the Second Intermediate Period.¹⁰⁵ The distribution of Cypriot imports, which are chiefly limited to Tell el-Dab'a and the Eastern Nile Delta, supports the hypothesis that the Delta became progressively isolated from other

parts of Egypt, which, in turn, only had limited access to Eastern Mediterranean imports.¹⁰⁶ This restricted access to certain categories of goods, either in the Delta or in the rest of Egypt, is one of the economic consequences of the political crisis afflicting Egypt at the end of the Second Intermediate Period.

Concluding Remarks

Archaeological excavations suggest Tell el-Dab'a was already facing a crisis before the takeover of the Hyksos Dynasty. The collapse of the central Egyptian administration, following the end of the Middle Kingdom, likely destabilised the general organisation of trade in Egypt. The increase of Eastern Mediterranean imports at Tell el-Dab'a, in Phase F, reflects the growing independence of the Delta. In contrast, from Phase E/3, Levantine ceramics dramatically decrease in a decline that lasts until the end of the Second Intermediate Period. Their large-scale importation might not have been necessary anymore, as they were not redistributed throughout Egypt. The concomitant scarcity of Cypriot imports in Phases E/3 and E/2 and the discovery of imitations of Cypriot jugs in the burned palatial magazine of Area F/II also questions the stability of the site's foreign connections at that time. The destruction of this complex by a substantial fire, likely intentional,¹⁰⁷ raises the possibility of conflict, either external or internal, which would have had a further impact on trade. The general climate of political instability and economic weakness might have facilitated the takeover of the 15th Dynasty at some point in Phase E/2.

During early Hyksos rule, in Phase E/1, the city of Avaris experienced new improvements favoured by its status as a capital city. The funerary material displays high rates of weapons and adornments, but low rates of Levantine imports among ceramics offerings. Locally produced wares progressively replaced Levantine tableware, as the funerary assemblages seem to favour the indigenous pottery tradition of the Delta.¹⁰⁸ Further developments are observed in the succeeding Phase D/3: living quarters expanded into the funerary area and the settlement is observably denser, especially in Area A/II. This was accompanied by a high rate of child mortality, suggesting poor living conditions. Despite the increase in population, noticed in Phases D/3 and D/2, Levantine ceramics, especially tableware, still decline in number. Levantine imports are almost exclusively limited to Canaanite Jars, still sought after for their content, which could not have been

⁹⁹ MERRILLEES 1974, fig. 31, Tomb 1A; KAPLAN 1980, 161; VERMEULE and WOLSKY 1990, 386–387; ASTON and BIETAK 2012, figs. 89, 99, 110, 135.

¹⁰⁰ The White Painted Pendent Line Style and Cross Line Style mostly originate from the area of Kalopsidha. See ÅSTRÖM 1966, 82–87. NAA results by ARTZY and ASARO 1979 showed the Egyptian origin of the Tell el-Yahudiya juglets discovered in Cyprus (ARTZY and ASARO 1979).

¹⁰¹ See ASTON and BIETAK 2012, fig. 206 for the distribution of Combed Ware. An additional Combed Ware juglet from Enkomi, kept at the British Museum, was published by KAPLAN 1980, 161, fig. 117e.

¹⁰² MALMGREN 2003, 113.

¹⁰³ BADER 2009, fig. 396.

¹⁰⁴ KOPETZKY 2010, fig. 44.

¹⁰⁵ BADER 2002, 41.

¹⁰⁶ For the distribution of Canaanite Jars and Cypriot imports in Egypt, see VILAIN 2019b, figs. 1, 4, 5.

¹⁰⁷ BIETAK et al. 2012/2013, 35, fig. 16B.

¹⁰⁸ ASTON 2004, 185. This specific production develops on its own under Hyksos rule and borrows from both Egyptian and Levantine features.

locally produced. However, the number of Cypriot ceramics, imported as luxury items, increases even if they still constitute a very minor part of the overall ceramic assemblage.¹⁰⁹

Further cultural developments occur at the end of the Second Intermediate Period. The symbolic value attributed to axes and daggers decline in the Levant, a phenomenon also noticeable at Tell el-Dab'a, regarding the limited range of 'weapon related items' in the last phases of the site. The presence of weapons and tools made of unalloyed copper and low arsenic copper alloys may be a symptom of broader political and economic issues.¹¹⁰ During the Middle Kingdom, the Eastern Desert was exploited for gold,¹¹¹ amethyst,¹¹² turquoise mining and probably tin.¹¹³ After its fall, the limited available resources may not have allowed the organisation of large scale mining expeditions anymore.¹¹⁴ The Eastern Desert might have been a part of the territory controlled by the 17th Dynasty, making its resources not readily accessible to the Hyksos.¹¹⁵ Therefore, the hypothesis of an isolationist policy led by the Theban Kingdom against the 15th Dynasty is coherent, as seen through

the scarcity of Levantine and Cypriot imports outside the Delta and the decrease of Marl C pottery after Phase E/1 at Tell el-Dab'a. Political circumstances, more than consumption choices, may have limited their circulation outside the Delta.¹¹⁶ For the Eastern Delta, which had access to a large range of trading routes, the easiest solution would have been to acquire raw materials from the Eastern Mediterranean. The need for copper, and maybe other raw materials such as tin, might have been a catalyst for the increase of connections with Cyprus, a shift that could be perceived as a manifestation of a political crisis.¹¹⁷ Thus, the end of Hyksos rule tackled a combination of internal and external triggers of crisis: 1) social stresses induced by the increase in population as suggested by settlement density, 2) social changes expressed through the decline of the so-called warrior burials, 3) external threats requiring the construction of fortifications,¹¹⁸ and 4) a depletion of resources due to the progressive isolation of the Delta from the rest of Egypt. In all likelihood, this combination of social, political and economic crises provoked the weakening of Hyksos power and ultimately contributed to its fall.



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¹⁰⁹ VILAIN 2019b, 392–393, fig. 2. The corpus of Cypriot vessels discovered at Tell el-Dab'a is mainly composed of jugs or juglets valued for their contents. Open shapes are uncommon but, when attested, consist of painted vessels of high quality.

¹¹⁰ PHILIP 2006, table 18, no. 264.

¹¹¹ NICHOLSON and SHAW 2000, 161; KLEMM et al. 2001, fig. 9.

¹¹² NICHOLSON and SHAW 2000, 51.

¹¹³ Today, tin is commercially mined in the Eastern Desert (NICHOLSON and SHAW 2000, 171). See also HAMIMI et al. 2020, 550. However, we do not have evidence for tin exploitation in the Second Intermediate Period. This metal is not mentioned in the list of tribute imposed to Wawat nor to Kush (GARENNE-MAROT 1984, 107).

¹¹⁴ PHILIP 2006, 238. According to SHAW 1998, 247 a typical expedition might include an average of three hundred men and four hundred donkeys.

¹¹⁵ POLZ 2018, 222.

¹¹⁶ VILAIN 2019b, figs. 4–5.

¹¹⁷ All connections may not have been severed, or not during the whole Hyksos period: the occasional presence of Tell el-Yahudiya juglets of Late Egyptian style in Upper Egypt, and even in Nubia, suggests that sporadic contacts might have been possible, maybe through the Desert Oases. See VILAIN 2019b, 396–400, fig. 6.

¹¹⁸ Historical sources support the hypothesis that the end of Hyksos rule experienced several conflicts. REDFORD 1997; RYHOLT 1997, 306–309.

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