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# Opuscula

Annual of the Swedish Institutes at Athens and Rome

15  
2022

STOCKHOLM

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Published with the aid of a grant from The Swedish Research Council (2020-01217)  
The English text was revised by Rebecca Montague, Hindon, Salisbury, UK

*Opuscula* is a peer reviewed journal. Contributions to *Opuscula* should be sent to the Secretary of the Editorial Committee before 1 November every year. Contributors are requested to include an abstract summarizing the main points and principal conclusions of their article. For style of references to be adopted, see <http://ecsi.se>. Books for review should be sent to the Secretary of the Editorial Committee.

ISSN 2000-0898

ISBN 978-91-977799-4-4

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Printed by PrintBest (Viljandi, Estonia) via Italgraf Media AB (Stockholm, Sweden) 2022

Cover illustrations from Peter M. Fischer & Teresa Bürge in this volume, p. 48

# The New Swedish Cyprus Expedition (The Söderberg Expedition): Excavations at Hala Sultan Tekke 2020 and 2021

## Preliminary results

### Abstract

In 2020 and 2021, the eleventh and twelfth seasons of excavations at the Late Bronze Age city of Hala Sultan Tekke were carried out in the cemetery of Area A. Based on indications provided by a large-scale magnetometer survey, two tombs exposed by intensive farming were located, Tombs RR and SS. The excavation of Tomb RR, which had started in 2018, was concluded. The total minimum number (MNI) of skeletons in this tomb, of which most were incomplete and disarticulated, is estimated at 137. In addition to clay figurines, seals and scarabs, objects of ivory, as well as jewellery of gold, silver, bronze, faience and carnelian, the inhumations are associated with more than 100 intact or complete ceramic vessels, many of them imported from the Mycenaean, Minoan, Hittite and Levantine spheres of culture. The pottery indicates a LC II(A/B)–C1 date of the inhumations, i.e., covering the 14th and the beginning of the 13th centuries BC. The excavations of the adjacent Tomb SS began in 2020 and has been concluded in May 2022. It contained a minimum of eleven inhumations, most of them (almost) complete and articulated, and large deposits of Cypriot and imported pottery, in total over 300 vessels mainly from the LC (I–)IIB, i.e., from the 16th/15th to mainly the 14th centuries BC. These contexts not only offer an insight into the complex Late Cypriot mortuary practices and funerary rituals but also reflect the urban élites with far-reaching inter-cultural connections.\*

*Keywords:* Late Bronze Age, Cyprus, Hala Sultan Tekke, funerary archaeology, mortuary practices

<https://doi.org/10.30549/opathrom-15-02>

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\* *Acknowledgements:* The expedition would like to express thanks for the support given by the Department of Antiquities of Cyprus (DAC), headed by its director Dr Marina Solomidou-Ieronymidou, and its personnel including Dr Despina Pilides, curator of antiquities, archaeological officer Dr Anna Satraki, and the staff of the Larnaca Archaeological Museum. H.E. Anders Hagelberg, ambassador at the Swedish Embassy in Nicosia, showed great interest in the expedition and supported it in many ways for which we are very grateful. Anja Buhlke (Dipl. Eng.) acted most proficiently as the expedition's surveyor, and Mr Petros Georgiou, a former em-

### Introduction

The Late Bronze Age city of Hala Sultan Tekke is situated on the south-eastern coast of Cyprus west–south-west of the Larnaca Salt Lake (*Fig. 1*) near the international airport of Larnaca.<sup>1</sup> The city was founded in the mid-17th century BC and abandoned after being destroyed in the mid-12th century BC.<sup>2</sup> The site is named after the nearby famous mosque which has its roots in the 7th century AD when it was built in the area where, according to a local tradition, Umm Haram, a relative or nurse of the prophet Mohammed, died. Today the Salt Lake is isolated from the open sea but in the Late Bronze Age it was a protected bay of the Mediterranean which provided convenient anchorage—a precondition for long-distance interregional trade during the second half of the city's existence.

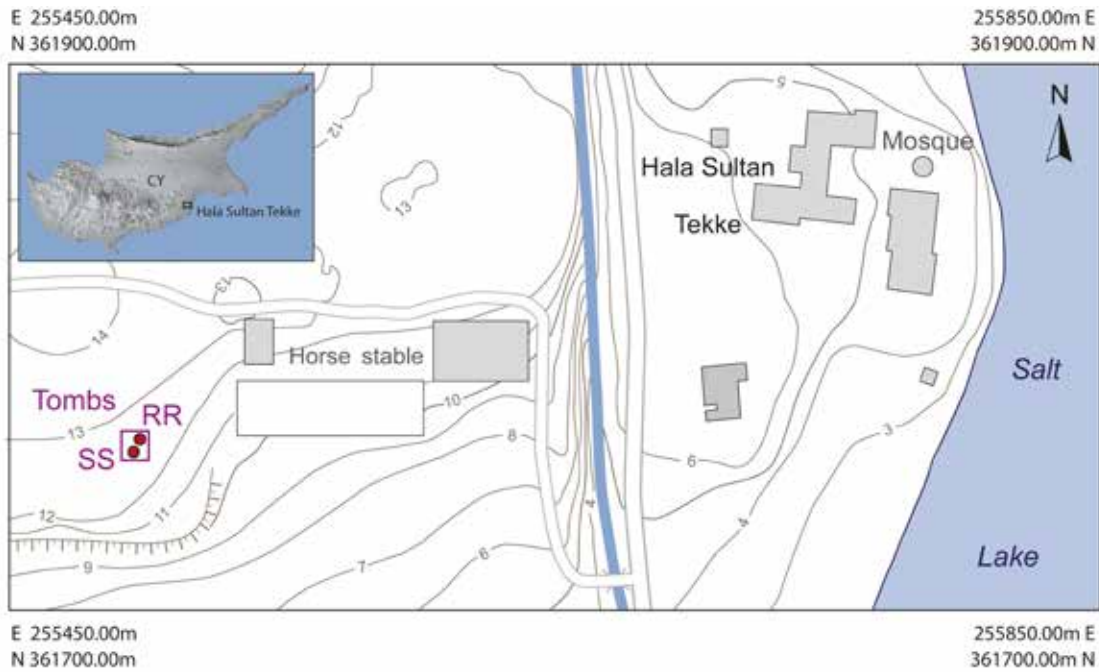
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ployee of the DAC, and Mrs Dina Georgiou admirably provided the necessary logistical support. Professors Kirsi O. Lorentz and Sorin Hermon and their teams from the Cyprus Institute in Nicosia contributed efficiently to the successful work in the field and laboratories. pXRF analyses were carried out by Professor Vasiliki Kassianidou and Dr Andreas Charalambous from the University of Cyprus, for which work we are grateful. Indispensable funding was once again gratefully received from the Torsten Söderberg Foundation. We are also much obliged to the Enbom's Foundation at the Royal Swedish Academy of Letters, History and Antiquities, and to The Royal Society of Arts and Sciences in Gothenburg for their generous sponsorships. The board of the association of the Friends of the Swedish Cyprus Expedition lent their kind support. Under the supervision of the directors of the excavations Professor Peter M. Fischer and Dr Teresa Bürge, with the additional supervision of professors Kirsi O. Lorentz and Sorin Hermon, the fieldwork and material studies were carried out by Natalie M. Branca, Bianca Casa, Lucía Avial Chicharro, Brigid Clark, Cecilia Eriksson, Marina Faka, Silvia Florindi, Dr Svetlana Gasanova, Chris Karpis, Sila Kayalp, Dr Simone A.M. Lemmers, Yuko Miyauchi, Elena Peri, Professor Laerke Recht, Bebelyn Placiente Robedizo, Marta Sale and Valentina Vassallo. The animal bones and molluscs were kindly studied by Dr David Reese, and the fish bones by Dr Omri Lernau. The restoration of ceramic vessels was professionally carried out by Constantina Hadjivasili.

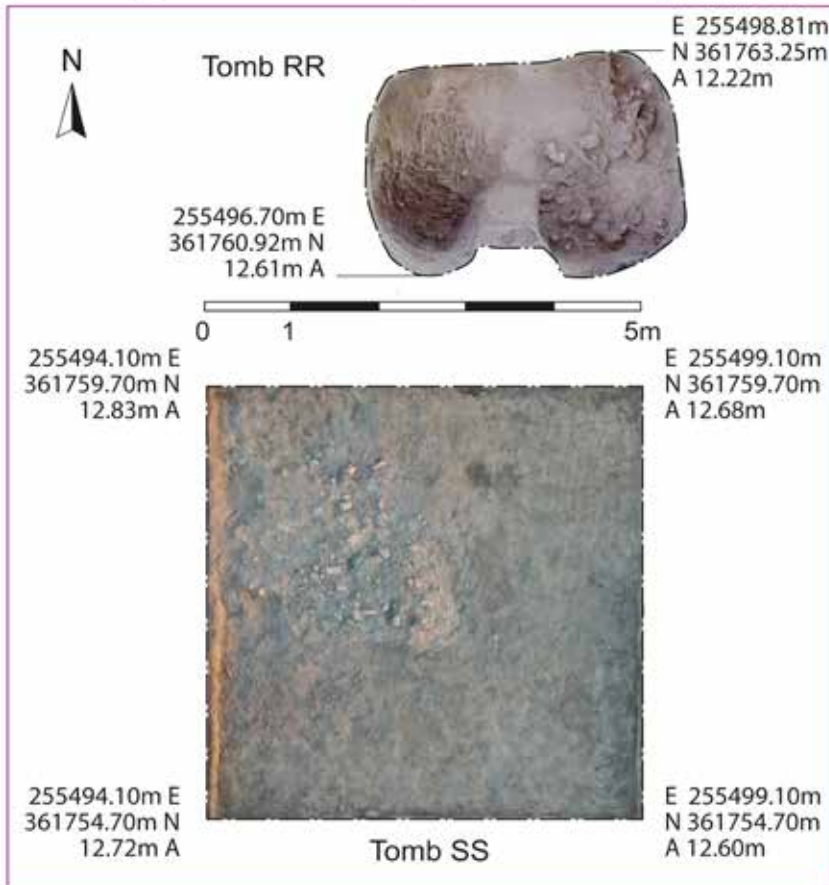
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<sup>1</sup> See overview in Fischer 2019a.

<sup>2</sup> See, e.g., Fischer & Bürge 2018a.



Hala Sultan Tekke, district: Larnaca, Cyprus  
geodetic system: EPSG 6312 (CGRS93, WGS 84)



*Fig. 1. Overview of Hala Sultan Tekke, Area A, with drone orthophotographs of Tomb RR (during excavations) and Tomb SS (at the beginning of the excavations) (by P.M. Fischer and A. Bublke).*

The current project began in 2010.<sup>3</sup> To date, thirteen seasons of excavations have been carried out. The primary project aims were the establishment of the total extent of the city and the interpretation of its layout. Geophysical surveys by magnetometers and georadar, and earlier excavations, demonstrated a minimum size of 25 hectares. According to surface surveys, the city seems to have been even larger. Four city quarters, CQ1–4, were partly exposed from 2010 to 2019.<sup>4</sup> The magnetometer surveys also indicated a probable city wall surrounding approximately 15 hectares corresponding to the centre of the city.<sup>5</sup>

Another aim was to determine the entire occupational history of Hala Sultan Tekke. In CQ1, where in 2019 the excavations reached the deepest levels, the oldest stratified material dates to Late Cypriot IB–IIA/B, i.e., 15th–14th centuries BC (for the periodization of the Cypriot, Late Helladic and Minoan cultures, and proposed absolute dates used in this report, see *Table 1*). However, there are even older architectural remains appearing below these exposed floor levels, as well as unstratified pottery of pre-15–14th centuries BC at other locations.<sup>6</sup> The pottery points to a date in the 17th century BC for the foundation of the city. The most recent material dates to approximately the mid-12th century BC when the city was destroyed and abandoned. This suggests a life span for the city of roughly 500 years, which covers almost the entire Late Cypriot period.

During the past years and in parallel with excavations in the settlement, Area A (to the east of the city and just to the west of the mosque) was surveyed with magnetometers and georadar. Hundreds of “pits” were indicated as geophysical anomalies, i.e., they differ from undisturbed natural soil.<sup>7</sup> Subsequent excavations of some of these pits revealed several tombs, ritual pits and re-used wells, which suggest an extramural cemetery.<sup>8</sup> The material remains from the tombs and the pits which contained numerous imports demonstrate the city’s extensive interregional contacts and vast trade networks<sup>9</sup> and support the chronological evidence from CQ1 based on pottery, *viz.* the foundation of the city in the 17th century BC. The study of the geographical extent of these contacts became an additional aim of the project. Another objective became a systematic investigation of mortuary practices based on the

*Table 1. Comparative chronology of the Cypriot, Late Helladic and Minoan cultures. The synchronization of the Late Helladic and Late Minoan periods is according to Malcolm H. Wiener (pers. comm. September 2021).*

Late Cypriot (LC)	Late Helladic (LH)	Late Minoan (LM)	Approximate dates BC
IA1–2	I	IA	1630–1560
IB	IIA	IB	1560–1450
IIA(–B)	IIB	II	1450–1400
II(A–)B	IIIA1–2	IIIA1–2	1400–1300
IIC1–2	IIIB1–2	IIIB	1300–1200
IIIA1–2	IIIC	IIIC	1200–1100

evidence from tombs, ritual pits and abandoned wells which were re-used for entombments.

In 2020 and 2021, as a result of the COVID-19 pandemic, travel restrictions and the regulations by the Cypriot authorities allowing only small teams, the Swedish excavations could only be carried out on a smaller scale with a reduced team supported by Kirsī O. Lorentz, Sorin Hermon and their personnel from the Cyprus Institute in Nicosia. This situation did not allow continued excavation in the city for which a much larger team would have been a precondition. Therefore, the fieldwork concentrated on Area A and on the partly excavated Chamber Tomb RR with a complicated stratigraphy where excavation had been started in 2018. Another strong magnetic anomaly just a couple of metres south of this tomb turned out to represent another tomb, Chamber Tomb SS (see *Fig. 1*). This tomb was excavated 2020 and 2021, and later completely exposed during a few days in May 2022. Consequently, the current report concentrates on the material evidence from Tombs RR and SS.

## Chamber Tomb RR

### EXCAVATIONS IN 2018 AND 2019

The preliminary reports on the excavations in 2018 and 2019 are published elsewhere.<sup>10</sup> Therefore, only an overview is provided here in order to facilitate the interpretation of the finds and their contexts from the most recent excavations.

The double-chamber tomb, which on the magnetometer map is indicated as a geophysical anomaly, has a roughly figure-8 shape and extends approximately 3.5 m from west to east and 2.3 m from north to south (*Figs. 2–3*). The dimensions of the two chambers are roughly 1.5 × 2 m (western chamber, then corresponding to Loci L105 and L107—the prefix “L”

<sup>3</sup> Directed by P.M. Fischer from the University of Gothenburg, and since 2019 co-directed by T. Bürge from the same university and the Austrian Academy of Sciences.

<sup>4</sup> See the results of the excavations of CQ1 and 2 in Fischer & Bürge 2018a.

<sup>5</sup> Fischer 2019b, 192, fig. 2b.

<sup>6</sup> Fischer & Bürge 2020.

<sup>7</sup> The vertical gradient  $\Delta Z$  of the earth’s magnetic field for pits is close to -8 nT whereas that of the surrounding soil is up to +8 nT. Thus, pits are clearly indicated on the magnetometer map.

<sup>8</sup> Fischer & Bürge 2017.

<sup>9</sup> E.g., Bürge & Fischer 2019.

<sup>10</sup> Fischer & Bürge 2019; 2020.

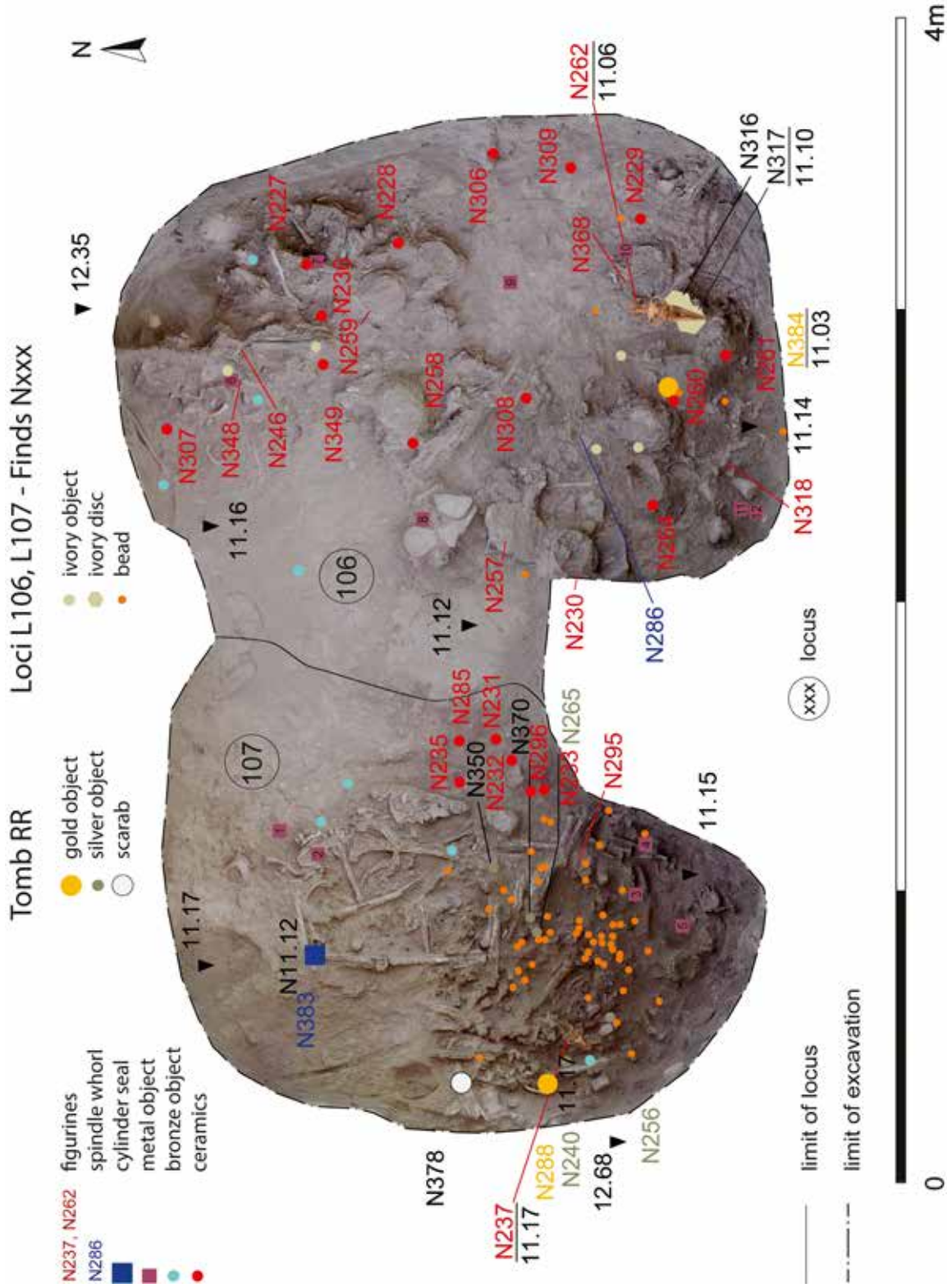


Fig. 2. Orthophotograph of Tomb RR during excavation in 2020 with finds indicated (by A. Buhke).

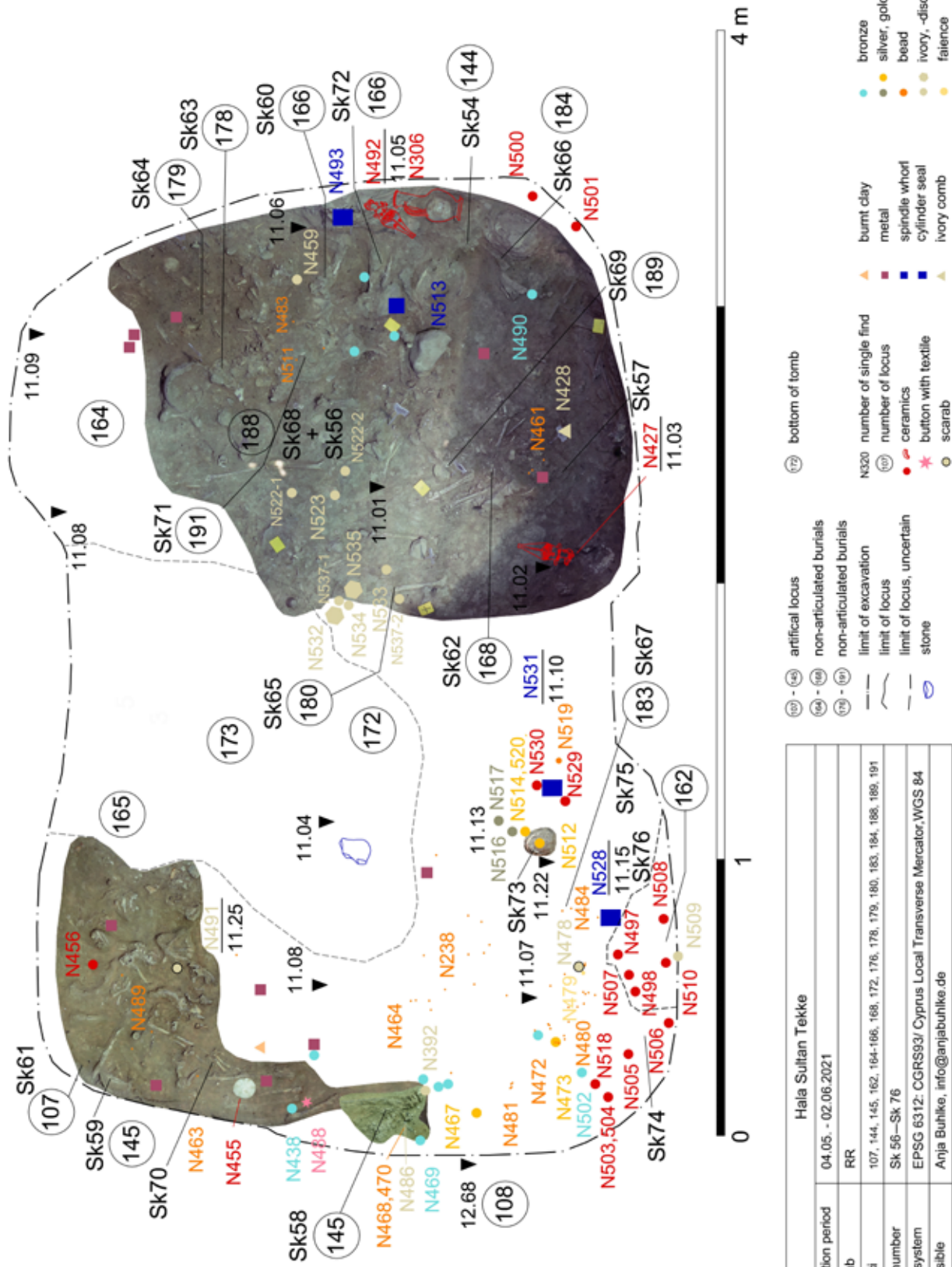


Fig. 3. Tomb RR, excavation 2021 (by A. Buhlke).

is used for Loci numbers)<sup>11</sup> and 2 × 2.3 m (eastern chamber, corresponding to L104 and L106).<sup>12</sup> The central part, i.e., the passage between the two chambers, is approximately 2 m wide (from north to south), with a partly natural and partly man-made bulge protruding from the south. A large flat block of limestone to the north of the recess<sup>13</sup> may also have served to separate the chambers.

Above the centre of the anomaly, just below topsoil, a deposit of broken pottery, mostly fine tableware of Cypriot (e.g., White Slip II, Base-ring and White Shaved), Mycenaean and Minoan provenance was found. The uppermost human burials were located roughly 1 m below surface.

In the course of the first two seasons, remains of 37 individuals were exposed, of which only some were complete or almost complete (the skeletons are numbered Sk1–37, see discussion below). Preliminary age estimations, which could be carried out on 19 individuals mainly based on the analysis of the dental remains, point to two infants (birth–3 years), three children (3–12 years), two adolescents (12–20 years) and twelve adults (20–50 years).<sup>14</sup> The remaining individuals are 18 possible adults. Preliminary sex estimation was carried out on 14 adult individuals: three are females, four probable females, one male and six probable males.<sup>15</sup>

The tomb inventory excavated in 2018–2019 includes some 70 complete objects, most of which are ceramic vessels of local tablewares but also Mycenaean and Minoan imports.<sup>16</sup> Among the imports is a large complete Mycenaean chariot krater, the “Sword-bearer Krater”, from the southern part of the eastern chamber depicting one chariot drawn by a pair of horses on either side of the vessel and 13 human figures, some of whom bear swords (N157).<sup>17</sup> Other notable finds from the previous seasons include a large ceramic Minoan female figurine with painted decoration (N204) found in the eastern chamber not far from Sk32 and close to the “passage” between

the two chambers,<sup>18</sup> and a bronze knife with an ivory handle (N205) from close to the western limit of the western chamber. Personal belongings, which in most cases could clearly be assigned to specific individuals, include finger rings of bronze and silver, a bronze bracelet and ivory discs (the latter, N176 and N178, found on the chest and hip of Sk5).<sup>19</sup> In addition, there are numerous animal bones including a complete fish skeleton with the scales still visible, and botanical remains. Animal bones, especially of fish, were found inside ceramic containers.

## EXCAVATIONS IN 2020 AND 2021 (FIGS. 2–10)

These two seasons exposed an estimated minimum of another 100 individuals in the two chambers, thus resulting in an estimated minimum total of 137 (MNI; see the report on the human remains in *Appendices 1a* and *1b*).<sup>20</sup> The human remains became more and more incomplete in the deeper levels of the tomb: in fact, they were spread all over the tomb creating a “carpet” of bones. Although many of the associated objects were found complete or even intact, the association of artefacts to specific individuals is only possible in some cases, since older human remains were moved or possibly even partly removed when new inhumations took place.

As in the previous seasons, different loci were assigned to the western (L107 for the intermediate and L145 for the bottom layer) and the eastern chambers (L106 for the intermediate and L144 for the bottom layer). However, the subdivision is artificial and it is often difficult to assign artefacts, human or other remains found in the area between the chambers to any specific locus. This subdivision should therefore be regarded as preliminary, while more detailed studies of the stratigraphy and the contexts are in progress. In addition, separate loci were assigned to various displaced burials or burial areas, mainly at the bottom level of the tomb (see plans in *Figs. 2–3*).<sup>21</sup> A discussion of all loci goes beyond the scope of the present report. Hence, only the most significant contexts will be addressed.

<sup>11</sup> Observe that different loci were assigned to the chambers only for practical reasons, as there is no chronological difference between the two chambers.

<sup>12</sup> The dimensions are slightly larger than those given in the report of the 2018 season, as the exact limits had not yet been exposed during the previous seasons; see Fischer & Bürge 2019, 308, fig. 23.

<sup>13</sup> See plan in Fischer & Bürge 2020, 92, fig. 22.

<sup>14</sup> E.g., White & Folkens 2005, 363–369; Schaefer *et al.* 2009, 94–95; White *et al.* 2012, 385–389.

<sup>15</sup> Fischer & Bürge 2020. Twenty-three individuals remained indeterminate. In most cases, the estimation was based on secondary sex characteristics as defined in White *et al.* 2012, 408–415, since the remains of many individuals mainly consist of cranial bones. Sex estimation of subadults was not conducted since these individuals lack sufficient sex characteristics; see e.g., White & Folkens 2005, 385–387; White *et al.* 2012, 380; Steckel *et al.* 2019, 400.

<sup>16</sup> Fischer & Bürge 2019.

<sup>17</sup> Fischer & Bürge 2019, 312, fig. 27.

<sup>18</sup> Fischer & Bürge 2020, 93, fig. 23.

<sup>19</sup> Fischer & Bürge 2020, 92, fig. 22.

<sup>20</sup> Groups of skeletons are labelled from 1–76 and marked with the prefix Sk in the text. However, some groups consisted of remains of more than one individual, which resulted in the preliminary minimum number of 137 (see also *Appendix 1a*). Additional studies on the human remains are ongoing.

<sup>21</sup> During the two seasons of excavations, separate plans of the tombs were created due to practical reasons. These preliminary plans in the current report will be reconciled into new, updated plans when the report is revised.

### Western chamber, southern border

The southern border of the tomb revealed additional human remains and associated objects. Among these is a 4–5-year-old child, Sk73 (see *Appendix 1b*), who had a gold diadem (N512; see all gold finds in *Fig. 10* and below) still on its head. The child had a necklace of 68 gold beads (N514) around the neck and four gold earrings (N520A–D) close to it. A silver figurine, depicting a Hittite god (N516; see below) and a silver ring (N517) were found close by. From the southernmost part, in the area between Sk74 and Sk76, come a White Slip II bowl (N506), a Base-ring II jug (N508), a jug of Grey ware (N510) and a small lid (?) of ivory (N509; *Fig. 8*). A White Slip II mature bowl (N231; *Fig. 5*), a Bucchero juglet (N232; *Fig. 5*), a Plain jug (N233), a White Shaved juglet (N235; *Fig. 5*) and a large bead of carnelian (N519; *Fig. 10* and *Appendix 3c*), which could not be clearly associated with any burial, were found in the south-eastern part of the chamber.

### Western chamber, intermediate layer (L107)

Significant intact, complete, or almost complete finds and human remains<sup>22</sup> include a bronze ring (N255) from the northern part and an Old Babylonian cylinder seal (N383; *Fig. 9*; see below) from the north-west; a scarab of blueish-white paste (N378; *Fig. 9*; see below) and a copper rivet (N438) found in the western part close to the remains of Sk44 and Sk53; an intact anthropomorphic figurine of Base-ring (N237; *Fig. 7*; see below), two silver rings (N240, N256), a gold ring (N288) and a gold bead (N467; see below) from the south-western part close to Sk42; and a small three-handled jar of Mycenaean type, most likely of Cypriot manufacture (N295; *Fig. 6*; see discussion below), and a silver ring (N350) from the south-eastern part, possibly associated with Sk41. In the southernmost part of the chamber, under the cranium of Sk34 (not on plan),<sup>23</sup> a large faience bead (N479) and a scarab of white composition (N478; *Fig. 9*) were found. Close to it, still in the area of the same skeleton, was a small gold ring (N473; *Fig. 10*), possibly used to fasten the strings at the end of a necklace. Two additional beads, one lentoid fluted of faience, the other spherical of carnelian (both N484) come from the same area, possibly associated with Sk67. The area between Sk74 and Sk76 in the southernmost part of the chamber yielded two White Slip II bowls (N498, N503; *Fig. 5*), a Base-ring jug (N507), two Mycenaean piriform jars (N505, N518), a Mycenaean shallow bowl (N504), a bronze bracelet (N502) and a cylinder seal (N531; *Fig. 9*; see below), most likely of chlorite, which was found together with 29 beads of carnelian and 17

of faience (all N538; see *Appendix 3c*). A Base-ring I lentoid juglet (N529) and a White Shaved juglet (N530) were found in the south-eastern part of the chamber.

In total 36 beads of carnelian and 52 complete and numerous additional incomplete beads of faience (subsumed as N238, N244, N282, N472, N480, N481; see N238 in *Fig. 10*) were spread over the southern part (see also *Appendix 3c*). Other finds from this part of the chamber include a ring (N265) and a button of silver (N370).

### Between the chambers, intermediate layer (L106–107)

This area is just north of the small recess separating the two chambers and produced a Mycenaean miniature stirrup jug (N296; *Fig. 6*) and parts of a spindle bottle of Red Lustrous Wheel-made ware (N285).

### Eastern chamber, intermediate layer (L106)

The eastern chamber (L106) produced three White Slip II bowls (N246, N348, N349), a Base-ring I juglet (N258; *Fig. 5*), a Base-ring I bowl (N259), a Base-ring II miniature juglet with white paint (N307; *Fig. 5*), two Mycenaean piriform jars (N227, N236; both in *Fig. 6*), a flask of Red Lustrous Wheel-made ware (N228; *Fig. 6*) and a pendant of ivory (N245), all from the northern and north-eastern part in the area close to skeletons Sk35, Sk38, Sk43 and Sk51. In addition, a miniature juglet of Base-ring ware (N308; *Fig. 5*) was found in the centre of the eastern chamber, and a White Shaved juglet (N306) at the eastern border of the tomb, close to the remains of Sk18 excavated in 2019. Not far away from it, still in the eastern part, an ivory object with a copper and gold rivet belonging to an earring (N459; see reconstruction in *Fig. 10*) and fragments of another, undefined, ivory object (N483) were discovered. From the area just south-east of the recess come two White Slip II bowls (N230, N257). In the southern part of the chamber, two White Slip II bowls (N229, N501), a shallow bowl of Plain ware (N260; *Fig. 5*), two miniature vessels of Base-ring—a jar (N264) and a spindle bottle (N318; *Fig. 5*)—, a Base-ring II juglet (N309) and a jug of the same ware (N500), as well as a Mycenaean alabastron (N261; *Fig. 6*) were found. Other finds from this area include an intact anthropomorphic figurine of Base-ring ware (N262; *Fig. 7*; see below), a lotus flower-shaped pendant of gold with cloisonné of faience and carnelian (N384; *Fig. 10*; see below), two faience beads (N263, N368), a stone biconical spindle whorl (N286, weight 11 g), four fragmented objects of ivory (N365, N366, N367, N369) and two ivory discs (N316, N317; both in *Fig. 8*), the latter of which is incised with a flower with twelve petals (see below).

<sup>22</sup> As noted above, the human remains are discussed in *Appendix 1*.

<sup>23</sup> Not all skeletons are indicated on the plan. However, these will be added in the course of the revision of the present report.



*Fig. 4. Tomb RR, necklace with faience beads (N468), stamp seal (N470) and scarab (N486) and bronze ring (N469) in situ with remains of Sk58 (photograph by A. Bublke).*

#### Western chamber, bottom layer (LI45)

In the north-western area a small White Slip II bowl with lug handle (N455; *Fig. 5*), a corroded button (?) of undefined material to which possible textile remains were still attached (N488),<sup>24</sup> a scarab of white enstatite (N491; *Fig. 9*; see below) and four faience beads (N463, N489) could be associated with Sk70. In the westernmost area, associated with Sk58, 16 faience beads (N468; see some in *Figs. 4, 10*) were found as part of a necklace (*Fig. 4*), along with a stamp seal of steatite or serpentine (N470; *Fig. 10*; see below) and a scarab of white composition with a blackened surface (N486; *Fig. 10*; see below). An additional find from this area includes a bronze ring (N469), an ivory bead (N392) and, further to the east, a lentoid fluted bead of faience (N464).

#### Eastern chamber, bottom layer (LI44)

In the bottom layer of the eastern chamber an intact Base-ring figurine of a female with a child (N492 *Fig. 7*; see below) was

found in the easternmost part, close to Sk54 and Sk73. In proximity to it, most likely to be associated with Sk72, was a cylinder seal, possibly of chlorite (N493; *Fig. 9*; see below). Two faience beads (N511) may perhaps also be associated with Sk54.

#### Specific burial layers (LI64, LI65, LI68, LI80, LI84, LI88, LI91)

In the northernmost part of the western chamber, associated with Sk47 (not on plan; LI65) was a small White Slip II bowl with lug handle (N456; *Fig. 5*), which contained a large, dark brown stain, possibly the residue of some substance consumed or deposited in the vessel.

Other human remains with notable contexts or objects are mainly located in the eastern chamber: a set of ivory objects, consisting of a long shaft (N537), a spindle whorl (N533), and three flat discs (N532, N534, N535; see *Fig. 8* and *Appendix 3b*) can most likely be associated with Sk65 (LI80), the remains of which were placed in the western/central part of that chamber. Another ivory shaft (N522) was found along with a likely spindle whorl (N523) in LI88, very close to the other set and in proximity of Sk56 and Sk68.

Associated with Sk57 (LI64) in the south-western part were an intact Base-ring figurine of a female (N427; *Fig. 7*; see

<sup>24</sup> The object was immediately sent to the conservator of the Department of Antiquities and is still under conservation. Therefore, the object is not discussed in the present report.

below) and an ivory comb (N428; *Fig. 8*; see below). In the area between the ivory and the female figurine, a stone biconical spindle whorl (N513) in L191 is associated with Sk71. Finally, in the southern part, associated with Sk62 (L168), were two faience beads (N461) and in the south-eastern part, associated with Sk66 (L184), a bronze bracelet (N490).

## THE POTTERY

By T. Bürge

Considering the few months between the end of the two seasons of excavations and the submission of the present report in November 2021, in-depth studies of the material cannot be presented here and comprehensive discussions on the function, use and meaning of these assemblages in their Late Cypriot mortuary context are forthcoming. Hence, this section concentrates on selected, chronologically indicative vessels to establish the life span of the tomb. However, a preliminary overview of the material may provide an impression on its quantity, quality and provenance. The pottery will be presented according to three general stratigraphic layers,<sup>25</sup> of which the uppermost will be discussed cursorily, since its material has been published in previous reports.<sup>26</sup>

The total number of vessels in Tomb RR is 102, of which almost all are intact or complete. In general, the most common Late Cypriot wares are represented, as well as imports from Mycenae, a Grey ware vessel possibly imported from Crete or another region in the Aegean, and Red Lustrous Wheel-made ware from Anatolia (*Table 2*).<sup>27</sup> The most frequent vessel type are bowls, followed by various closed shapes, such as jugs, juglets and piriform jars (*Table 3*). Small closed shapes include six miniature vessels, three alabastra and two flasks. The tomb contained only one krater, the so-called “Sword-bearer Krater”,<sup>28</sup> in addition to a “feeding bottle”,<sup>29</sup> a spindle bottle, a stirrup jar and a cup.

### Bottom layer (mainly L144, L145, L164, L165)

Starting from the lowest layer of the tomb, only four ceramic finds were recorded. These include two Base-ring figurines of females which will be discussed below, and two small shallow

<sup>25</sup> A refined stratigraphy, which will include all identifiable burials, is in progress.

<sup>26</sup> Fischer & Bürge 2019; 2020.

<sup>27</sup> Our petrographic analyses confirm the Anatolian provenance of this ware; see also Kibaroglu *et al.* 2019; *contra* Eriksson 1991.

<sup>28</sup> Fischer & Bürge 2019, 312, *fig. 27*.

<sup>29</sup> The term “feeding bottle” is commonly used for this type of juglet with a long narrow spout in Mycenaean and Cypriot pottery, see e.g., Mountjoy 1986. However, its function(s) and use(s) are not entirely clear, and it may well have served for other purposes than feeding. The term is therefore used with quotation marks in the present paper.

*Table 2. Distribution of Cypriot and imported pottery wares in Tomb RR, 2018–2021.*

Cypriot		Imported	
Base-ring	33	Mycenaean	21
White Slip II	28	Red Lustrous Wheel-made (Anatolian)	2
Plain	9	Grey ware (Aegean?)	1
White Shaved	6		
Bucchero	2		
<b>Total</b>	<b>78</b>	<b>Total</b>	<b>24</b>

*Table 3. Distribution of vessel types in Tomb RR, 2018–2021.*

Vessel type	Count
bowl	36
jug	30
juglet	13
piriform jar	7
miniature vessel	6
alabastron	3
flask	2
krater	1
“feeding bottle”	1
spindle bottle	1
stirrup jar	1
cup	1
<b>Total</b>	<b>102</b>

White Slip II bowls with flat base and vertical pierced lug handle attached at the rim (N455, N456; *Fig. 5*). This type is rare, and the vessel shape is found in transitional White Slip I–II<sup>30</sup> but more frequent in White Slip II.<sup>31</sup> Although a precise dating is not possible at present, it seems justified to assume that our bowls, which in terms of shape have exact counterparts in White Slip I style, may be placed rather at the beginning of the life span of White Slip II, i.e., in LC IIA.<sup>32</sup>

### Intermediate layer (L106, L107)

The next layer contained 30 vessels. Base-ring I, which usually is characterized by its fine levigated clay, hard to very hard firing, a burnished lustrous surface and the presence of plastic decoration,<sup>33</sup> is *inter alia* represented by a bowl (N259), a juglet (N258; *Fig. 5*), a lentoid juglet (N529), a miniature juglet (N308; *Fig. 5*) and a miniature spindle bottle (N318; *Fig. 5*).

<sup>30</sup> Popham 1972, 444, 462 (type 5), *fig. 50:8*.

<sup>31</sup> See references in Popham 1972, 467 (type 5).

<sup>32</sup> See schemes in Åström 1972a, 700–701; Eriksson 2007, 13, *table 1B*.

<sup>33</sup> Åström 1972b, 137. An alternative subdivision scheme of the Base-ring, which is based on fabrics, has been suggested by Vaughan 1991; 2001 but this classification has never been followed up.



Fig. 5. Tomb RR, selected Cypriot pottery; scale 1:3 (photographs by T. Bürge and P.M. Fischer; drawings and digitalization by E. Peri).



Fig. 6. Tomb RR, selected imported pottery: Anatolian Red Lustrous Wheel-made flask (N228), Mycenaean imports (N227, N236, N296, N261) and Mycenaean-type three-handled jar (N295); scale 1:3 (photographs by P.M. Fischer and T. Bürge; drawings and digitalization by E. Peri).

Base-ring II has a slightly coarser fabric, a matt surface and often white painted decoration,<sup>34</sup> and comprises a jug (N500), a juglet (N39) and a miniature juglet (N307; *Fig. 5*). The remaining Base-ring vessels do not convincingly fit in either subgroup. According to Paul Åström's scheme, Base-ring I is mainly attested from LC IA2 to LC IIA2, and Base-ring II from LC IIA1 to LC IIC2.<sup>35</sup>

The eight White Slip II bowls are all except for one (N503) of the normal/mature style, defined by painted ladder, lattices, dotted lines and hooked chains. This ware, too, cannot be dated precisely, since the normal/mature style has a life span of at least 150 years from LC IIA to the beginning of LC IIC.<sup>36</sup> The bowl N503 is of transitional White Slip II mature to late style, indicated by sloppily executed ladders, lattice patterns and dotted lines (*Fig. 5*), which may tentatively be placed in the earlier part of LC IIC.

Other wares include a shallow bowl of Plain ware (N260; *Fig. 5*) and a White Shaved juglet (N530). Both are difficult to date due to the long duration of these shapes and wares. This applies also to Anatolian-imported Red Lustrous Wheel-made ware, of which a flask (N228; *Fig. 6*) and a spindle bottle (N285) were found in this layer. Mycenaean imports consist of four piriform jars (N227, N236, N505, N518), a shallow bowl (N504), an alabastron (N261) and a miniature stirrup jug (N296).

Three of the four piriform jars<sup>37</sup> (see two of them, N227 and N236, in *Fig. 6*) are of the small type (FS 44/45)<sup>38</sup> with a short wide neck and conical piriform shape. Patterns include net (FM 57; N227), concentric arcs (FM 44; N236) and scale (FM 70; N505). While their overall shape indicates a LH IIIA2 date,<sup>39</sup> the relatively conical piriform body of N236 may point to the earlier part of the period.<sup>40</sup> In addition, all three vessels have LH IIIA1 traits, such as the horizontal lip on N227 and perhaps also the net and scale patterns, which are more frequent in LH IIIA1 (but still occur in LH IIIA2), and the broad band flanked by narrow ones on N236.<sup>41</sup>

The straight-sided alabastron N261 (FS 94; *Fig. 6*) with foliate band (FM 64) is best placed in LH IIIA2. It has a relatively broad decorative zone reaching below the handle, which may again indicate a date rather early within that period.<sup>42</sup> The miniature stirrup jug N296 (FS 150/151; *Fig. 6*) has a piriform body and two opposed handles from rim to shoulder. The spout is only partly preserved. On this vessel, too, the decorative zone with foliate band (FM 64) covers the entire shoulder. A third handle is common on stirrup jugs of LH IIIA2,<sup>43</sup> and its absence here may indicate a LH IIIA1 date for our vessel. In general, these vessels are rare, especially from well-stratified contexts. The shallow bowl N504 (FS 295) with monochrome interior is a relatively rare type.<sup>44</sup> Its sunken and reserved interior base is a good indicator for a LH IIIA2 date.<sup>45</sup>

The small three-handled jar N295 (FS 47; *Fig. 6*) with scale pattern (FM 70) filled with dots was produced in Cyprus, judging by the fabric. These vessels belong to the earliest production of Aegean-type pottery on Cyprus and are assumed to have been produced mainly in LH IIIA2.<sup>46</sup> However, the scale pattern filled with dots may also be placed in LH IIIA1.<sup>47</sup> A very close parallel for our vessel comes from Enkomi, but from an uncertain context.<sup>48</sup>

#### Upper layer (L104, L105)

The upper layer contained in total 23 Base-ring vessels, of which four are bowls, three are jugs with trefoil mouth, two are large Base-ring I jugs with plastic decoration, and 14 are Base-ring II jugs with painted decoration.<sup>49</sup> In addition, there are two small Bucchero jugs—a ware that may be regarded as a sub-type of Base-ring.<sup>50</sup> Almost all the 18 White Slip II bowls are of mature/late style with carelessly painted ladders, lattices and dotted lines and light yellowish-brown surface; only four can be attributed to the mature/normal style and one (N192)<sup>51</sup> is a small bowl of late style decorated with lines. The latter is typical of the LC IIC period.<sup>52</sup> The Plain ware,

<sup>34</sup> Åström 1972b, 173–174.

<sup>35</sup> Åström 1972a, 700–701. The stratified material from LCIB–IIC settlement layers at Hala Sultan Tekke which is being processed suggests an overlap of these two sub-groups during a long period. Adjustments to the traditional dating schemes will become necessary in the course of our continued work at Hala Sultan Tekke. In addition, the present project aims at establishing a subdivision by fabric groups instead of the somewhat inadequate subdivision in I and II.

<sup>36</sup> Eriksson 2007, 13, table 1B.

<sup>37</sup> The fourth piriform jar N518 is not yet reassembled and will therefore not be discussed further.

<sup>38</sup> FS stands for the vessel type and FM for the motif according to Arne Furumark's typology; Furumark 1941.

<sup>39</sup> E.g., Mountjoy 1986, 67.

<sup>40</sup> Mountjoy 1999, 115.

<sup>41</sup> Mountjoy 1999, 115 with further examples.

<sup>42</sup> See also Mountjoy 1986, 67; 1999, 116.

<sup>43</sup> Mountjoy 1999, 122.

<sup>44</sup> Mountjoy 1996, 54, fig. 6: no. 46 from Asine, Tomb I:1; see also our L133-4 and L133-11 from Tomb SS below.

<sup>45</sup> More common in the case of shallow cups; see e.g., Mountjoy 1999, 125.

<sup>46</sup> Graziadio 2017, 167 with further references.

<sup>47</sup> Furumark 1941, 403, fig. 70. See also the LH IIB–IIIA1 piriform jar from the Athenian Agora in Immerwahr 1971, 206, no. XVI-3, pls. 47, 65.

<sup>48</sup> British excavation, Tomb 67; Cyprus Museum no. A 1684.

<sup>49</sup> The detailed description of these contexts can be found in Fischer & Bürge 2019, 307–314; 2020, 91–96.

<sup>50</sup> See also Åström 1972b, 425.

<sup>51</sup> Fischer & Bürge 2020, 95, fig. 24:6.

<sup>52</sup> See the scheme in Eriksson 2007, 13. White Slip II late is also well-represented in the LC IIC Stratum 3(A) of the settlement of Hala Sultan Tekke; see Fischer & Bürge 2019, 302, fig. 13:6; 2020, 78–84.

represented by a bowl, six jugs and a juglet, and the five White Shaved juglets are difficult to date due the long durations of these wares and vessel types.

Imports include a jug of Grey ware which may possibly be imported from Crete or another Aegean region (N510) and 13 Mycenaean-imported vessels, among them two alabastro, a chariot krater (N157),<sup>53</sup> a two-handled flask, two juglets, three piriform jars, a stirrup jar, a two-handled cup and a “feeding bottle”. Chronologically relevant and indicative of the most recent burials is, e.g., the piriform jar N175,<sup>54</sup> which has an extreme piriform shape with a narrower decorative zone (FM 23, whorl shell). The strap handles with reserved triangles also indicate a LH IIIB1 date.<sup>55</sup> The two-handled alabastron N172<sup>56</sup> is a shape that appears in LH IIIB1 late<sup>57</sup> and the rather biconical shape of the small “feeding bottle” N161<sup>58</sup> fits best in LH IIIB1.<sup>59</sup>

### Summary

The date of the oldest contexts found so far is the first part of the LC II(A–)B period, in accordance with the LH IIIA1 late to LH IIIA2 early imports. The miniature stirrup jug N296 and three-handled jar N295, both from the western chamber, may perhaps indicate the presence of earlier burials dating from LH IIIA1 (corresponding roughly to LC IIA1; see *Table 1*). However, they may also represent heirlooms finally deposited some decades after their production. On the basis of the White Slip II late bowl and the LH IIIB imports it is proposed that the most recent burials took place in LC IIC(1) (see *Table 1*).

### OTHER GROUPS OF FINDS

By T. Bürge and P.M. Fischer<sup>60</sup>

#### Four bird-faced figurines

##### N237 (L107)

The figurine N237 (*Fig. 7*) comes from the western chamber of the tomb (L107) close to Sk42. It shows a 20 cm-high female with her hands resting on her belly. The overall shape of her body is virtually biconical with moderately accentuated hips. The bird-like head has a large beaked nose and large ears

which are each pierced twice and together contain three earrings of fired clay and one of bronze. The eyes, breasts and the navel are separately applied with small pellets and impressed circles. The part below the nose indicating the mouth is broken. The imprints of a textile, most likely remains of the production process (drying before firing), are visible on the navel. The fingers are indicated by incisions. Other details are incised on the front part before firing and include five horizontal lines on the lower neck most likely indicating a necklace and the upper part of a dress, a cross on and three horizontal lines below the chest probably indicate the dress. Linear incisions and small strokes in the pubic area may either indicate hair or belong to a dress.

##### N262 (L106)

N262 (*Fig. 7*) is the tallest of our figurines from the eastern chamber (L106). It was found between Sk40 and Sk49. It is 25 cm high and depicts a female with her hands on her belly. The shape of the body is straighter compared to the others, *viz.* the hips are not accentuated. She has an opening on the top of her head, which shows that the figurine is partly hollow.<sup>61</sup> To some extent, the head resembles that of a bird. Both her ears are pierced twice but only one clay earring is preserved. The mouth is indicated with a groove below the large nose and eyes, breasts and knees are applied with small pellets and impressed circles. The navel is not visible. There are three horizontal incised lines on the neck, indicating a necklace and two above the belly, possibly part of a dress. The pubic area is surrounded by a triangle of double-incised lines which may also be part of the dress. Punctured dots with the genitals marked by a vertical incision are visible in the pubic area.

##### N427 (L164)

N427 (*Fig. 7*) from the eastern chamber (L164) was found close to Sk57. It is 21 cm high and shows a female with her arms crossed and moderately accentuated hips. The hands and her fingers are indicated by incisions. She seems to have held an object or a stylized child<sup>62</sup> in her arms which is no longer preserved. Her head resembles that of a bird with large applied eyes and a beaked nose. Both her ears are pierced twice and each hole is adorned with an earring of fired clay. The mouth is not indicated. There are three horizontal incised lines on the neck indicating a necklace. The breasts and the navel are applied with small pellets and impressed circles. Below the latter are one partly incised and two marked incised lines. Two separated lines are on her thighs and filled with an incised her-

<sup>53</sup> See Fischer & Bürge 2019, 312, fig. 27.

<sup>54</sup> Fischer & Bürge 2019, 311, fig. 26:1.

<sup>55</sup> See Mountjoy 1986, 97.

<sup>56</sup> Fischer & Bürge 2019, 311, fig. 26:2.

<sup>57</sup> Mountjoy 1986, 99.

<sup>58</sup> Fischer & Bürge 2019, 311, fig. 26:4.

<sup>59</sup> Mountjoy 1986, 105.

<sup>60</sup> Only the most indicative are described in greater detail.

<sup>61</sup> See also Hermon *et al.* in Fischer & Bürge 2021, 138–140.

<sup>62</sup> A similar “cylindrical mass” from a figurine in the Glafkos Klirides Collection, Nicosia (unnumbered) has been interpreted as a stylised child by Karageorghis 1993, 9, pl. VI:5, cat. no. A(v)I; see also Alexandrou 2016, 362.

ringbone pattern which is more accentuated in the pubic area. This may either indicate that she wears shorts of some kind, or it may depict pubic hair (see also above).

#### N492 (L144)

Also from the eastern chamber (L144) comes the female figurine N492 (*Fig. 7*) which was found close to the eastern border of the tomb. The figurine is 22 cm high. Her arms and hands with indicated fingers rest on her belly, her hips are much accentuated, and her feet have three deep incisions. In her left arm she holds a child which very much looks like a small bird. The child, too, has a beaked nose and large eyes. Its disproportionately large feet resemble bird claws. The head of the mother figurine resembles that of a bird with large applied eyes and a long nose. Both her ears are pierced twice and three of the four holes are adorned with earrings of fired clay. The large eyes and knees are applied in a similar fashion with small pellets and impressed circles. The mouth is not indicated. There are two horizontal incised lines on the neck and a crossed incision between her accentuated breasts. Below her hands are three incised lines on both her thighs. The pelvis area shows an incised herringbone pattern which is slightly tighter in the pubic area. Again, this may either indicate pubic hair or shorts, which would possibly be connected to the upper part of a dress as indicated by the crossed lines (suggesting that the breasts are not covered).

#### Summary

All figurines are made of Base-ring ware. They are relatively hard-fired and covered with a thin matt slip. The surface is smooth, and the bodies are vertically shaved with a hard tool. They belong to the “bird face type”,<sup>63</sup> one of the two standard types of female figurines of Late Bronze Age Cyprus.<sup>64</sup>

Three of the figurines (N262, N427, N492) were found at approximately the same level (11.04–11.06 masl) suggesting that they were deposited roughly at the same time, whereas the fourth (N237, 0.11 m higher) seems to have been placed in the tomb in connection with a somewhat later burial. One of them, N262, differs from the others by a more human-like head, the straight body with no accentuated hips and the production technique with a partly hollow body suggesting another workshop or artisan.

The general appearance of our four figurines may possibly reflect an age-related distinction between them. The straight body of N262 resembles that of a young girl on the threshold of adulthood. N237 appears to represent a young adult female, whereas N427 and N492 with their broad hips and thick thighs seem to display mature females and relate to motherhood.

Many of the provenanced figurines derive from tombs, especially if they are complete or almost complete, yet they occur very rarely in non mortuary contexts.<sup>65</sup> The occurrence of these four figurines in Tomb RR, in addition to the unique Minoan figurine N204,<sup>66</sup> is therefore striking. The exact function and meaning of the “bird-faced” figurines are not entirely clear and have been discussed at length by other authors.<sup>67</sup> Nevertheless, some hypotheses are presented in the discussion below.

#### Objects of ivory

In total, 22 objects of ivory were found in Tomb RR.<sup>68</sup> In addition to the ivory discs from 2018 (N176 and N178)<sup>69</sup> and the knife with ivory handle from 2019 (N205, L105),<sup>70</sup> another 19 objects were recovered during the 2020 and 2021 seasons. The most significant items are presented below.

Of the two ivory discs, one (N316, L106; *Fig. 8*) is undecorated and virtually intact, worn and slightly burnt. The second is decorated (N317, L106; *Fig. 8*), intact and slightly burnt, too. A rosette with twelve petals is incised on one side, while the other side has a stepped profile. Since the two discs were found in proximity to each other and are almost identical in diameter, they most likely were part of a small container of perishable material such as wood or leather with the flat disc as the base and the stepped disc with the rosette as the lid of the container, which possibly was used for cosmetics. They closely resemble the two ivory discs from the same tomb found in 2018 (see above). Similar vessel lids have been found, for example, in Enkomi.<sup>71</sup>

There are two decorated shafts, most likely related to spinning (N522, L188; N537, N180; *Fig. 8; Appendix 3b*). Both

<sup>63</sup> Type A(i) as defined by Karageorghis 1993, 3–5, pls. I–III with parallels.

<sup>64</sup> The other type, Type B, is the so-called flat-headed figurine. This type has, *inter alia*, been recently found in Hala Sultan Tekke, in Area A, Pit Z6, for which see Fischer & Bürge 2018b, 47, fig. 15:10, and in CQ3, see Fischer & Bürge 2014, 78, fig. 23. Other parallels come from Tomb 2 at Hala Sultan Tekke, see Karageorghis 1976, pl. LX:3, and from Tomb 1 at Dromolaxia *Trypes*, see Lubsen Admiraal 1982, 42, no. 1, pl. III:1; 2015; Fischer & Bürge 2018a, 610, fig. 10.2:1. The upper part of a similar figurine (L113-1) was found above Tomb SS (see below).

<sup>65</sup> In less than 5% according to Webb 1999, 211. For an example from a non-mortuary context, see the head of a bird-faced figurine from CQ3 in Fischer & Bürge 2014, 78, fig. 22.

<sup>66</sup> Fischer & Bürge 2020, 96, fig. 25:5.

<sup>67</sup> For this scope see e.g., Orphanides 1991; 2001; Karageorghis 1993, 21–22; Webb 1999, 209–215; Budin 2009; Lubsen Admiraal 2015, esp. 259, with further references; Alexandrou 2019.

<sup>68</sup> Studies on the distribution between elephant and hippopotamus ivories by David Reese are forthcoming.

<sup>69</sup> Fischer & Bürge 2019, 309, 311, fig. 26:6.

<sup>70</sup> Fischer & Bürge 2020, 94, 96, fig. 25:6.

<sup>71</sup> British Museum, BM 1897,0401.1353; see <https://www.britishmuseum.org/collection>.

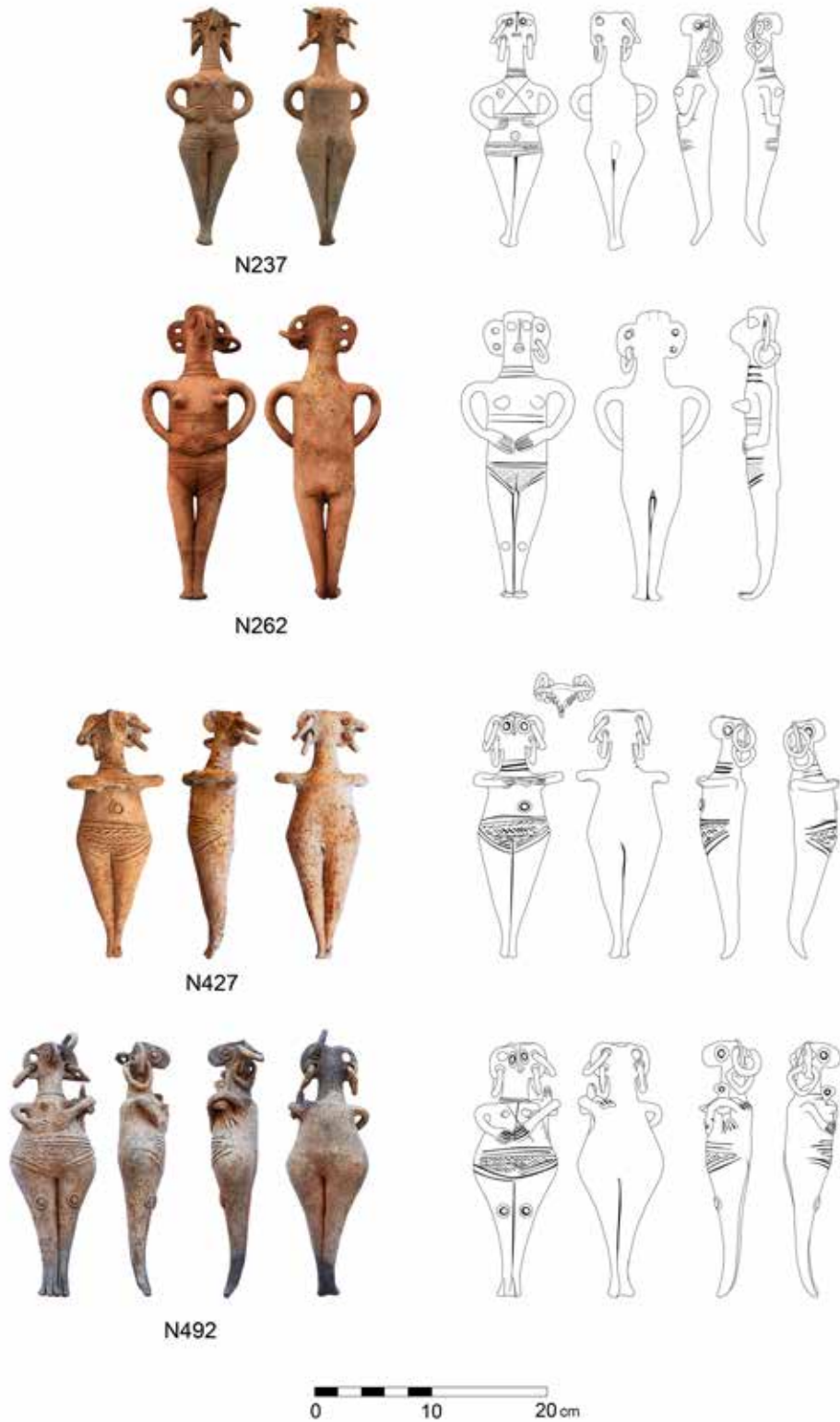


Fig. 7. Tomb RR, Base-ring figurines; scale 1:6 (photographs by P.M. Fischer and T. Bürge; drawings and digitalization by E. Peri).

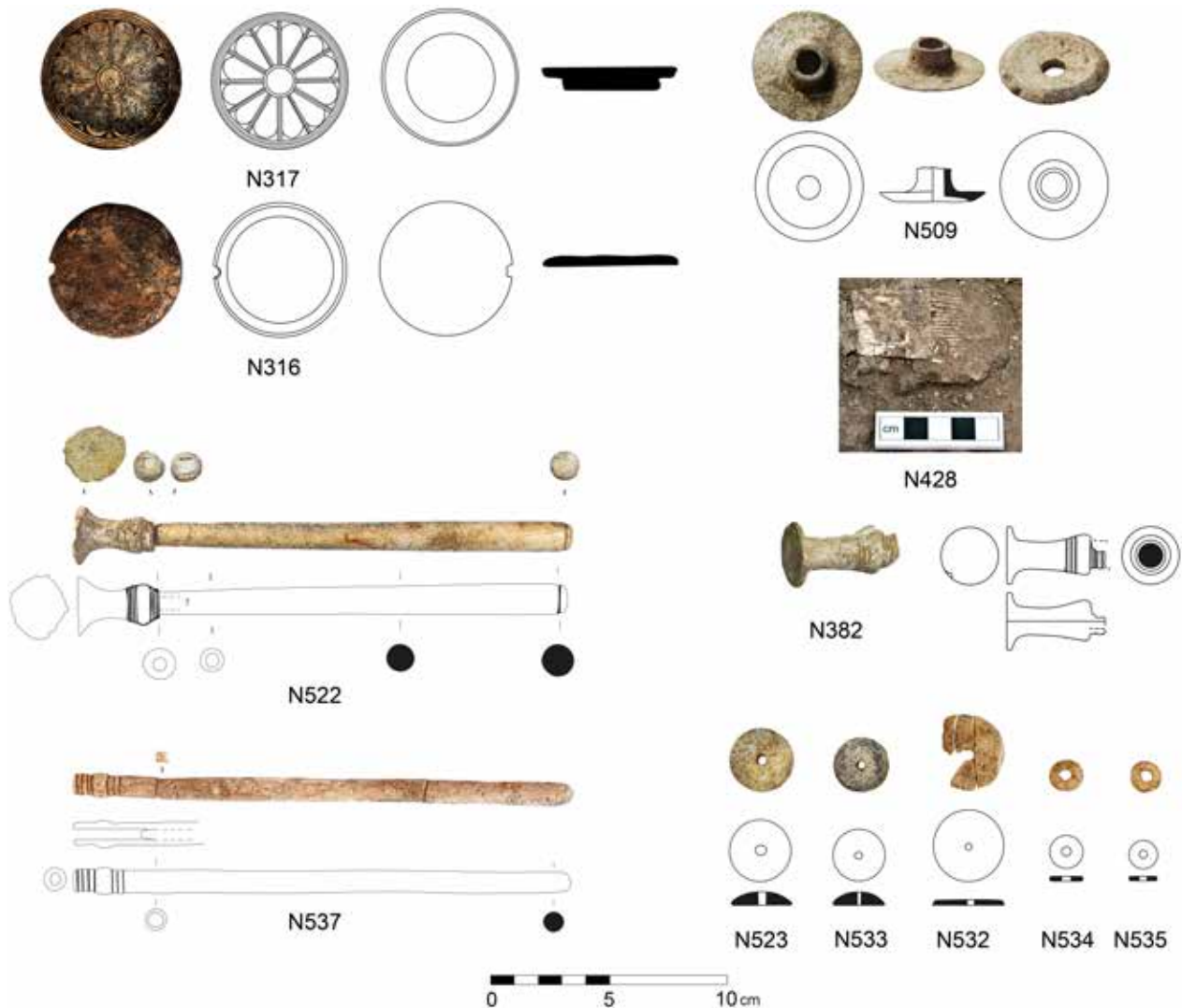


Fig. 8. Tomb RR, ivory objects; scale 1:3 (photographs by T. Bürge and P.M. Fischer; drawings by E. Peri and T. Bürge; digitalization by E. Peri).

were manufactured in three parts: the long shaft and the decorated head were connected with a separate plug of ivory placed in the two hollow ends of the shaft and the head. N522 is identical to N382 from the adjacent Tomb SS (see below). N537 is different in design and the uppermost part of the decorated head is possibly missing. The partly hollow shaft and the completely pierced head were joined by a plug. Close to N537 were two small and very thin ivory discs (N534, N535), which might have been used together with the distaff and had a special function in connection with spinning. Two dome-shaped ivory objects, most likely spindle whorls (N523, L188; N532 and N533, both L180), were found in proximity to the shafts (see Fig. 8; Appendix 3b).

Two very small, thin ivory discs (N428, L164; N459, L106) belong to a special type of earring with copper and

gold rivets, not very different to modern design (Fig. 10). Another noteworthy object is an ivory comb (N428, L164; Fig. 8) which was found in an extremely fragile condition. The handle is 4.5 cm wide and the portion with the 17 partly preserved teeth, each *c.* 0.2 cm wide, is 3.5 cm.

#### Objects of stone and faience

Two biconical spindle whorls are made of black (N286) and greenish-black (N513) stones: N286 (L106) has a height of 2.1 cm and a diameter of 2.0 cm. The diameter of its hole is 0.6 cm, its weight is 11 g. N513 (L191) has a height of 1.85 cm and a diameter of 1.92 cm. The diameter of its hole is 0.5 cm and its weight is 9 g.

In addition to numerous small globular beads of carnelian (see some in Fig. 10; see also Appendix 3c), there is a larger len-

toid bead of this material: N519 (L105; *Fig. 10*) has a height of 1.9 cm, a width of 1.65 cm and a thickness of 0.7 cm. The diameter of its hole is 0.25 cm. Faience objects mainly comprise beads, which are discussed in *Appendix 3c*.

### The scarabs

#### N378 (L107)

The scarab of blueish-white composition N378 (*Fig. 9*) is intact but worn. It has a length of 1.4 cm, a width of 1.1 cm, a height of 0.78 cm and a weight of 1.9 g. The base is inscribed with the hieroglyphs *ankh* and *nfr*, a small (sun) disc and three short vertical lines between the signs. The inscription can be interpreted as “[all] good, [all] life”.<sup>72</sup> Similar scarabs with this inscription come, e.g., from Gat Karmel.<sup>73</sup> However, the signs for *nb*, “all”, seems to be missing on our scarab and we suggest interpreting the three vertical signs as *nb*. A date within the later part of the 18th Dynasty, i.e., the second half of the 14th century BC, is proposed.

#### N478 (L107)

The scarab of white composition N478 (*Fig. 9*) is intact but quite worn. It has a length of 1.3 cm, a width of 1.0 cm, a height of 0.8 cm and a weight of *c.* 1 g. In horizontal arrangement is the divine name *Jmn-r*, “Amun-Re” flanked by two vertically placed *nb* hieroglyphs.<sup>74</sup> This type appears in the 18th–19th Dynasties, approximately 1400–1200 BC.

#### N486 (L145)

The scarab N486 (*Fig. 9*) is of white composition with a blackened surface. It has a length of 1.5 cm, a width of 1.1 cm, a height of 0.8 cm and a weight of *c.* 1 g. It was found as part of a necklace together with numerous beads (N468) and the stamp seal N470. In horizontal arrangement is a lion with an open mouth and tail bent over the back running to the right. Between the legs is a papyrus plant. Running lions on scarabs are very rare and they are typically depicted as striding, lying, seated, or mounting an animal from behind. Roaring lions are likewise unusual. The closest parallel for the overall design, however, with a horned animal and lotus or stylized papyrus plant is from Ashkelon.<sup>75</sup> We propose a date in the 19th Dynasty, approximately 1300–1200 BC.

#### N491 (L145)

The well-preserved scarab of white enstatite N491 (*Fig. 9*) is almost intact with only a small piece of the base missing (an-

cient break). It has a length of 1.6 cm, a width of 1.1 cm, a height of 0.6 cm and a weight of *c.* 1 g. It is decorated with a four-leaf rosette<sup>76</sup> with a rhomboid-shaped central node and an outward facing uraeus in each spandrel.<sup>77</sup> The style of the motif of the scarab is under discussion. The earliest item of this style dates to the Middle Bronze Age; the latest suggests a date in the second half of the 18th Dynasty or 1400–1300 BC, which would fit the remainder of the find context.

### The seals

#### N383 (L107)

The slightly hourglass-shaped pierced cylinder seal N383 (*Fig. 9*) is of haematite. It is 2.8 cm long and has a maximum diameter of 1.5 cm and a minimum diameter of 1.4 cm and its weight is 22 g. It depicts a male figure with mace, a goddess, and a cuneiform inscription of three lines mentioning a king's and his father's names, and the god Amurru.<sup>78</sup> The seal can be dated to the beginning of the 18th century BC. It was later re-carved, most likely in the Levant, with added motifs of mythical creatures before it was deposited in this tomb some centuries after its production.

#### N470 (L145)

The rectangular stamp seal of steatite or serpentine N470 (*Fig. 9*) is of 2.0 cm length, 1.3 cm width, 0.9 cm height and has a weight of 5.5 g. It was found as part of a necklace together with numerous beads (N468) and the scarab N486.

One side depicts a palm tree with a globe on top and radiating lines indicating the foliage. Its stem is marked with a double line at the upper and lower end. On either side of the stem are fronds which are connected below the stem and are curving outward. A dot is in the bends of the fronds. This depiction of a tree is typical of Cypriot iconography.<sup>79</sup> On the other side there is a figure walking to the left (on the seal), behind its head is a semicircle with a dot, the solar disc and crescent symbol. The figure closely resembles that on the cylinder seal N528 (see below) in iconography and style.

#### N493 (L144)

The cylinder seal N493 (*Fig. 9*) is of dark blueish-grey stone (possible chlorite). It is 2.3 cm long and has a diameter of 0.9 cm and a hole of 0.4 cm. The weight is 3 g.

It depicts a seated griffin, i.e., a fantastic figure combining the body of a lion with the head and wings of a bird of prey. The

<sup>72</sup> We would like to thank Jürg Egger for the interpretation and the parallels.

<sup>73</sup> Keel 2013, 124–125, no. 4.

<sup>74</sup> E.g., Keel 1997, 182–183, Tell el-'Ağul, no. 239.

<sup>75</sup> Keel 1997, 728–729, Ashkelon, no. 109.

<sup>76</sup> Keel 1995, 183–184, no. 494.

<sup>77</sup> Keel 1995, 191, no. 523. For the motif in general, see Keel 1995, 85–86 no. 208, fig. 145.

<sup>78</sup> We are grateful to Gebhard J. Selz for the information. Additional studies are underway.

<sup>79</sup> Porada 1948, 189, n. 75; see also the seal N531 below.



Fig. 9. Scarabs (N378, N478, N486, N491), stamp seal (N470), and cylinder seals (N383, N493, N528, N531) with modern impressions (except for N383) from Tomb RR and cylinder seal (N544) with modern impression from Tomb SS; scale 1:1 (photographs by P.M. Fischer and T. Bürge).

griffin is facing a human figure; a tree is behind the human. The animal has an elongated head, a crest indicated by two lines<sup>80</sup> and a long body stretching diagonally over the entire carved zone. One wing is in the air above the body, the other is hanging down, masking one of the forelegs.<sup>81</sup> The hind legs are indicated by horizontal lines, a common way to indicate this posture;<sup>82</sup> the tail is s-shaped. The human figure has disproportionately long arms, wears a hat and a long robe that is marked by hatching. The tree is rendered by a vertical line and two pairs of diagonal lines on top indicating the foliage of the tree.

The way of depicting the griffin with the second wing hanging down is specifically Cypriot and can, *inter alia*, be seen on a seal found in Ras Shamra/Ugarit,<sup>83</sup> and two seals from Episkopi *Bamboula* (Kourion), Tombs 12<sup>84</sup> and 43,<sup>85</sup> respectively. The latter, showing a seated griffin and a tree, is also interesting because it represents a close parallel to our seal in carving style. In fact, the motif of griffin and human is only rarely depicted in this stylized and linear carving, whereas it is more common on more plastic carving styles (see below).

#### N528 (L107)

Another seal, most likely of chlorite, is N528 (*Fig. 9*). It is 2.0 cm long and has a diameter of 0.9 cm and a hole of 0.4 cm. Its weight is 3 g.

The seal shows a human figure facing a griffin. The human is directed towards the left (on the impression). His head is elongated, his arms are bent up. He wears a long robe marked by hatches. Above his hands is a solar disc and crescent symbol on either side. As on the previous seal, the griffin is seated with the hind legs horizontally arranged but both wings are in the air and one of the front paws is raised.<sup>86</sup>

This seal is carved in a more plastic style than the previous one, resembling N531 (see below). The carving is deeper and the details, such as the griffin's crest or the face of the human figure, are more clearly visible. A close parallel in style and motif, however without the solar disc and crescent, comes from Ugarit.<sup>87</sup>

#### N531 (L107)

The third cylinder seal, N531 (*Fig. 9*), is most likely of chlorite, too. It is 1.7 cm long and has a diameter of 0.7 cm and a hole of 0.3 cm. Its weight is 1.5 g.

The motif on this seal is composed of a seated griffin and a tree. The griffin is shown in a similar way as on the previous seal (N528) with both wings in the air, horizontal hind legs, a long crest and an s-shaped tail. The tree is smaller than the animal and has ray-like projections from the top indicating the foliage and a volute filled with a dot on each side, perhaps to be interpreted as fruits. This way of depicting a tree is specifically Cypriot<sup>88</sup> and frequently found on Cypriot style seals, *inter alia* on our seal N470 (see above).<sup>89</sup> As already proposed by Edith Porada,<sup>90</sup> this motif seems to be inspired by vegetal designs on Mycenaean pottery.<sup>91</sup>

In summary, although the griffin is a recurrent motif in Cypriot-style seal iconography, among the 26 cylinder seals previously (i.e., until 2019) found at Hala Sultan Tekke,<sup>92</sup> only two depict a griffin.<sup>93</sup> Hence, it is even more noteworthy to find three seals with griffins in the same tomb, and an additional one in Tomb SS (N544, see below) just next to Tomb RR.

#### The jewellery

##### A lotus flower pendant of gold (N384, L106)

The lotus-shaped pendant N384 (*Fig. 10*) has a height of 2.24 cm, a width of 2.2 cm, a thickness of 0.2–0.3 cm and a weight of 2.0 g. It is made of gold with cloisonné leaves filled with carnelian and faience. One of the two eyelets on top of the leaves is broken and some inlays are probably missing, otherwise it is complete. An example of this type of pendant, which was certainly manufactured in Egypt, was found in Enkomi, Tomb 93.<sup>94</sup> Another parallel comes from Tomb KV 55, Thebes, Valley of the Kings, which is dated to the 18th Dynasty/Amarna Period.<sup>95</sup> Both were parts of *usekb* collars, broad collars which are also depicted in figurative art, for instance on the wall paintings in the tomb of Nebamun and Ipuki

<sup>80</sup> This detail becomes clearer, if compared to seals with more elaborate carving styles, such as on our N528, N531 and N544 below.

<sup>81</sup> This is a specific Cypriot style, see also Amiet 1992, 189.

<sup>82</sup> See the same iconographic convention on the seals N528 and N531 below.

<sup>83</sup> RS 10007; see Amiet 1992, 189, 192, 197, fig. 84, no. 467.

<sup>84</sup> Depicted in Porada 1948, pl. X, no. 28.

<sup>85</sup> British Museum, BM1896,0201.14: see Murray *et al.* 1900, 65, 79. Also depicted in Kenna 1971, 32, pl. XXVI: no. 97.

<sup>86</sup> A similar seal with a human, a griffin with raised paw and a tree comes from Limassol *Enaerios*, Tomb 621-IV, no. 14; see photograph in Karageorghis 1978, 892, fig. 36a; Karageorghis & Violaris 2012, 107, 171, no. 14.

<sup>87</sup> Amiet 1992, 197, fig. 84, no. 468.

<sup>88</sup> Porada 1948, 189.

<sup>89</sup> See also the parallel from Episkopi *Bamboula*, Tomb 43, mentioned above (British Museum, BM1896,0201.14).

<sup>90</sup> See also Porada 1948, 189.

<sup>91</sup> See the flower, FM 18 in Furumark 1941, 287–293.

<sup>92</sup> In total, 15 seals have been published from previous excavations at Hala Sultan Tekke, see Webb 2002, 114–155, tables 1–2, in addition to eleven from the New Swedish Cyprus Expedition seasons 2010–2019.

<sup>93</sup> One acquired by the British Museum (BM 1898,1201.183), the other one from Tomb 2, for which see Porada 1976, 98–101, no. 1, figs. 75, 78, no. 230.

<sup>94</sup> Murray *et al.* 1900, British Museum, BM 1897,0401.535.

<sup>95</sup> Davis 1910, pl. XXI; Aldred 1971, pl. 71. We would like to thank Anna Paule for pointing out this parallel.

(TT 181) at Thebes, which are dated to *c.* 1390–1349 BC, i.e. during the reign of Amenhotep III (or possibly the beginning of the reign of Amenhotep IV).<sup>96</sup>

#### A gold diadem (N512, L105)

The decorated diadem of gold foil with rounded edges N512 (*Fig. 10*) was found *in situ* on the forehead of a 4–5-year-old child (Sk73) in the western chamber. It is 15.1 cm long, 2.21 cm wide and less than 0.1 cm thick, and its weight is 3.3 g. It has two small holes on either end, and was fixed to the cranium by two strings which are no longer preserved. The decoration in repoussé shows four double spirals and small circles along the entire edge of the diadem.

#### A gold necklace (N514, L105)

The necklace N514 (*Fig. 10*) which consists of 68 hollow beads of moulded sheet gold was discovered *in situ* around the neck of the 4–5-year-old child with the diadem N512 (see above). It consists of 67 small depressed globular beads and one larger globular centre bead with collars. The small beads have a diameter of approximately 0.5 cm and are 0.3 cm high. The larger bead has a diameter of 0.8 cm and is 0.9 cm high. The total weight is 7.8 g.

The larger centre bead, but also some of the smaller beads, show dents which obviously are bite-marks produced by small, pointed teeth, most likely the deciduous canines of the deceased infant. This should not come as a surprise considering a child's habit of nibbling on objects. It also shows that this infant wore the necklace during its lifetime, maybe at specific occasions, and that it was not meant as an object specifically produced as a burial gift.

#### Four gold earrings (N520A–D)

The 4–5-year-old child Sk73 also wore four circular earrings of solid gold (N520A–D; *Fig. 10*) with overlapping ends. They have diameters ranging from 2.0 to 2.4 cm and a thickness of *c.* 0.2 cm. The smaller earrings weigh 2 g each and the larger 3 g each, thus giving a total weight of 10 g.

It is interesting to note that the arrangement of the four earrings is reflected in our ceramic bird-headed figurines of Base-ring ware where each of the females' ears is pierced twice.

#### Other gold objects

N288 (L107; *Fig. 10*) is a solid ring of gold with overlapping and flattened ends. It has a diameter of 2.1 cm, a thickness of 0.2 cm and weighs just under 1 g. N467 (L107; *Fig. 10*) is a collared bead of solid gold with a smaller circular knob at one end and a larger one at the other end. The small ring

N473 (L107; *Fig. 10*) with a diameter of 0.45 cm, a thickness of 0.15 cm and a weight of less than 1 g was certainly used to fasten the ends of a necklace string.

#### Objects of silver and bronze

Silver objects include four rings (N240, N256, N265, N350), of which N256 is a signet ring. In addition, a silver button (N370) and a silver figurine depicting a Hittite god (N516) were found. Bronze objects include additional two rings (N255, N469) and two bracelets (N490, N502).

#### DISCUSSION OF TOMB RR

This tomb was used for an exceptionally high number of interments<sup>97</sup> during a time span of around 150 years or even more. The majority of the estimated minimum number of 137 individuals were not articulated and many of them were found incomplete. The disarticulation of the skeletal remains is assumed to be the consequence of post-mortem treatments which included the possible exposure of the human remains to high temperatures. This phenomenon, the possible exposure to high temperatures, is reflected in another tomb at Hala Sultan Tekke: the shaft Tomb LL, excavated by the expedition in 2017, which contained many valuable items.<sup>98</sup> There is another tomb in the same area where probable burnt human remains were found: Tomb X, excavated in 2016.<sup>99</sup> The rich collection of burial gifts from the latter includes many complete and intact objects, several of precious metals, but only fragmentary human and animal skeletal remains of which many fragments seems to have been exposed to high temperatures. We interpret these circumstances that the deceased were incompletely burnt somewhere else, their partly burned remains incompletely collected and buried in these tombs.

The degree of disarticulation and incompleteness increased with depth. This can be explained by the fact that previous burials had to be moved in the course of the interment of new corpses. In addition, the relatively high number of human crania in relation to other body parts suggest intentional moving and removing of skeletal remains in connection with protracted practices of mortuary treatment (see also *Appendix 1a*). These practices have been discussed by Priscilla Keswani<sup>100</sup> and seem to have developed on Cyprus from the

<sup>96</sup> Davies 1925, pl. XI; see also discussion in Paule 2018.

<sup>97</sup> The highest number of interments in one tomb at Enkomi is 55, while 62 individuals have been identified in Ayios Iakovos *Melia*, Tomb 8; see Keswani 2004, 105, 226–230, table 5.8. However, it is problematic to compare our evidence with material from old excavations, since only selected human remains were usually kept.

<sup>98</sup> Fischer & Bürge 2018b, 53–62 and fig. 24: Tomb LL second row.

<sup>99</sup> Fischer & Bürge 2018b, fig. 24: Tomb X second row.

<sup>100</sup> Keswani 2004, 88–103.



Fig. 10. Tomb RR, jewellery and other objects of gold (N512, N520A–D, N288, N467, N473, N474, N514), composite earrings of ivory with copper and gold rivet (N392, N459) and reconstruction, gold pendant with inlays of carnelian and faience (N384), beads of faience (N468) and carnelian (N519) and necklace of faience and carnelian beads (N238); scale 1:1 (photographs by P.M. Fischer and T. Bürge; drawings by E. Peri).

Early and Middle Cypriot periods on and were especially frequent until the earlier LC II period. However, the patterns of (secondary) mortuary treatment are multifaceted and differ from site to site and even between tombs of the same site. This seems also be the case at Hala Sultan Tekke.

The individuals for which age estimations could be carried out<sup>101</sup> comprise two foetals (in uterus/premature born), 26 infants (birth–3 years), 24 children (3–12 years), ten adolescents (12–20 years) and 58 adults. In addition, there are 15 possible adults, and two remained indeterminate. The sex estimations indicate two males and ten probable males, ten females and six probable females, while 109 were indeterminate (see also *Appendix 1a*).

We may assume that child mortality rates were high in Bronze Age Cyprus. Therefore, the high number of infants and children from Tomb RR should not come as a surprise. However, in comparison to reports from other contemporary sites on Cyprus, Tomb RR stands out in contrast, for instance, to tombs from Ayios Iakovos *Melia*, Enkomi or Kourion *Bamboula*, where infants and children are highly underrepresented.<sup>102</sup> Since bones of this age category, due to a lower degree of mineralization, usually are less well preserved than those of adults, one likely explanation is that they have been overlooked during excavation.

In contrast, the tomb inventory with the high number of extremely valuable items, many of them imported, point to the interment of members of the local élites.<sup>103</sup> These items include in decreasing order of frequency jewellery of gold (78), bronze (ten) and silver (eight), and numerous precious exotic stones, e.g., beads of carnelian. One of the objects of silver is a pendant which depicts a Hittite god with a pointed headdress.<sup>104</sup> The ivory objects (ten), too, are not only of a precious and exotic material to which most probably only particular social groups had access, but it also requires highly skilled craftspersons to produce them.<sup>105</sup> Items for sealing, i.e., the cylinder and stamp seals (five together), the scarabs (four) and the signet ring of silver also reveal the high social status of their owners,<sup>106</sup> possibly emulating Levantine and Egyptian practices, and should be considered as tokens for the owners' multicultural influences.<sup>107</sup> The role of the Base-ring female figurines (four) in the tomb is not entirely clear but it seems likely that these allude to aspects of fertility and sexuality.<sup>108</sup> These, along with the Minoan figurine, to the authors' best

knowledge maybe the first ever found on Cyprus,<sup>109</sup> may also have been used during funerary rituals and/or represent personal items, perhaps with votive, protective and/or apotropaic aspects.

The ceramic vessels, in total more than a hundred, represent the range of the most common Late Cypriot finewares, in addition to Mycenaean, Minoan and Anatolian imports. In terms of vessel shapes, it is interesting to note that closed vessels, i.e., jugs, juglets, piriform jars and alabstra, and the stirrup jar, spindle bottle and flask, represent the majority of all shapes, at 63% (see *Table 3*). As regards the distribution of vessels between the various layers of the tomb, the uppermost part, where the most recent and complete burials have been found, contained the highest number of vessels. The lowest layers contained mostly small vessels, such as the small White Slip II bowls with lug handles, and the miniature juglets, spindle bottle, piriform jar and stirrup jug. This situation can be explained by the high number of younger individuals in the earliest burial layers.<sup>110</sup> The larger vessels from the upper layers may have been used not only as burial gifts but also for the consumption of food and drinks on the occasion of funerals. Our Mycenaean krater with an elaborate depiction of chariot scenes, the "Sword-bearer Krater",<sup>111</sup> is another example for the display of wealth and indicates an adoption of (at least parts of) the Aegean drinking set by the élites of Hala Sultan Tekke.

Numerous faunal remains were present in the tomb. These include horns of caprine, bones of ovicaprid, cattle, equid and vole, murex shells and other invertebrates. Articulated fish vertebrae of Nile perch and further fish remains were found close to some of the skeletons. The contents of some of the vessels should be highlighted: a White Slip II bowl (N212) contained the fragments of a cattle hip bone and a Plain jug (N210)<sup>112</sup> was filled with fish bones. The latter contained larger bones of mullets (*Mugilidae*), drums (*Sciaenidae*) and shark (*Selachimorpha*).<sup>113</sup> Botanical remains from various vessel contents include common grape vine (*Vitis vinifera*), common fig (*Ficus carica*), an almond (*Prunus dulcis*) shell, cornflower (*Centaurea cyanus*), rye brome grass (*Bromus secalinus*) as well as pieces of charcoal and organic slag.<sup>114</sup> In addition, stains on the interior of ceramic vessels, e.g., in the small White Slip II bowl (N456 in *Fig. 5*), most likely represent the residues of food or a liquid. These remains may indicate ritual consump-

<sup>101</sup> Further examinations of age and gender are ongoing.

<sup>102</sup> Summarized in Keswani 2004, 105, 220, table 5.3.

<sup>103</sup> Summarized in Keswani 2004, 125–139.

<sup>104</sup> Just recently conserved by the Department of Antiquities, Cyprus.

<sup>105</sup> E.g., Caubet 2013.

<sup>106</sup> E.g., Webb 2002.

<sup>107</sup> Keswani 1989; Webb 2005.

<sup>108</sup> E.g., Budin 2009.

<sup>109</sup> Fischer & Bürge 2020, 96, fig. 25:5.

<sup>110</sup> See also the set of miniature vessels from the nearby Tomb LL in Fischer & Bürge 2018b, 56, figs. 23:2–6, where also remains of infants and children have been found.

<sup>111</sup> Fischer & Bürge 2019, 312, fig. 27.

<sup>112</sup> Fischer & Bürge 2020, 95, fig. 24:2.

<sup>113</sup> We would like to thank Omri Lerna for identifying the fish remains.

<sup>114</sup> Kofel in Fischer & Bürge 2020, 105–107.

tion inside—or perhaps due to the limited space rather outside the tomb—or that the vessels were deposited as food offerings. In the case of non-meat bearing parts of animals, such as the caprine horncore, we suggest a symbolic meaning.

There are patches of ash everywhere in the tomb which point to the use of fire inside the tomb. Indications of exposure to high temperatures were also found on animal bones, numerous ceramic vessels (see e.g., N295 in *Fig. 6*) and other finds (see e.g., the ivory lids N316 and N317 in *Fig. 8*). This is additional evidence supporting the claim that fire was used in connection with mortuary practices.

Tomb RR, which was excavated meticulously during four seasons starting in 2018, represents one of the richest Late Bronze Age tombs ever found in Cyprus. The high number of interred individuals indicates a family tomb which was used by the ruling class of Hala Sultan Tekke during a period of at least 150 years. This time span is supported by the dates of the imports, mainly the Mycenaean pottery, the Egyptian scarabs and the seals, and radiocarbon dates. The wealth of the élites of the city was based on the intraurban production of copper and purple-dyed textiles which were traded with near and distant cultures.

## Chamber Tomb SS

### EXCAVATIONS 2020 AND 2021: OVERVIEW<sup>115</sup>

#### L109 and L113

A 5 × 5 m trench was opened up just south of Tomb RR enclosing a magnetic anomaly larger than that which indicated Tomb RR. Immediately below the topsoil, an accumulation of broken pottery and limestone was exposed in the north-western part (L109; *Fig. 11*), which extended approximately 2.5 (west–east) × 2 m (north–south). Further below, there was a layer characterized by brown soil and a smaller amount of broken pottery (L113). Finds from this locus include the upper part of a Base-ring anthropomorphic figurine (L133-1), the rim of a Coarse ware cooking pot (L113-2) and a Mycenaean (LH IIIA) shallow cup (L113-3).

#### L121

Further down was a deposit of numerous complete but broken ceramic containers (L121; *Figs. 12–15*) partly covered by

small stones. The deposit, which did not cover the entire tomb area, rested on a relatively flat surface and had a maximum extension of roughly 2 (west–east) × 2.5 m (north–south) and a maximum thickness of approximately 0.4 m. Only a few of the vessels in this locus were intact. Most of the vessels, obviously thrown in, were broken into medium to large fragments but the majority could be reassembled. So far, 73 complete or almost complete objects have been registered.<sup>116</sup> These include almost exclusively fineware of Cypriot, Mycenaean, Minoan and Anatolian provenance, as well as a Canaanite jar, a Cypriot wall bracket, parts of two Coarse ware cooking pots and a Coarse ware tray. There were only a few faunal remains, almost all of them molluscs: a helmet shell (*Semicassis*; L121-14), numerous complete *Bolinus brandaris* and at least one *Hexaplex trunculus*.<sup>117</sup> This deposit was covered and surrounded by L123, which extended over most of the trench and can be characterized as a heterogeneous accumulation of various sediments, interspersed with layers of limestone dust and containing some fragmented pottery.

#### L133/L139

L133/139 (*Figs. 16–17*) is another deposit of pottery which appeared below L132 (see *Fig. 13*). At this level, the layer of depositions covered a larger area and Tomb SS took on a roughly pentagonal shape with a maximum width of *c.* 4.5 m. In contrast to L121, many vessels are intact or complete/almost complete, i.e., they do not seem to have been thrown as in L121 but carefully placed in the tomb. These include mainly fineware of Cypriot, Mycenaean, Minoan, Anatolian and Levantine provenance. The division of this context into two different loci, L133 and L139, during fieldwork had practical reasons considering the enormous number of finds. The deposit contained more than 100 intact/complete vessels but the exceptionally high number of large fragments indicates that the total count will be considerably higher. The few faunal remains comprise several gastropods of *Bolinus brandaris* and numerous fish bones of mullets and porgies with a size between 11 and 18 cm preserved inside a Base-ring II jug (N374; see below *Fig. 24*).<sup>118</sup>

#### L140/L187 and L152/L169

These three loci correspond to two square structures of mud and plaster (*c.* 75 × 75 cm) in the level below L133/139 (*Fig. 18*) which may have been used as platforms or tables in connection with rituals. There are no finds on these struc-

<sup>115</sup> In this overview, not all loci are described in detail. Some loci are outside the tomb, others are not of primary importance for this preliminary report.

<sup>116</sup> However, most of the material is awaiting restoration and conservation, which will increase the total number of finds.

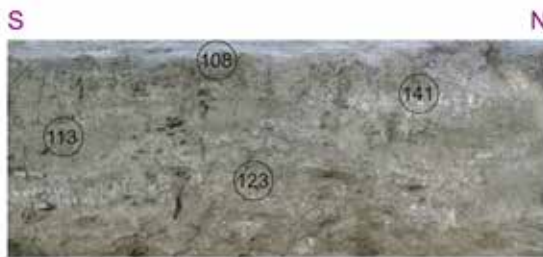
<sup>117</sup> We would like to thank David Reese for identifying the molluscs.

<sup>118</sup> We would like to thank David Reese for the identification of the *Bolinus* and Omri Lernau for that of the fish remains.

### Tomb SS



0 1 5m



Photograph: S2-20, west section

- 108 topsoil
- 113 backfill of sediment
- 123 deposit of sediment and ceramics
- 141 path, filling



- 109 deposit of ceramics and limestone
- 110 posthole (modern)
- 111 archaeological layer
- 116 topsoil
- limit of locus
- - - limit of excavation
- xxx locus

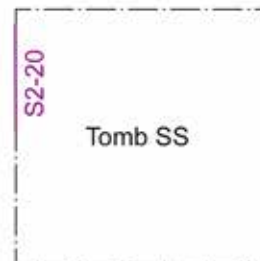


Fig. 11. Upper: orthophotograph of Tomb SS at the beginning of the excavation with uppermost deposit L109 (by P.M. Fischer); lower: west section S2-20 (by A. Bublke).

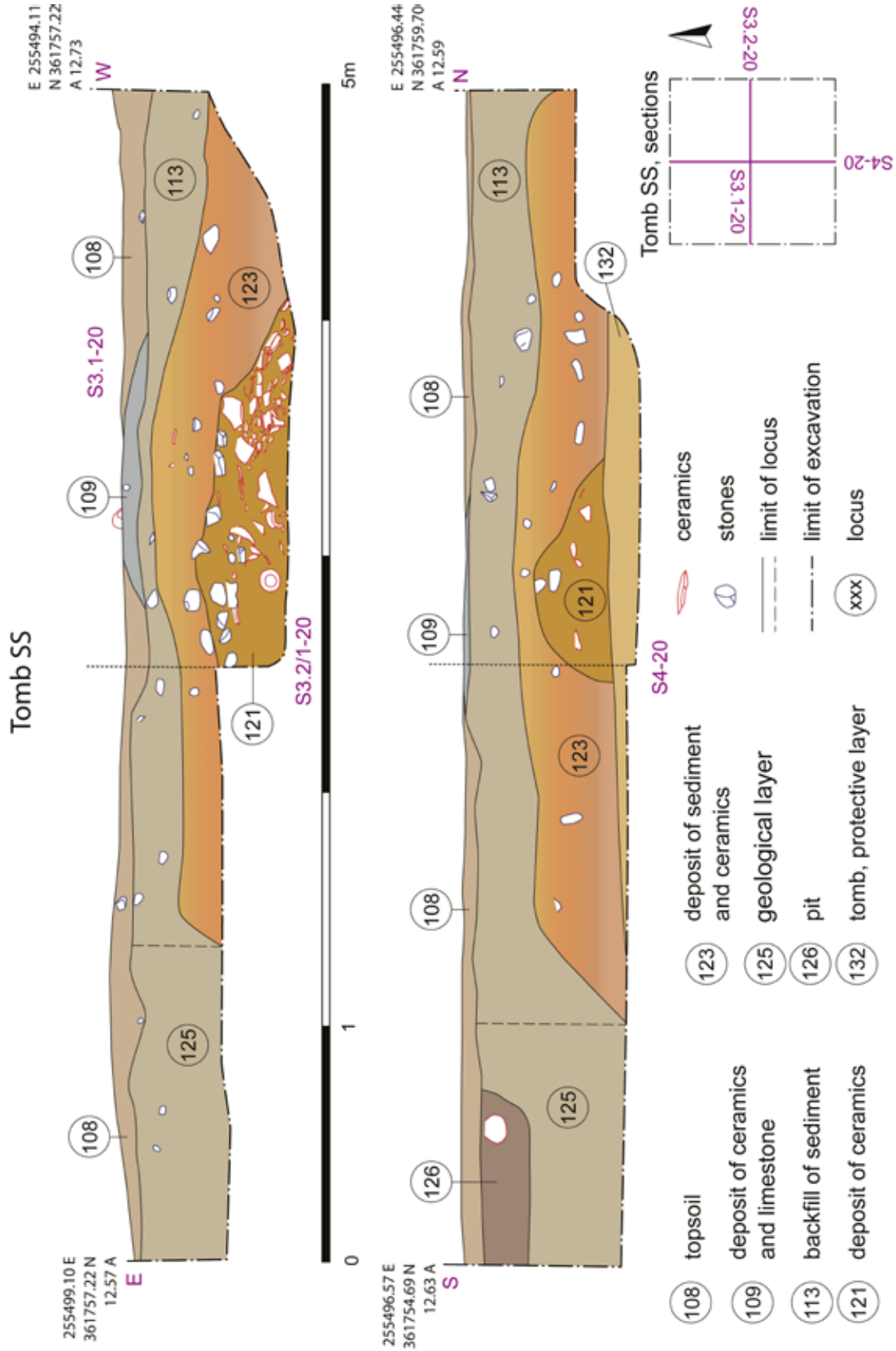


Fig. 12. Tomb SS, sections S3.2/1-20 and S4-20 (by A. Bablke).

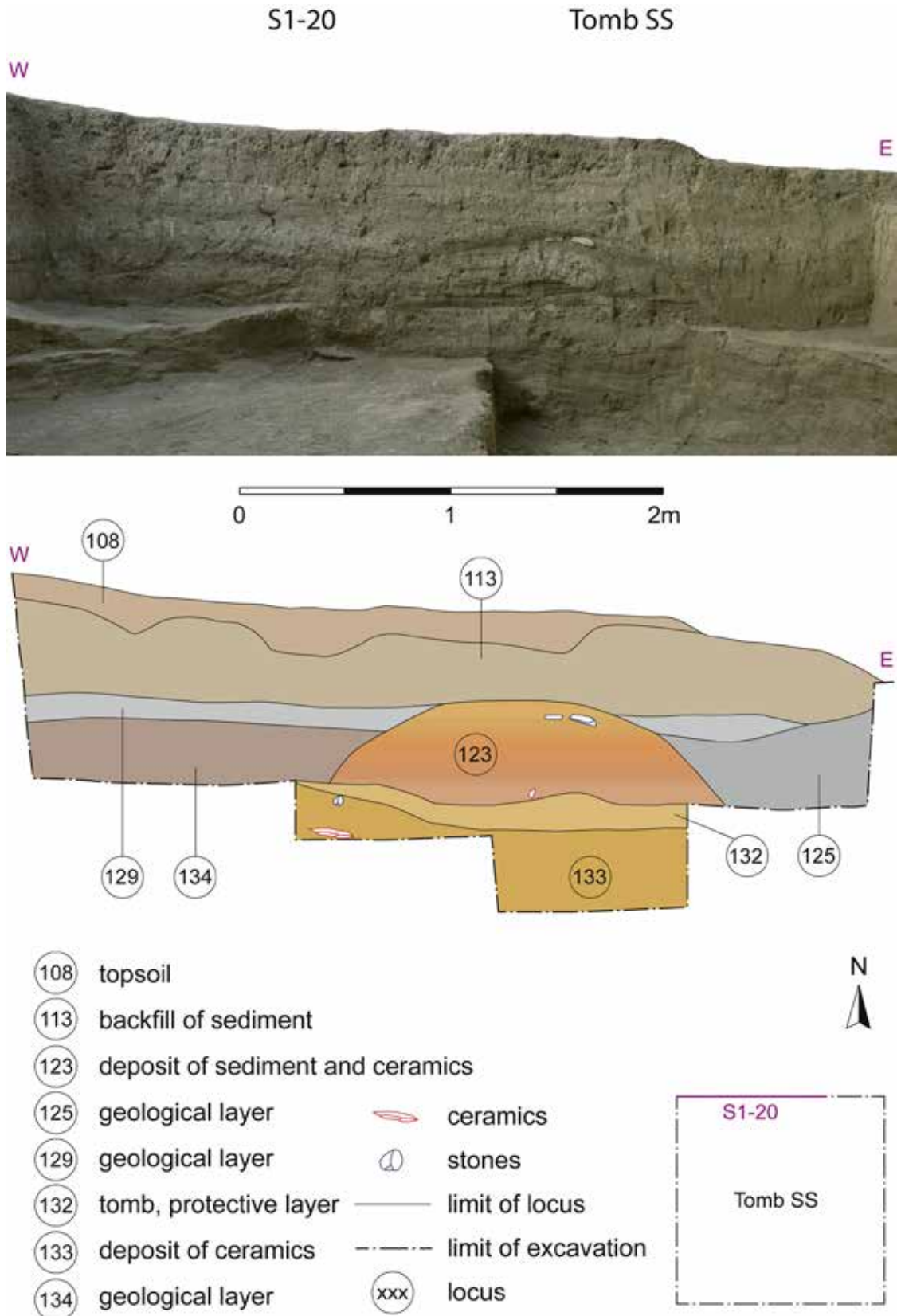


Fig. 13. Tomb SS, north section S1-20 (by A. Bublke).

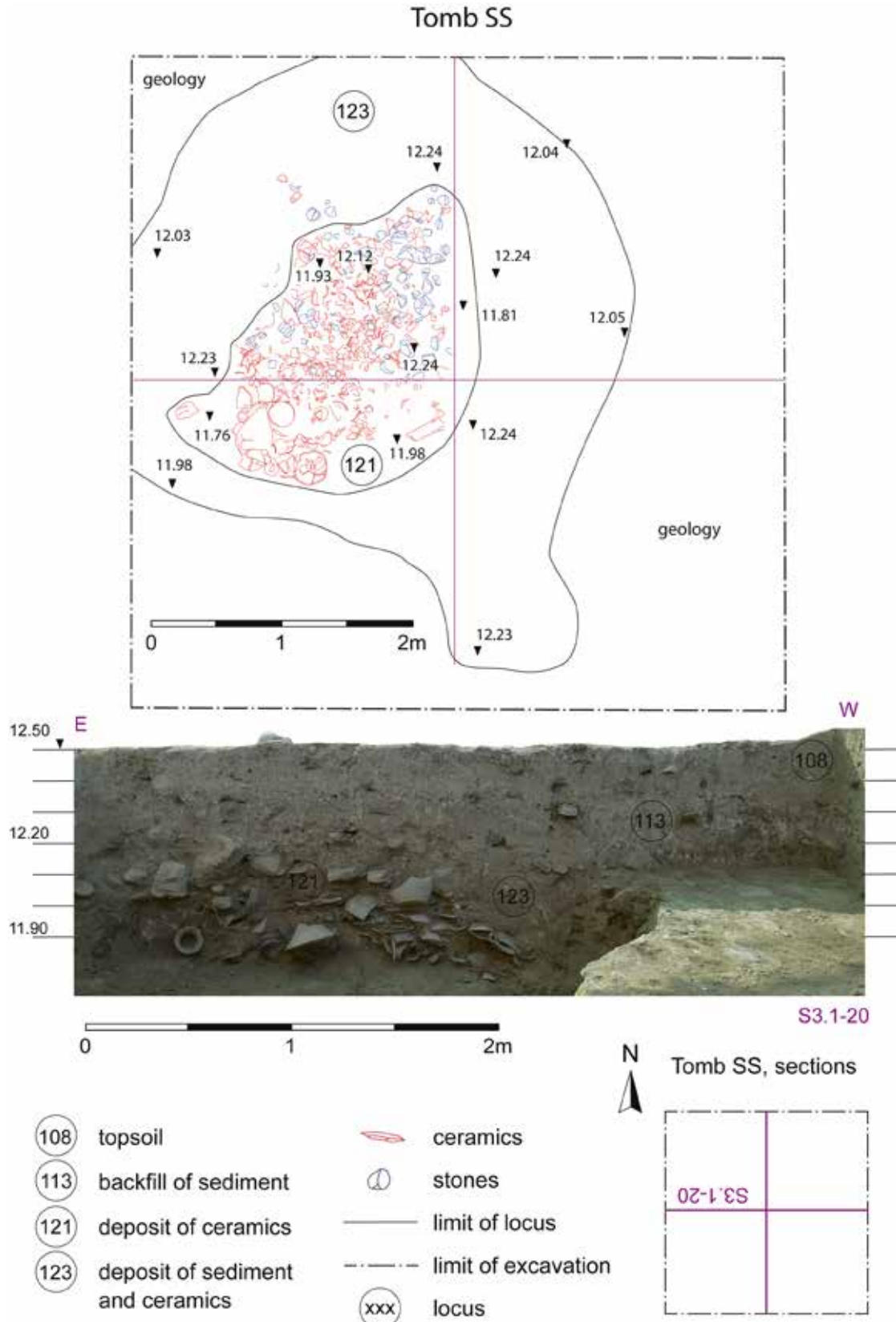


Fig. 14. Tomb SS, pottery deposit L121; upper: plan; lower: north-facing section S3.1-20 through L121 (by A. Bublke).



Fig. 15. Tomb SS, pottery deposit L121 (photograph by P.M. Fischer).

tures. However, numerous pottery vessels have been deposited around them.

#### L147, L148, L150 and L151

These loci are approximately on the same level (*Fig. 18*) and are characterized by deposits of complete ceramic vessels (L148, L150, L151) surrounded and separated by a layer of sediment (L147) which contained only two finds: a juglet of Base-ring II ware (N388) and another of *Bucchero* (N389).

The deposit of L148, which is in the tomb's central part, is mainly composed of complete vessels, in total at least 33, which include Base-ring (five bowls, a krater and two jugs), White Slip II (seven bowls), Monochrome (a juglet) and Plain ware (a bowl, a krater and three jugs), as well as imports of Red Lustrous Wheel-made from Anatolia (two bowls, two kraters, a flask and six spindle bottles) and the Levant (a jug). Most remarkable are four Base-ring bowls, each of which has been placed inside each of the kraters to the south and south-west of the platform L169: N409 inside Base-ring I krater N411, N452 inside Plain White krater N446, N453 inside

Red Lustrous Wheel-made krater N445 and N454 inside Red Lustrous Wheel-made krater N437 (the latter two in *Fig. 19*).

L151 extends along the western and north-western edges of the tomb and seems to be stratigraphically connected to L148 in its southern part. A total of 28 complete ceramic vessels has been so far registered, of which nine are Base-ring vessels (a bowl, eight jugs), eight are Aegean imports (a krater, five piriform jars, a juglet and a spouted cup) and another eight are White Slip II bowls. There is also a Levantine jug, a Plain ware jug and a White Shaved juglet.

The third deposit (L150) is in the northern limit of the tomb and relatively small compared to the other two. It contained three jugs of Base-ring and another of Plain ware, a White Shaved juglet and two Mycenaean piriform jars.

#### Burial layer Sk1 (L139)

The first burial layer, Sk1 (*Fig. 20*), appeared just below the pottery deposit of L133/139. Sk1 represents the semi-articulated human remains of a 35–39-year-old female (see the discussion of all human remains from Tomb SS in *Appendix 1c*). Non-ceramic finds most likely associated with this burial in-





Fig. 17. Tomb SS, pottery deposit L133, north-eastern part (photograph by P.M. Fischer).

clude a faience bead (L139-6) and the end of a distaff of ivory (N382; see Fig. 8) which has an exact counterpart in Tomb RR (N522; see above and *Appendix 3b*).

#### Burial layer Sk2 (L163)

Sk2, located in the south-eastern part of the tomb (Fig. 21), is an articulated skeleton in an extended position, with the head towards the south. Its arms were bent with the hands resting on the abdominal area/torso. The individual is a probable male of 25–35 years with an estimated stature of around 1.70 m. A Red Lustrous Wheel-made spindle bottle (N540), a Base-ring I juglet (N543) and a cylinder seal of haematite (N544; Fig. 9; see below) were placed on its chest. The position of the seal on the upper part of the chest may indicate that it was worn around the neck. To the skeleton's left side, a Base-ring I juglet (N487) was found.

#### Burial layer Sk3 (L149)

Sk3 was found in the north-eastern part of the tomb, north of Sk2 and just south-west of Sk5/6 (Fig. 21). The skeleton was in an extended position, head towards north-west, the legs slightly bent towards south/south-east. It, too, had the arms bent with the hands on the abdominal area/torso. The individual's age has been estimated to 12–15 years, while the sex could not be estimated. Two White Shaved juglets (N414, N415) were placed to the north of its head and chest and a Base-ring I juglet (N536) on its left arm. Three faience beads (N499; see catalogue in *Appendix 3c*) were found next to its neck, most likely belonging to a necklace.

#### Burial layer Sk4 (L155)

Sk4 was placed along the eastern limit of the tomb with the head towards the north (Fig. 21). This individual, too, was found in an extended position with bent arms and hands resting on its belly. Its estimated age is around 25 years, and it is

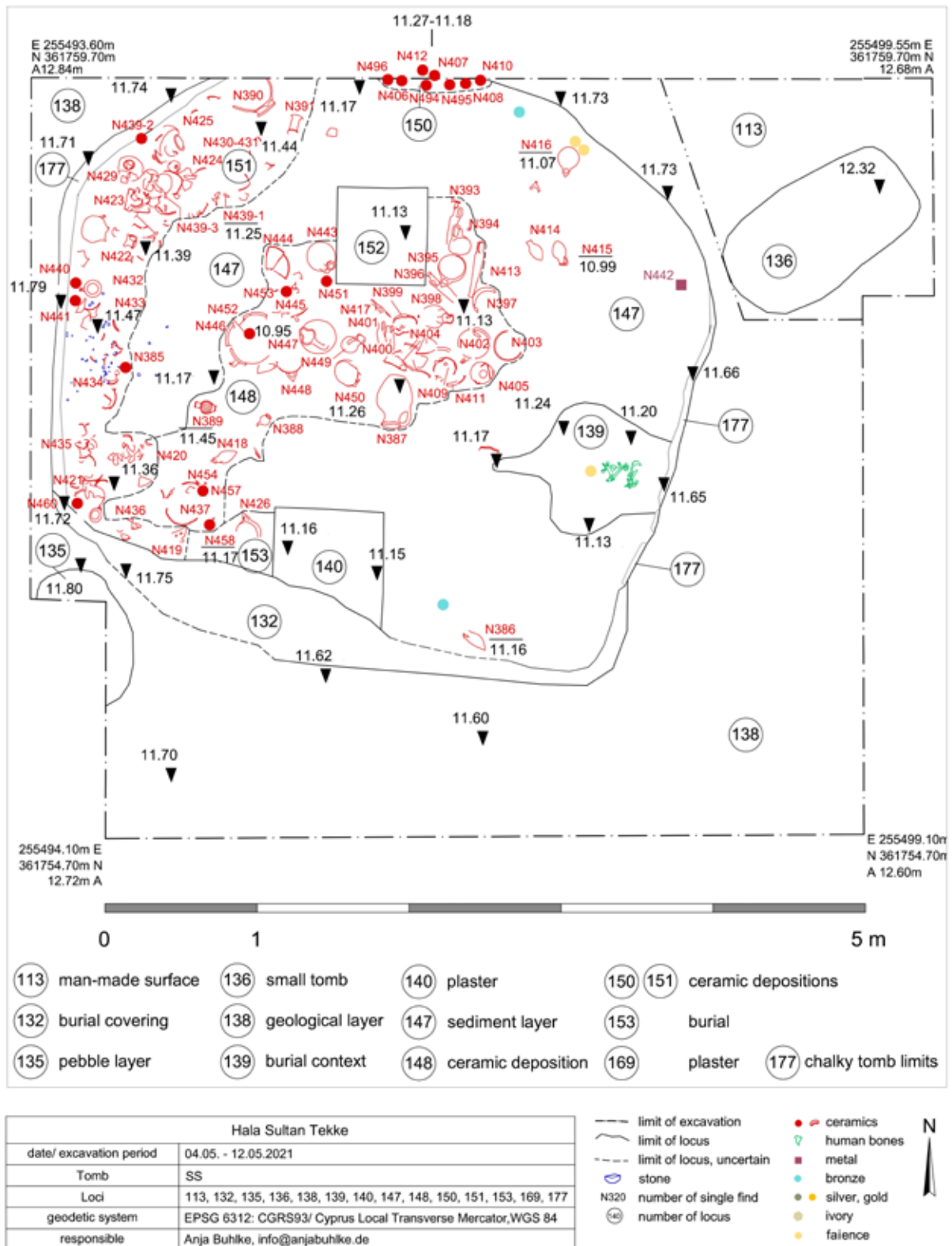


Fig. 18. Tomb SS, pottery deposits L148, L150, L151, clay platforms L140, L169 and burial layer Sk1 L139 (by A. Buhlke).



Fig. 19. Tomb SS, L148: Plain White krater N446 with Base-ring bowl N452 inside (left), Red Lustrous Wheel-made krater N437 with Base-ring bowl N453 inside (centre), White Slip II bowl N451 (right) (photograph by A. Bublke).

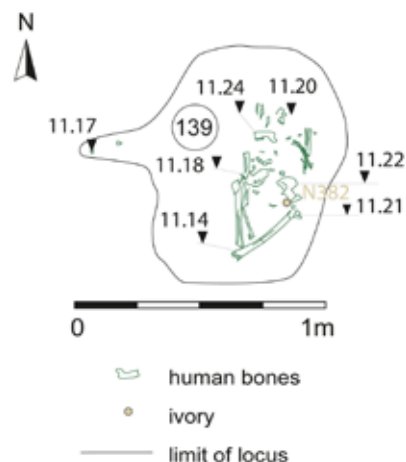


Fig. 20. Tomb SS, burial layer Sk1, L139 (by A. Bublke); see position in relation to the entire tomb in Fig. 18.

a probable female. The only associated object, a small bronze ring (N521), was found between its left arm and chest.<sup>119</sup>

#### Burial layer Sk5 and Sk6 (L154)

Two articulated skeletons were found next to each other in the north-eastern part of the tomb (Fig. 21). Sk6 was placed along the edge of the tomb and Sk5 just to the south. Their positions were extended with the heads towards the north-west and bent arms, while their hands rested on the abdominal area/torso. Both are children, with an estimated age of 9–10 years for Sk5, and of 5 years for Sk6. It is difficult to clearly associate finds with either of the burials, as they were very close to each other and may have been buried together. A White Slip II bowl (N416) was found to the north of their heads and a bronze ring (N442) close to the left lower leg of Sk5.

#### Burial layer Sk7 (L153)

The semi-articulated remains of Sk7, a child of estimated 1.5–2 years, were discovered in the southwestern area of the tomb (Fig. 21). The only associated object is a Monochrome juglet with trefoil mouth (N462).

#### Burial layer Sk8 (L175)

Sk8 was found in an extended position with the head towards the north along the western margin of the tomb (Fig. 21). Its

posture with bent arms and hands on the torso—its left just above the hip and its right on the chest—resembles that of the skeletons described above. It is probably a female with an estimated age of 15–17 years. Associated with its burial are a small White Slip II bowl with lug handle (N475) placed to its left, beneath its hip. In between its thighs were two Base-ring I juglets (N476, N477) and next to its right humerus a Base-ring I miniature twin-juglet (N524).

#### Burial layer Sk9 (L193)

Sk9 was located in the south-eastern part of the tomb between Sk2 to the west and Sk4 and the remains of Sk1 to the north-east and east, respectively (Fig. 21). This individual, too, was extended and had bent arms, its head towards the south like Sk2 next to it and it is likely that these two individuals were buried together. Sk9 is a probable female of around 25 years. Two ceramic vessels were associated with the burial: a Base-ring juglet (N541) from the area close to its head and a Red Lustrous Wheel-made spindle bottle (N539) from the area to the north-east of its right knee and lower leg.

#### Burial layer Sk10 (L196)

The semi-articulated remains of Sk10 were discovered just below and next to the cranium of Sk8 along the western margins of the tomb (Fig. 21). They are represented by a cranium, clavicle, humerus, ulna, radius and ribs, and belong to an infant of 1 year. Associated objects include a small Base-ring I bowl (N525) and a “feeding bottle” of White Painted VI ware (N526).

<sup>119</sup> A Red Lustrous Wheel-made spindle bottle (N539) below its right thigh is associated with Sk9 (see below) according to the stratigraphy.

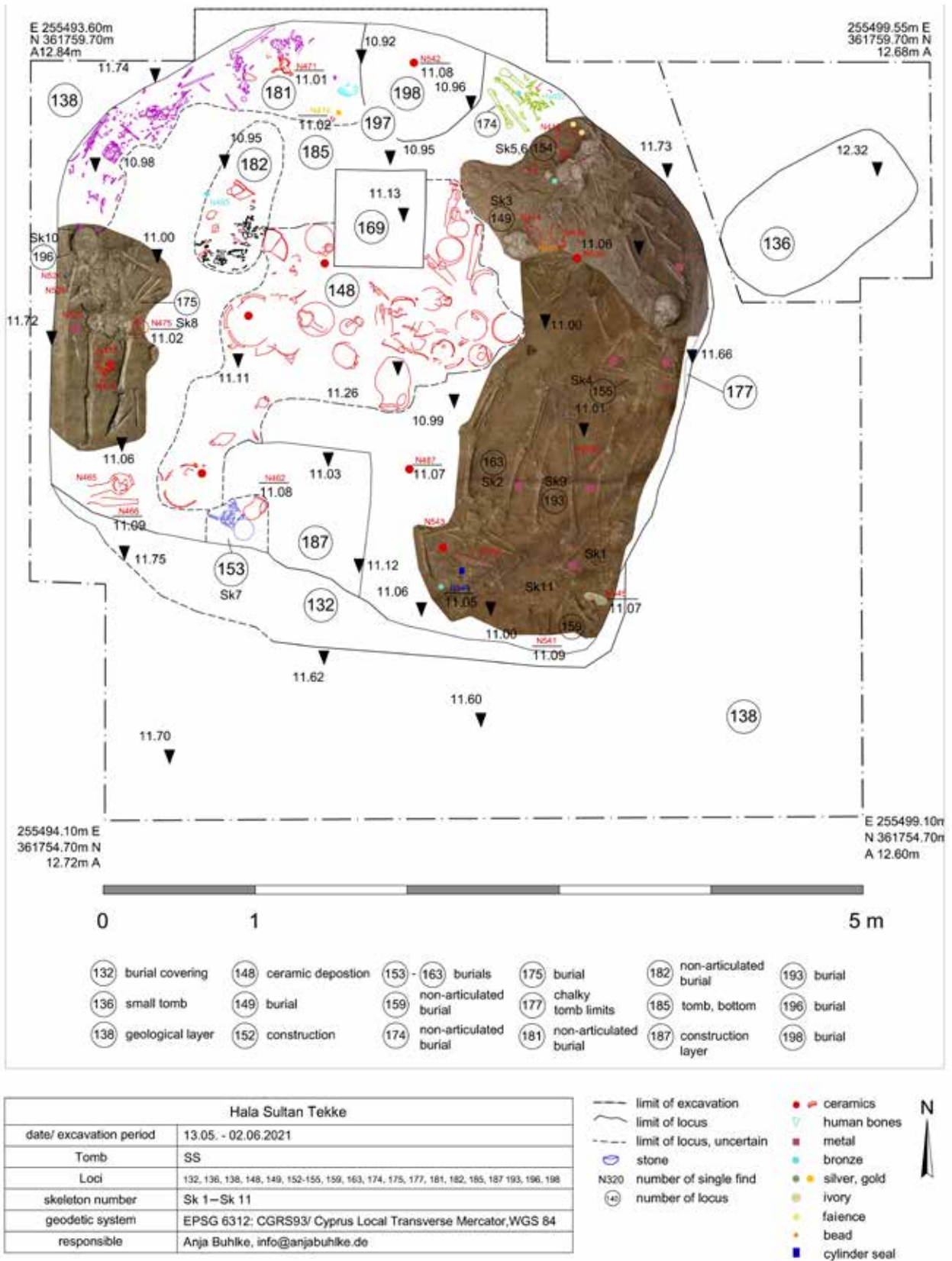


Fig. 21. Tomb SS, burial layers Sk2–11 (by A. Buhlke).

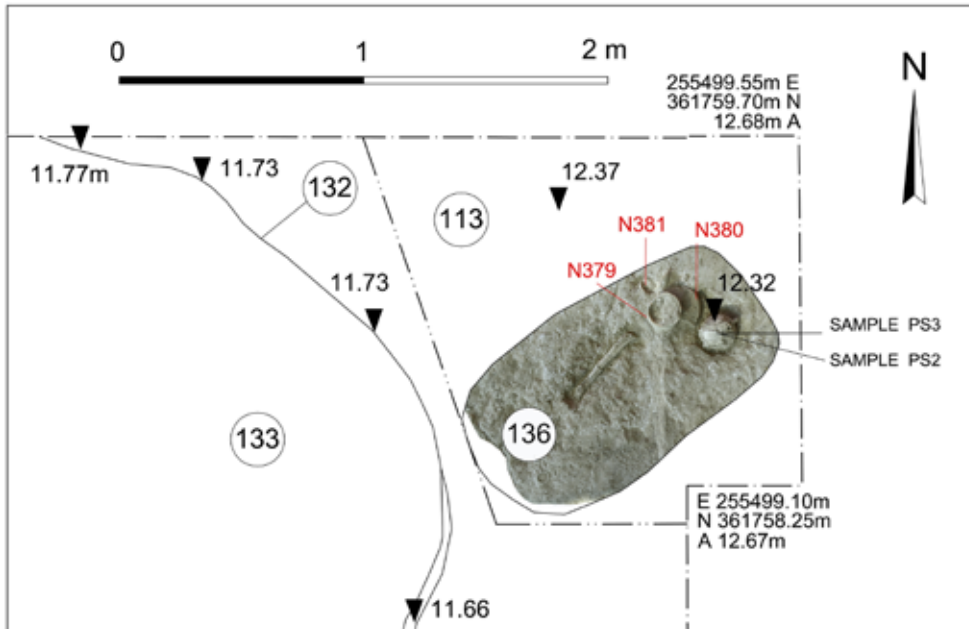


Fig. 22. Tomb SS, burial pit L136 (by A. Buhlke).

### Burial layer Sk11 (L159)

Another semi-articulated skeleton, Sk11, was found in the south-eastern part, on the chest of Sk9 (Fig. 21). The remains were identified as belonging to a foetus of around 7 months in utero or a perinatal infant. The only find which is most likely associated with this burial (or might be residual?) is a large fragment of a White Slip I bowl (N545).

### Additional burial layers with commingled remains or not yet associated skeleton (L174, L182, L181, L198)

These contexts are all located in the northern part of the tomb (Fig. 21). L174, which is to the north of Sk5 and Sk6, contained several long bones, which have not yet been associated with any specific individual(s). A bronze ring (N482) was found in this area. L181 extends along the north-western edge of the tomb and yielded various disarticulated individuals. Finds from this context include a Base-ring I juglet (N471) and a gold object, most likely a cylinder seal cap (N474). To the south-east of L181 is another context with disarticulated burials, L182, where a bronze ring (N485) was found. L198 is a pit in the northernmost part, and it is the only area of the tomb which is not yet entirely excavated. The only find so far is a White Slip II juglet (N542).

### Other burials in the opened-up area

There are two other features in the opened-up area of 5 × 5 m. L126 (see position in Fig. 12) is a pit (burial?) to the south

of Tomb SS which became apparent approximately 10–20 cm below the surface. Only a minor part of it has been exposed, as the remainder extends outside the area of the trench. No skeletal remains have been retrieved so far. A Base-ring juglet (N241) represents the only find.

L136 is another burial to the north-east of Tomb SS which became apparent approximately 30 cm below the surface (Fig. 22). The pit of elongated shape is *c.* 0.7 m wide and extends 1.3 m from south-west to north-east. Human remains from this context include a cranium, femur and two indeterminate long bones. These are not unlikely to represent one single individual. However, the poor preservation of these remains does not allow conclusions to be drawn on the primary or possibly secondary nature of the burial (see Appendix 1c). Two White Shaved juglets (N379, N381) and a White Slip II bowl (N380) were found in this pit.

### The bottom level

The bottom level (with the exception of the pit in L198) of Tomb SS was reached at a depth of *c.* 1.60–1.85 m from surface, i.e., at a height of approximately 11 m.

### THE POTTERY

By T. Bürge

Due to the enormous amount of pottery and the short time between the end of excavation and the submission of this report, the pottery will be discussed only briefly. Aspects of

function, materiality and consumption are currently being studied<sup>120</sup> and will be presented in a forthcoming publication. Hence, the primary aim is to gain an impression of the relative chronology of the various deposits and burials in the tomb. For this scope, the focus lies on chronologically relevant deposits. In order not to overload the text, find numbers are only mentioned if the vessels are particularly important or discussed in detail. In total, over 300 complete or almost complete vessels have been recorded to date, but the number will be considerably higher after restoration.

### The upper pottery deposit (L121)

The main pottery classes in L121 are Base-ring (I and II) and Bucchero, White Slip II (mainly mature/normal and mature/late style), White Painted, Plain ware, White Shaved and Aegean imports. There are a few fragments of Coarse ware cooking vessels, a complete Canaanite jar (N243) and a shallow bowl/platter (L121-33) and spindle bottle (N239; *Fig. 23*) of Anatolian-imported Red Lustrous Wheel-made ware. Base-ring is mainly represented by jugs with white decoration (Base-ring II), a small trefoil-mouthed flat-based jug (L121-15; *Fig. 23*), juglets and a few bowls. The only vessels of White Slip II are bowls, all of normal/mature style. Plain wares include hand- and wheel-made vessels, mainly jugs but also a large hand-made krater with a flat base (L121-8), a few shallow bowls and a wall bracket (N251). There are relatively few White Shaved juglets. Among the White Painted wares is a wheel-made shallow bowl with a pierced lug handle (L121-20; *Fig. 23*) and linear painted decoration on its exterior.

Mycenaean imports from L121 consist mainly of kraters, stirrup jars, juglets, alabastra and small piriform jars, whereas open vessels are represented in quite low numbers. A kylix with linear decoration (L121-21; *Fig. 23*), a small lipless bowl (FS 206) with red paint (N252; *Fig. 23*), a flask (N247) and a “feeding bottle” (N254) are imports from Crete, judging by the fabric and surface treatment. The high number of small piriform jars, which account for 17 of the 32 Aegean imported vessels recorded to date,<sup>121</sup> is striking. Almost all of them are decorated with a foliate band (FM 64). Other patterns include the wavy line (FM 53), net (FM 57; e.g., L121-18 in *Fig. 23*) and chevron (FM 58). One of the kraters (FS 7; L121-13) with scale pattern (FM 70) has a close parallel from Limassol, Tomb 322, which has been dated to LH IIIA2 early.<sup>122</sup> So far,

<sup>120</sup> This is part of a postdoctoral project on ritual deposition funded by an APART-GSK Fellowship of the Austrian Academy of Sciences awarded to T. Bürge.

<sup>121</sup> The figures indicated in Fischer & Bürge 2021, 120 are considerably lower because only a small part of the material had been processed before the submission of that article.

<sup>122</sup> Karageorghis & Violaris 2012, 98, no. 3, pls. XXXIV:3.

none of the Aegean imports can be dated later than LH IIIA2. The most typical chronologically relevant features are the shape and rim stance of the small piriform jars, which have medium-broad decorative zones (e.g., L121-18 in *Fig. 23*). However, some vessels may be as early as LH IIIA1, such as a rounded alabastron of flat subtype (FS 84c; L121-10; not yet restored) decorated with a rock pattern (FM 32) and ogival canopy (FM 13). The overall impression of a LH IIIA(1–)2 date matches that of the Cypriot pottery, which provides a rough timeframe from LC IIA to at least the beginning of LC IIC (see above, Tomb RR pottery).

### The deposit on top of the burials (L133/139)

The pottery in L133/139<sup>123</sup> seems quite similar to that from L121: Cypriot wares include Base-ring (I and II) and Bucchero, White Slip II (mainly mature/normal and mature/late style), Monochrome (see the bowl L139-3 in *Fig. 24*), Plain ware and White Shaved. Base-ring is mainly represented by closed vessels, i.e., jugs and juglets, among which jugs with white paint are most common (e.g., N374; *Fig. 24*). There is also a juglet with white decoration (N291; *Fig. 24*). As in L121, the White Slip II assemblage consists exclusively of bowls, all of normal/mature style (e.g., N376; *Fig. 24*). The repertoire of Plain wares comprises shallow bowls, kraters and jugs and several White Shaved juglets (e.g., N372; *Fig. 24*). Imports from Anatolia include four Red Lustrous Wheel-made spindle bottles (N320, N344, N351, N354), and from the Levant a Canaanite jar (N342) and a lentoid flask with concentric circles painted in red (N333). Aegean imports are, again, well represented. Among the few open vessels are a kylix decorated with flowers (N355), most likely of Cretan provenance, a one-handled bowl (FS 283; L133-1; *Fig. 24*) and a few shallow bowls and cups. Closed shapes are mainly small piriform jars—in total 21 of 53 registered Aegean imports (e.g., N345, N357, N266 in *Fig. 24*)—but also juglets, stirrup jars, alabastra (e.g., N274, N311 in *Fig. 24*) and a flask of vertical type (FS 188/1899; N334). In addition, there are numerous kraters, of which two are decorated with fishes (L133-30, L133-31) and two are chariot kraters of the amphoroid type (N329, L133-15), as well as a large rhyton (N330).<sup>124</sup>

As in L121, none of the Aegean imports from L133/139 can be dated later than LH IIIA2. This becomes especially evident in the case of the shallow cups (FS 220; L133-2, -5) with sunken interior bases. The shallow bowls (FS 295) with monochrome interior (L133-4, L133-11), which are relatively

<sup>123</sup> L139 was separated from L133 as soon as the first human remains, i.e. Sk1 appeared (see above). However, these loci are stratigraphically the same and therefore treated as one context.

<sup>124</sup> The pictorial kraters and the rhyton have not yet been restored and therefore cannot be discussed any further.



Fig. 23. Tomb SS, selected pottery from L121; scale 1:3 (photographs by P.M. Fischer and T. Bürge; drawings by E. Peri; digitalization by E. Peri and T. Bürge).

rare,<sup>125</sup> display the same feature. The rim stances, the relatively broad decorative zones and the overall shapes of the piriform jars fit best in this period, too.<sup>126</sup> In addition, the one-handled bowl FS 283 (L133-1; *Fig. 24*) seems to be a LH IIIA2 innovation.<sup>127</sup> However, the curve-stemmed spiral (FM 49) on our bowl was already very popular in LH IIIA1.

In summary, the time span represented by the Aegean imports in L133/139 seems to be relatively narrow and corresponds to that of L121, i.e., the LH IIIA2 period (roughly equivalent to LC [IIA2–]IIB; see *Table 1*), although some vessels may display LH IIIA1 characteristics. In addition, the similarity of specific vessel types, shapes, wares and decorative motifs between the two deposits, L121 and L133/139, suggests that these depositional events took place rather close in time.

#### The deposit in the centre of the tomb, burial level (L148)

This deposit, which is mainly composed of complete vessels placed in the centre of the tomb around and mainly to the south of the platform built of mud and plaster (L152/169), clearly differs from the previous deposits in terms of vessel shapes and wares: among the 33 registered vessels, there are eleven of Red Lustrous Wheel-made (spindle bottles, bowls, kraters and a flask), eight of Base-ring (bowls, jugs and a bi-conical krater), seven of White Slip II (all bowls), five of Plain ware (a bowl, a krater and jugs), and a juglet of Monochrome ware and one most likely Levantine-imported jug.

A precise dating of this deposit is more difficult due to the absence of Aegean imports. All White Slip II bowls are of the mature/normal type with painted ladder, lattice and dotted line, and two (N448, N451; the latter in *Fig. 25*) also have a vertical hooked chain. On most of these, the decoration is somewhat sloppily executed (mature/late type), resembling some from L121 and L133 and from the upper level of Tomb RR (see above). Since this deposit cannot postdate L133/139 and L121 according to the stratigraphy, a LC II(A2–)B date is proposed here, too. The relatively high number of Red Lustrous Wheel-made vessels (see e.g., the krater N437 found with Base-ring bowl N454 inside in *Fig. 25*) is interesting, in addition to the fact that open vessels of this ware in general and kraters in specific are among the less common shapes found on Cyprus.<sup>128</sup> Kraters in Base-ring I ware with plastic decoration, such as our N411 (*Fig. 26*) are not very common, either.<sup>129</sup>

<sup>125</sup> Mountjoy 1996, 54, fig. 6: no. 46; see also Mountjoy 1999, 129, fig. 29, no. 14 from Asine, Tomb I:1 and N504 from Tomb RR above.

<sup>126</sup> E.g., Mountjoy 1986, 67.

<sup>127</sup> See examples in Mountjoy 1999, 90–91.

<sup>128</sup> See typology in Eriksson 1993, 18, fig. 3.

<sup>129</sup> See the very few examples in Åström 1972b, 142 and a similar type from Alalakh in Bergoffen 2005, 121, pl. 13.

#### The deposit in the northern part of the tomb (L150)

The deposit in the northernmost part of the tomb is considerably smaller and contained three Base-ring jugs, a Plain ware jug, a White Shaved juglet and two Mycenaean piriform jars. One (N407) has a net pattern (FM 57), the other (N496) a foliate band (FM 64) on a medium-broad decorative zone on the shoulder. A LH IIIA2 date for both vessels seems likely, which suggests a dating of L150 close in time with L121 and L133/139, i.e., the LC II(A2–)B.

#### The deposit in western part of the tomb (L151)

The objects located along the western edge of the tomb may perhaps represent the same depositional event as that of L148. However, until the work on the stratigraphic details has been completed, the pottery from these two deposits is treated separately. From this context, 28 vessels have been registered, nine of Base-ring (a bowl, eight jugs; see N457 in *Fig. 25*), eight bowls of White Slip II, a Plain jug and a White Shaved juglet. Imports include eight from the Aegean and a jug from the Levant judging by its fabric which closely resembles that of Canaanite jars.

Among the chronologically indicative Aegean imports are three Mycenaean piriform jars decorated with foliate band (FM 64; N433), net (FM 57; N460 with painted potmark on base; *Fig. 25*) and scale pattern (FM 70; N430/431) filled with circles. All three vessels can be placed in LH IIIA2 according to their overall shape, the medium to broad decorative zone, the handle, the rim stances and the patterns. A fourth piriform jar (L151-1; *Fig. 25*) shows LH IIIA1 characteristics, e.g., a conical body and the decoration on the shoulder, which continues below the handle. The spouted cup N423 (*Fig. 25*; FS 249) with n-pattern (FM 60) has a shape which is relatively rare but it seems to appear in LH IIIA2, perhaps rather late in that period.<sup>130</sup> This context, too, may be placed in LC II(A2–)B.

#### Burial layers, associated with Sk2 (L163), Sk3 (L149), Sk5/6 (L154), Sk7 (L153), Sk8 (L175), Sk9 (L193), Sk10 (L196) and Sk11 (L159) and with various commingled bones (L181, L198)

Compared to the high number of vessels found on top and next to the burials, only a small amount of pottery, in total 19 vessels, was associated with the burials *per se*. The pottery wares comprise a bowl, seven juglets and a miniature twin-juglet of Base-ring I, a juglet of Monochrome ware, a large fragment of a White Slip I bichrome bowl, two bowls and a juglet of White Slip II, two White Shaved juglets and a White Painted VI “feeding bottle”, in addition to two Red Lustrous Wheel-made spindle bottles.

<sup>130</sup> See Mountjoy 1986, 87.



Fig. 24. Tomb SS, selected pottery from L133; scale 1:3 (photographs by T. Bürge and P.M. Fischer; drawings and digitalization by E. Peri).



Fig. 25. Selected pottery from Tomb SS, L148 (N451, N454, N437) and L151 (N457, L151-1, N460, N423); scale 1:3 (photographs by L. Avial Chicharro, B. Clark and T. Bürge).



Fig. 26. Base-ring I krater N411 from L148, Tomb SS; scale 1:6 (photographs by T. Bürge).

Some vessels, i.e., a small White Slip II bowl of mature or possibly mature/late style (N416) associated with Sk5/6 (L154) and a Monochrome juglet with trefoil mouth (N462) belonging to Sk7 (L153), are very similar or almost identical to vessels from L148 and L151 and point to a similar date of these contexts, i.e., the LC II(A2–)B.

The remaining burial layers with associated pottery seem to be of an earlier date. One indication is the presence of Base-ring I (see, e.g., N477 and N524 in Fig. 27), commonly dated from LC IA2 to LC IIA2,<sup>131</sup> while Base-ring II is absent. This is, e.g., the case in L149 (Sk3), where a Base-ring I juglet (N536) was found associated with Sk3. In addition, two White Shaved juglets (N414, N415; see the former in Fig. 27) from the same burial may be of earlier date than the other vessels of this ware in Tomb SS, judging by their different shape and fabric. White Slip II is represented by a small bowl with lug handle (N475, L175; Fig. 27) and a juglet (N542, L198; Fig. 27). The bowl closely resembles the two bowls (N455, N456 in Fig. 5) from the bottom layer of Tomb RR (see above) and is most likely to be placed rather at the beginning of the development of White Slip II, i.e., in LC IIA.<sup>132</sup> White Slip II juglets are, in general, very rare. Our N542 is decorated with

vertical ladders and lattices on the body, horizontal lines on the neck and wavy lines on rim and handle. The interior of the flaring rim is also decorated with three bundles of four strokes. These patterns as well as the relatively fine, grey fabric, the thick light grey slip and the carefully applied dark brown paint indicate an early date in the life span of White Slip II.<sup>133</sup>

The “feeding bottle” of White Painted VI ware (N526) associated with Sk10 (L196), with a handle from rim to shoulder opposite the spout and a zigzag decoration composed of parallel lines painted on the body in red,<sup>134</sup> has a close parallel in the settlement.<sup>135</sup> This ware is attested from LC IA1–IB1 according to Åström’s scheme.<sup>136</sup> The other vessel from the same burial, a small hemispherical Base-ring I bowl (N525), is most likely of a very early type, with a flattened base and a very lustrous surface.

The White Slip I bowl (N545) associated with Sk11 (L159) has bichrome red and dark brown decoration. This

<sup>131</sup> Åström 1972a, 700–701; see though the reservations expressed above, under Tomb RR.

<sup>132</sup> See references in Popham 1972, 467 (type 5).

<sup>133</sup> A very similar juglet with only slight variations in the decoration, perhaps from the same workshop, was found in Alalakh; see Bergoffen 2005, 158, pl. 50:d, WE10.

<sup>134</sup> The “feeding bottle” has not yet been restored and is therefore not illustrated in the present report.

<sup>135</sup> Found in CQ1, in a pit predating Stratum 2; see Bürge & Fischer 2018, 313, fig. 3.61:2.

<sup>136</sup> Åström 1972a, 700–701; see parallels to the shape, labelled as “tea-pot” in Åström 1972b, fig. XLI:4–9.



Fig. 27. Selected pottery from Tomb SS, burial layers Sk3 (N414), Sk8 (N475, N477, N524) and L198 (N542); scale 1:3 (photographs by L. Avial Chicharro, B. Clark and T. Bürge).

type is, *inter alia*, attested in Pit P in Area A, dating from LC IB.<sup>137</sup> The ware is commonly dated to LC IA2–IB2,<sup>138</sup> which is confirmed by the results of the renewed excavations at Tell el-‘Ajjul.<sup>139</sup>

### Summary

While the various pottery deposits on top and beneath the burials, i.e. L121, L133/139, L148, L150 and L151, can most likely be placed in LC II(A–)B; see (*Table 1*), and probably were placed relatively close in time to each other, most of

the burials—except for Sk1 (just below and associated with L139) and Sk7 (L153)—are of earlier date judging by their finds: skeletons Sk2 (L163), Sk3 (L149), Sk8 (L175), Sk9 (L193) and the burial layers in the north/north-west (L181) and the north (L198) with various disarticulated individuals are best placed at the beginning of LC IIA (see *Table 1*). The White Slip I bowl N545, associated with Sk11 (L159), and the White Painted VI “feeding bottle” N526, associated with Sk10 (L196) together with a possibly early type of a Basing I bowl (N525) may either be the remains of the earliest use of the tomb in LC IA2–IB1 (see *Table 1*) or represent heirlooms.

<sup>137</sup> Fischer & Bürge 2016, 51–52, figs. 22:1–2.

<sup>138</sup> Åström 1972a, 700–701.

<sup>139</sup> Fischer 2003, 273–276.



Fig. 28. Base-ring II bovine figurine/vessel N439 from L151; scale 1:3 (photographs by T. Bürge; drawings and digitalization by L. Avial Chicharro).

## OTHER FINDS

By T. Bürge and P.M. Fischer

### The Base-ring II bovine figurine/vessel N439

A hollow figurine/vessel<sup>140</sup> of a bovine (N439; see Fig. 28 and *Appendices 2 and 3a*) with an opening on the top and one on the animal's muzzle was found in the pottery deposit in L151. The bovine is complete; the handle and legs were obviously broken in the course or after its deposition in the tomb and found nearby.<sup>141</sup> Its total height is 11.8 cm and its capacity is 191 ml. The vessel is made of Base-ring ware with painted decoration, typical of Base-ring II. Although its exact function and meaning cannot be determined, it may have been used as a rhyton during mortuary rituals and perhaps been deposited in the tomb as (symbolic?) offering.

### The cylinder seal N544

The seal N544 (Fig. 9; from L163, associated with Sk2) is made of haematite and has a length of 2.0 cm, a diameter of 0.8 cm and a weight of 4 g. It is pierced through longitudinally; the diameter of the hole is 0.3 cm.

The only cylinder seal from Tomb SS shows a standing figure holding a griffin on each side. Between the griffins is a tree and below the tree a bucranium. Judging by its feet which point in opposite directions, the body of the figure is shown in frontal view. The head is directed towards the left (on the impression). Its relatively large size, the wide neck and the large open jaw suggest an interpretation as a lion's head.<sup>142</sup> The figure wears a long robe. The griffins are standing erect on their hind legs, their heads are directed in opposite directions, the wings in the air, one front leg hanging down, the other touching the "anthropomorphic" figure, and the tail forms an s-shape. Their crests are well visible, and the wings made of two rows of feathers each are executed in great detail. The tree is small in relation to the figures, and has a globe-shaped top and bottom, with two diagonal lines on the upper part indicating leaves.

This motif and the complex style of engraving are typical of the Cypriot Elaborate Style as defined by Porada.<sup>143</sup> These seals are usually made of haematite and they constitute the most-frequently found group of Cypriot style seals outside Cyprus, most notably in Ugarit.<sup>144</sup>

<sup>140</sup> Both terms, figurine and vessel, are applicable to this object.

<sup>141</sup> N439-2 indicates the findspot of the body and N439-1 and N439-3 that of the handle and legs on the plan in Fig. 18.

<sup>142</sup> See the lion-headed human figure depicted in the same way on a seal from Enkomi (British Museum, BM 1900,0615.53) in Kenna 1971, 29–30, pl. XXI, no. 79.

<sup>143</sup> In analogy to Mitannian carving styles, see Porada 1948.

<sup>144</sup> Schaeffer-Forrer 1983; Amiet 1992, 187–200; see also Webb 2002, 118.

## Objects of faience, bronze and gold

Three faience beads (N499; see catalogue in *Appendix 3c*) represent the only beads from this tomb (L149, associated with Sk3). Jewellery of bronze includes four bronze rings, two associated with Sk5/6 (N442, N521; both in L154) and two found in burials with disarticulated human remains (N482 in L174, N485 in L182). A small discoid object of gold (N474), most likely the gold cap of a cylinder seal, comes from the north-western part of the tomb (L181, disarticulated human remains).

## DISCUSSION OF TOMB SS

The earliest period of use of Tomb SS can be dated to LC I based on the Cypriot-produced ceramic material associated with Sk10 and Sk11, which clearly predates the LC II period. Mainly based on the dates provided by the Mycenaean pottery, remaining burials can be placed in the time span from the late LC I or early LC II to mainly the LC II(A2–)B period. The most recent events include several deposits of ceramic vessels. The material from these deposits is very consistent in vessel shape, ware and chronology, suggesting a relatively narrow time span in which these depositional events took place. As already noted, among the numerous Aegean imports there are none which can be dated later than the end of LH IIIA2. Consequently, the tomb was in use during a period of approximately 150 years, i.e., from *c.* 1450–1300 BC.

The tomb contained seven articulated (Sk2–6, Sk8–9), four semi-articulated (Sk1, Sk7, Sk10–11) and a yet-undefined number of commingled burials. The articulated skeletons, which are arranged along the western and eastern edges of the tomb, have in common their extended position, bent arms and hands on the torso, and indicate primary inhumations. Three of the semi-articulated individuals (Sk7, Sk10–11) are either a foetus and/or infants, and the smaller size and greater fragility of their bones in comparison to those of adults may explain the more fragmented state of preservation. However, it seems that the semi-articulated and the commingled burials are the result of dislocation when additional burials took place and/or secondary treatment.

Burial gifts of other materials than ceramics are relatively scarce and include four bronze rings and a few faience beads in addition to the cylinder seal N544 which is associated with Sk2. There is also the gold cap of a cylinder seal but an associated seal has not been found. There are a number of ceramic vessels including Red Lustrous Wheel-made ware which can be clearly associated with the burials. Most vessels are of small size and comprise juglets of Base-ring I, White Shaved and Monochrome wares, as well as small White Slip II bowls.<sup>145</sup>

The repertoire of locally produced and Mycenaean/Minoan-imported vessels, mainly fine tableware, from the various deposits next to and above the burials (L121, L133/139, L148, L150, L151) is clearly different and contains vessels for serving (i.e., larger closed vessels, mostly jugs), possibly mixing (kraters) and consumption (open vessels, such as bowls, cups and kylikes). The smaller closed vessels, such as alabaster, juglets, flasks, spindle bottles and the numerous piriform jars may have served as containers for precious substances, perhaps scented oils or spices. The two Canaanite jars, one in the upper deposit (L121), the other from the deposit just above the burials (L133/139) stand out and were certainly used for the storage of liquids which were consumed inside or next to the tomb.

All in all, the pottery from these deposits hints at ritual consumption taking place in connection with the use of the tomb. The exact function of the two rectangular platforms of whitish clay in the central/northern (L152/169) and in the southern part (L140) is unclear. There are two possibilities: either these platforms are the base for wooden roof supports or were used as tables. The former interpretation seems to be rather unlikely since the platforms are of a fairly soft material and one would have expected a foundation of stone. The way of depositing bowls inside kraters, which is attested four times in L148 around the central platform, is striking and may point to a specific (ritual) practice. Interestingly, the excavated contexts revealed very few faunal remains. This suggests that burial rituals may have primarily involved drinking rather than general feasting. A possible food offering, however, is indicated by the Base-ring jug filled with fish bones (N374; *Fig. 24*).

Intermingled with the finds were many pieces of whitish wall plaster obviously belonging to the collapsed roof of the dome-shaped tomb. The stratigraphic position of L121, the most recent deposit, corresponds to the slightly converging uppermost part of the tomb. Only a very few of the vessels in this locus were intact but most were complete. This suggests that they were thrown into the upper part of the collapsed tomb where they broke.<sup>146</sup> Most could be reassembled and, to date, 73 complete or almost complete vessels have been recorded.<sup>147</sup> These include almost exclusively fineware vessels of Cypriot, Mycenaean, Minoan, and Anatolian provenance. There were only a few faunal remains mixed with this deposit, almost all molluscs: a helmet shell (*Semicassis*), numerous complete *Bolinus brandaris* and at least one *Hexaplex trunculus*.<sup>148</sup> The

present not be assigned to a burial (see above).

<sup>146</sup> Cf. e.g., Pit V where they were broken before deposition; Fischer & Bürge 2017, 195–208; Bürge 2021.

<sup>147</sup> However, most of the material is awaiting restoration and conservation, which will increase the total number of finds.

<sup>148</sup> We would like to thank David Reese for identifying the molluscs.

<sup>145</sup> The White Slip I bowl (N545) is not mentioned here, as its fragmentation may indicate its residuality. The White Slip II juglet (N542) can at

objects from L121 were deposited after the tomb collapsed. Thus, this locus appears to represent an offering pit containing objects deposited in honour of the deceased who lay buried below, and to whom access was no longer possible.<sup>149</sup>

Tomb SS, which contained a large number of ceramic vessels but not many other finds, has been completely excavated over three seasons.<sup>150</sup> This tomb is very different from the adjacent Tomb RR as regards general shape and size, and the much lesser number of deceased of whom most were found in an articulated position. The quite large size of the tomb permitted ritual activities which took place inside the tomb. This is supported by the composition of the ceramic containers, *viz.* small vessels inside larger, which were found *in situ* at the time when the tomb collapsed—an event which protected the deceased in their original position.

Given these differences, it may be suggested that Tomb SS functioned as a place where not only interments but also rituals in honour and memory of the deceased took place. In Tomb RR, the commingled state of the skeletal remains seems to be the consequence of post-mortem and secondary burial treatments. Since these two tombs were used simultaneously for *c.* 100 years, it cannot be excluded that human remains were moved from Tomb SS to Tomb RR after the performance of burial rituals in the former.

## Summary and further research

The preliminary results of the 2020 and 2021 excavations have shed further light on mortuary practices at Hala Sultan Tekke. Of particular interest is the fact that the tombs are located in an extramural area, in contrast to the more common location of burials inside settlements in the Late Cypriot period, at least in urban centres such as Enkomi, Morphou *Toumba tou Skourou*, Alassa, Kalavassos and Kition.<sup>151</sup> There is, however, also evidence for intramural burials at Hala Sultan Tekke in Areas 8, 23 and CQ2.<sup>152</sup> Jennifer Webb has recently pointed out that many “intramural” tombs were in fact located in open spaces or at the edge of settlements and not immediately below (contemporaneous) buildings,<sup>153</sup> which seems also to apply to Hala Sultan Tekke.

The continuous use of tombs over generations, which is characteristic of Late Cypriot mortuary practice is, once again, confirmed in the case of Tombs RR and SS. The repeated opening of tomb chambers, the deposition of new

individuals, the movement of older burials and the likely secondary treatment of skeletal remains, including the possible removal of individuals or specific body parts (see also *Appendix 1a*), indicate complex mortuary programmes which have been observed not only in various tombs at Hala Sultan Tekke<sup>154</sup> but also at other Late Cypriot sites.<sup>155</sup> However, the degree of (in)completeness of skeletons/individuals, the time span of the tombs and the number of re-openings vary. For instance, among other tombs from the new excavations at Hala Sultan Tekke, Tomb X was in use roughly from LC IB–IIC (*i.e.*, *c.* 16th century to *c.* 1200 BC) and the human remains (17 MNI) were very poorly preserved and most pottery vessels broken,<sup>156</sup> while Tomb LL had a relatively short period of use around 1400 BC, and contained numerous complete and intact vessels but no complete skeletons, although in some cases at least larger body parts were preserved. Likely traces of exposure to fire on numerous human and other remains were observed in three tombs, RR, X and LL,<sup>157</sup> suggesting that the use of fire seems to have played an important role in mortuary rituals in this period. Further analyses are planned.

Regarding the general form of the tombs, it is interesting to note that the figure-8 shape of Tomb RR, *i.e.*, the division into two chambers, is paralleled in other features of Area A: namely, Tomb X and Offering Pits V and GG, which contained a large amount of broken tableware.<sup>158</sup> In contrast, Tomb SS, which is larger than the others, has a roughly pentagonal shape and, in addition, differs from the other tombs by the enormous amount of pottery<sup>159</sup> but hardly any other precious objects.

The pottery deposits on top of and next to the burials in Tomb SS are interpreted as the remains of drinking rituals. Possible food offerings have been observed also in other tombs, most notably in Tomb RR, where numerous faunal remains were deposited in vessels or next to individuals<sup>160</sup> and botanical remains were found inside ceramic vessels.<sup>161</sup> The remains of rituals of consumption and perhaps offering are attested at various other places in Area A, where numerous pits, shafts and reused wells contained large amounts of broken pottery and deposits of complete vessels and other objects.<sup>162</sup>

The possibility of intentional burning in Tomb RR, as well as in Tombs X and LL, is noteworthy, since proper cremations

<sup>149</sup> Cf. Fischer & Bürge 2017.

<sup>150</sup> A third, complementary season was carried out in November 2021.

<sup>151</sup> See summary in Keswani 2004, 86–88.

<sup>152</sup> Fischer 1980, 16–18; Åström 1983; Niklasson 1983; Åström & Nys 2007; Fischer & Bürge 2018a, 124, 129–134.

<sup>153</sup> Webb 2018, 218–224.

<sup>154</sup> Most recently Tombs X and LL in Area A; see Fischer & Bürge 2017, 165, 169–195; 2018b, 53–58.

<sup>155</sup> Summarized by Keswani 2004, 88–108.

<sup>156</sup> Fischer & Bürge 2017, 165, 173–174.

<sup>157</sup> Fischer & Bürge 2018b, 57, fig. 24.

<sup>158</sup> Fischer & Bürge 2017; 2018b.

<sup>159</sup> There are at least 200 ceramic vessels but the number will increase considerably after conservation.

<sup>160</sup> Fischer & Bürge 2020, 94, 98.

<sup>161</sup> Kofel in Fischer & Bürge 2020, 105–107.

<sup>162</sup> Bürge 2017; 2021; Fischer & Bürge 2017.

are, so far, reported on Cyprus only from the 11th century BC onwards.<sup>163</sup> This phenomenon will be further studied and analysed in future seasons. Also planned are palaeoparasitological, micromorphological, archaeobotanical and archaeozoological studies. In addition, bone (*ossa petrosae*) and dental samples were collected for aDNA, Sr-isotope and heavy metal analyses, and numerous vessels from Tomb SS were sampled for organic residue analyses<sup>164</sup> in order to study ritual consumption practices.

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## Appendix I. The human remains

### I.A. THE HUMAN REMAINS FROM TOMB RR

By Bebelyn Placiente Robedizo & Cecilia Eriksson

#### Introduction

Over 130 individuals are estimated to have been buried in Tomb RR alongside hundreds of associated finds indicative of long-term use. In general, the more recent burials were more complete and less disturbed while the oldest were incomplete and disarticulated and/or commingled due to taphonomic factors e.g., the removal of and/or movement of the human remains. In this appendix to the main report, an overview of the results from the osteological analysis of the human remains is presented. Three contexts are discussed in greater detail.

#### Osteological methods and analysis

The human remains were analysed and recorded according to standard osteological reference guidelines.<sup>165</sup> Documentation includes context, completeness, preservation, taphonomic factors, and, whenever possible, age-, sex- and stature estimations as well as changes caused by trauma and pathological

conditions. Customized recording sheets were used alongside photographic documentation and conventional note-taking. The information was subsequently entered into Access and Excel databases. Age estimation of subadults was based on dental development and osteometric measurements of long bones,<sup>166</sup> while that of adult individuals primarily rested on dental attrition due to poorly preserved or missing coxae, the analysis of which could have yielded more reliable estimations.<sup>167</sup> Epiphyseal fusion and age marks indicating transition from young to adult age were also considered in some cases to estimate relative age.<sup>168</sup> Sex estimation was based on primary sex characteristics on the coxae and secondary sex characteristics on the cranium.<sup>169</sup> Changes associated with trauma and pathological conditions were macroscopically analysed and photographed.<sup>170</sup> The minimum number of individuals (MNI) was estimated on a case-by-case basis. In the case of articulated and semi-articulated skeletal remains, MNI could easily be determined *in situ* based on context, level and location in the tomb. Assessment of commingled remains relied on dividing the remains into concentration areas and a qualitative assessment of the bone inventory of each area, taking into account the number of the same element (e.g., crania and long bones) based on size and side (e.g., three adult size left femori = MNI 3), as well as cross referencing with additional elements with distinguishing traits, such as elements with differing stages of development (e.g., three adult size left femori + unfused vertebrae [subadult] = MNI 4).<sup>171</sup>

#### Osteological results

The remains of 13 individuals were excavated in 2018.<sup>172</sup> The majority were incomplete and disarticulated except two individuals (Sk2 and Sk5). The 2019 season revealed the remains of additional 24 individuals whereof five were complete and articulated skeletons (Sk14, Sk17, Sk23, Sk29 and Sk31).<sup>173</sup> The large amount of human remains found in several concentrations throughout the tomb in 2020 was estimated as belonging to 48 individuals.<sup>174</sup> Most of the remains were in a disarticulated and commingled state. The remains of two individuals only (Sk43 and Sk51) were in a state of partial articulation. Within each locus, areas that held concentrations of human remains were assigned separate Sk numbers. Each Sk number therefore rep-

<sup>163</sup> Keswani 2012, 318, esp. n. 143 with further references.

<sup>164</sup> As noted above, this is part of a postdoctoral project on ritual deposition funded by an APART-GSK Fellowship of the Austrian Academy of Sciences awarded to T. Bürge.

<sup>165</sup> Buikstra & Ubelaker 1994; Connolly 2006; Mitchell & Brickley 2017.

<sup>166</sup> Schaefer *et al.* 2009.

<sup>167</sup> Brothwell 1981; White & Folkens 2005.

<sup>168</sup> ADBOU 2015.

<sup>169</sup> Buikstra & Ubelaker 1994; Steckel *et al.* 2019.

<sup>170</sup> Ortner 2003; Lovell 2008; Mann & Hunt 2013.

<sup>171</sup> White *et al.* 2012, 337–338; Nikita *et al.* 2019, 19–20.

<sup>172</sup> Fischer & Bürge 2019, 307–309, 314.

<sup>173</sup> Fischer & Bürge 2020, 91–94.

<sup>174</sup> Placiente Robedizo *et al.* in Fischer & Bürge 2021, 126–130.

resents a skeletal concentration. In 2021, a high number of disarticulated and commingled remains belonging to an estimated 52 individuals were brought to light. There were, however, a few more individuals of partial articulation (Sk56, Sk63, Sk66, Sk68–70) compared to the previous season. The MNI from the four seasons was estimated to be 137 individuals.

The estimation of age at death resulted to two foetals (<birth), 26 infants (birth–3 years), 24 children (3–12 years), ten adolescents (12–20 years), and 58 adults. In addition, there are 15 possible adults, and two remained indeterminate. The sex estimations resulted in two males, ten probable males, ten females, six probable females, and 109 that cannot be assessed.

Frequent pathological changes include signs of non-specific infections documented in 26 individuals, mostly on long bones of the lower body, in the form of periostitis, thickening of bones and osteomyelitis (e.g., Sk17 and Sk68). These changes can be related to trauma but also be signs of infection associated with certain diseases (e.g., syphilis).<sup>175</sup> In total, 25 individuals (e.g., Sk1 and Sk15) display pathologies in the form of caries, calculus, periapical abscess and periodontitis indicating poor dental status.<sup>176</sup> Ante-mortem tooth loss was also noted in three cases. Furthermore, signs related to malnutrition and vitamin deficiency were recorded such as linear enamel hypoplasia (e.g., Sk23) in six individuals indicative of childhood stress<sup>177</sup> and cribra orbitalia (e.g., Sk69) in four individuals often attributed (but not generally accepted in the literature) to iron deficiency anaemia.<sup>178</sup> Less frequent are the following pathologies: possible mastoiditis<sup>179</sup> in one individual (Sk45) usually related to middle ear infection, possible meningitis<sup>180</sup> in two individuals (Sk39 and Sk57) caused by infection resulting to the inflammation of the membranes surrounding the brain and spinal cord due to infection, hyperostosis frontalis interna in one individual (Sk64) i.e., thickening of the frontal bone and possible scoliosis in one individual (Sk14, see below *Fig. 30*) i.e., curved spine, both often considered hereditary.<sup>181</sup>

Furthermore, activity related changes such as osteoarthritis<sup>182</sup> were discovered in six individuals (e.g., Sk31) and four cases observed in the skeletal remains from concentration areas of commingled remains (e.g., Sk70) thus hindering linking cases to discrete individuals. Observations were made on long bones

(e.g., femori and tibiae), vertebrae, manus phalanx and costae. A few cases of osteophytes, pitting, lipping, Schmorl's nodes and enthesophytes were observed on long bones, vertebrae, patellae and in some cases on coxae and scapulae indicating continuous stress on the joints on the legs, hands, hip and pressure to the spine due to strenuous and repetitive activities.<sup>183</sup>

Evidence of trauma has been detected in four individuals and six cases among commingled remains, including both healed and unhealed fractures mainly on long bones (e.g., femur and fibula), vertebrae, costae and coxae.<sup>184</sup> Among the four individuals, one individual (Sk17) demonstrated severe infection in relation to a fracture to the right fibula which was highly deformed. Another individual (Sk31) demonstrated a healed fracture and deformed acetabulum on the left pelvic bone.

The most prominent non-metric variations recorded in the material was septal aperture which is a relatively common variant and has been regarded as an inherited characteristic, although this is still disputed.<sup>185</sup> This trait was observed in the distal humerus of one individual (e.g., Sk31) and in seven cases from concentration areas of commingled remains (e.g., Sk36). Others include fused cervical vertebrae in two individuals (Sk19 and Sk31) and enlarged foramina i.e., holes in the cranium and tibia also in two individuals (Sk19 and Sk48).

## Discussion and concluding remarks

Apart from the state of completeness and preservation of the human remains, many taphonomic factors have affected the osteological record. The removal, movement (i.e., pushing and possible relocation) and mixing of the human remains, which resulted in the incomplete and commingled state of many individuals,<sup>186</sup> is indicative of a specific burial practice and long-term use, also attested in other Late Cypriot sites.<sup>187</sup> Some of the human remains were stained due to proximity to metal finds and/or blackened possibly due to fire exposure or soil. Finally, excavation and postprocessing, in addition to weathering, root etching and the large number of stones, caused post-interment damage.<sup>188</sup>

The age distribution, although somewhat tentative, as only 74 of 137 individuals could be estimated, indicates that individuals representing a wide age range were buried in the tomb. Hence, the results suggest no age discrimination in burial

<sup>175</sup> Bennike 2008, 336, 347, 349; ADBOU 2015, 47–56.

<sup>176</sup> Ortner 2003, 590, 593.

<sup>177</sup> Cf. also Fischer & Norén 1988. Linear enamel hypoplasia was observed in the dental remains from the crania of six discrete individuals. Loose teeth were not examined.

<sup>178</sup> Alexandersen 2008, 375–380; Mann & Hunt 2013, 28.

<sup>179</sup> Mann & Hunt 2013, 40–41.

<sup>180</sup> Mann & Hunt 2013, 153–154; Mayo Clinic 2021.

<sup>181</sup> Bennike 2008, 328–329; Mann & Hunt 2013, 19.

<sup>182</sup> Activity related changes were recorded separately but osteoarthritis (OA) was diagnosed based on the observation of all or several of the following changes i.e., osteophytes, pitting, lipping and eburnation.

<sup>183</sup> Larsen 2015, 178–213.

<sup>184</sup> Lovell 2008, 341–386.

<sup>185</sup> Parras 2004; Myszka 2015.

<sup>186</sup> See also Placinte Robedizo *et al.* in Fischer & Bürge 2021, 126–130. E.g., Swedish Tombs 2 and 11 at Enkomi *Ayios Iakovos*: Gjerstad *et al.* 1934, 470–475, 525–526; see also summary in Keswani 2004, 93–94.

<sup>188</sup> McKinley 2004, 13–14.



Fig. 29. The semi-articulated remains of Sk56 between the femoral bones of Sk68 (photograph by B. Placinte Robedizo).



Fig. 30. Sk14 in situ demonstrating possible lumbar scoliosis (photograph by B. Placinte Robedizo).

practices e.g., specific treatment and/or separation of the remains of individuals of certain age groups.<sup>189</sup>

Even more difficult was the sex distribution, which resulted in an estimation of only 28 individuals, of which most are from the upper levels of the tomb, where skeletons are more articulated and better preserved than in the lower levels, where human remains were found commingled and disarticulated and more affected by taphonomic factors. Based on the prevalence of skeletal remains of both sexes there seems to be no division of burials based on sex.

Among the numerous burials and contexts of the tomb, three are particularly noteworthy. One case involved two individuals, Sk56 and Sk68.<sup>190</sup> Sk68 which was almost complete and most likely an adult female, exhibited osteomyelitis on the left femur along with thickening on the right femur and periostitis on the right tibia and osteomyelitis and periostitis on the right fibula. These pathologies indicate severe infections likely caused by trauma. The discovery of a premature foetus (Sk56) between the legs of Sk68 indicating post-mortem foetal extrusion (Fig. 29) is unusual. However, a comparable case from Tomb Z9 at Hala Sultan Tekke, where the complete and articulated skeleton of an adult female (Sk2) in a flexed position with a slightly twisted torso and uplifted arms was discovered

alongside the skeletons of three infants (Sk3–5), two of which (twins?) were found in the crook of her arms as if she was holding them and one by her legs, suggesting familial relation between the individuals. Similar pathological changes including periostitis and osteomyelitis were observed on the female.<sup>191</sup>

Another noteworthy case is Sk14, an almost complete skeleton of a possible adult and probably female. Caries and periodontitis were documented along with a healed fracture of the distal fibula resulting in pseudoarthritis i.e., deformed lower leg. Furthermore, possible lumbar scoliosis i.e., curved spine (Fig. 30) was observed along with osteoarthritis of the vertebrae indicating physical disabilities which must have affected the individual's daily life.<sup>192</sup>

The third case are two subadults in concentration Sk57, which represent the semi-articulated remains of an infant and the commingled remains of a premature foetus. Possible meningitis (Fig. 31) was observed on some of the cranial remains of the latter along with active periostitis of the right humerus indicating active and possibly fatal infection. Meningitis can be caused by viral, bacterial, parasitic and fungal infections.<sup>193</sup> The infant showed signs of active periostitis of one of the humeri and healed periostitis of the left radius and ulna along with active and healed bilateral periostitis of both tibiae (Fig. 32) which points at infection to one of the

<sup>189</sup> Such age discriminations were, e.g., found in Tomb 13 at Kalavassos or in Tomb 1 at Morphou *Toumba tou Skourou*, where infants were buried in small niches cut in the dromos. For Kalavassos see South 1997, 163–165; 2000, 354–355. For Morphou *Toumba tou Skourou* see Keswani 2004, 90, 100.

<sup>190</sup> Related? Mother and child?

<sup>191</sup> Ausiayevich *et al.* in Fischer & Bürge 2018b, 62–66.

<sup>192</sup> Bennike 2008, 328–329.

<sup>193</sup> In this case, the type of infection is impossible to determine. If it is bacterial meningitis, it is serious and can be fatal within days without prompt antibiotic treatment; Mann & Hunt 2013, 153–154; Mayo Clinic 2021.



Fig. 31. Possible meningitis on the cranial remains of the premature foetus from the Sk57 area (photograph by B. Placiente Robedizo).



Fig. 32. Periostitis on one of the tibia bones of the infant from the Sk57 area (photograph by B. Placiente Robedizo).

arms and both lower legs. The pathological changes in both individuals suggest serious infections, probably causing or at least contributing to their death. This case is remarkable in presenting a likely cause of death, something rarely detectable in the osteological record, and especially in the case of subadults.<sup>194</sup>

In summary, the osteological results demonstrate that, despite the complex material and difficult conditions, valuable osteological results can be obtained if the contexts are approached with sufficient care and accuracy. Tomb RR demonstrates the potential for future research in (Cypriot) bioarchaeology towards a deeper understanding of mortuary practices, health aspects and insights into past biographies.

## 1B. INDIVIDUAL SK73 IN TOMB RR

By Kirsi O. Lorentz & Natalie M. Branca

The remains of a young child (Sk73) adorned with a gold diadem, earrings and a necklace were discovered in the central-south-west region of the Tomb RR. The skeleton was in a flexed position, with the cranium facing north, and fully articulated. Skeletal analysis indicates that all parts of the body are represented among the remains. A decorated diadem made from what appears to be a thin gold sheet (described elsewhere within this paper) was discovered across the frontal bone (forehead) of the individual. Two small holes at

either end of the diadem suggest that a string was used to hold it in place. Below the mandible several gold beads were discovered in a row with further beads in the vicinity (68 in total), likely part of a gold necklace, placed around the individual's neck at the time of mortuary deposition (described elsewhere within this paper). The dentition of Sk73 is well preserved, much of it still discovered *in situ* within the jaw. The dental calcification stages of Sk73 indicate, based on Moorees *et al.*<sup>195</sup> and AlQahtani,<sup>196</sup> an age between 4–5 years at death. This age estimate is further supported by the individual's small proportions and the state of fusion of post-cranial bones. No skeletal pathologies were observed in the preliminary analyses.

Specialist analyses using a range of laboratory-based instrumentation from digital microscopy to high-resolution microCT, and synchrotron radiation will be used in the near future to further explore the dental and skeletal remains of Sk73, to shed further light on the health status, exact age, and other characteristics, including metal element content in the dental tissues and bone, of this individual. The latter aspect is of direct importance, together with population level data, for exploring the potential health effects of on-site metallurgical activities for which there is archaeological evidence at the Hala Sultan Tekke settlement.

<sup>194</sup> McGeorge 2011, 1–20.

<sup>195</sup> Moorees *et al.* 1963.

<sup>196</sup> AlQahtani 2008.

Table 4. Biological profile (age at death, sex, stature) of discrete individuals recovered from Tomb SS so far; cba = cannot be assessed; N/A = not applicable.

Locus and skeleton number	Degree of articulation	Age at death	Sex	Stature				
				Bone	Max length (cm)	Method	Equation	Stature estimate (cm)
L139, Sk1	Semi-articulated	35–39 years	Probable female	cba	-	-	-	cba
L163, Sk2	Articulated	25–35 years	Probable male	Right femur	46	Trotter 1970	$2.38 \times 46 + 61.41 \pm 3.27$	$170.9 \pm 3.27$
						Sjøvold 1990	$2.63 \times 46 + 49.96 \pm 4.52$	$170.9 \pm 4.52$
L149, Sk3	Articulated	12–15 years	N/A	N/A	N/A	-	-	N/A
L155, Sk4	Articulated	~25 years	Probable female	cba	cba	-	-	cba
L154, Sk5	Articulated	9–10 years	N/A	N/A	N/A	-	-	N/A
L154, Sk6	Articulated	5 years	N/A	N/A	N/A	-	-	N/A
L153, Sk7	Semi-articulated	1.5–2 years	N/A	N/A	N/A	-	-	N/A
L175, Sk8	Articulated	15–17 years	Probable female	cba	cba	-	-	cba
L193, Sk9	Articulated	~25 years	Female	Left first metacarpal	4.6	Meadows & Jantz 1992	$46 \times 1.674 + 89.52 \pm 5.57$	$166.5 \pm 5.57$
L196, Sk10	Semi-articulated	1 year	N/A	N/A	N/A	-	-	N/A
L193, Sk11	Semi-articulated	7 months in utero–birth	N/A	N/A	N/A	-	-	N/A

### 1C. HUMAN REMAINS FROM TOMB SS AND L136

By Kirsi O. Lorentz, Bianca Casa, Natalie M. Branca, Yuko Miyauchi, Simone A.M. Lemmers & Sila Kayalp  
In addition to the partly exposed skeleton Sk1 from 2020, the spring 2021 field season produced another ten skeletons in Tomb SS. The detailed excavation, recording and recovery of human skeletal remains from Tomb SS, commenced in 2020, continued in the 2021 excavation season using an *anthropologie de terrain*/funerary taphonomy approach to aid future analyses.<sup>197</sup>

Of the eleven discrete individuals recovered so far from Tomb SS, four are semi-articulated and seven are articulated skeletons (Table 4). Disarticulated, commingled human skeletal elements were found distributed along the perimeter of the tomb, underlying articulated and semi-articulated human skeletons. The articulated skeletons (Fig. 33) derive from primary inhumations. As the processing of the tomb material is ongoing, the MNI for commingled human skeletal remains will be calculated at a later stage.

A MNI of one was recovered from a burial inside L136 to the north-east of Tomb SS. In addition to the cranium and femur recovered during the 2020 field season, complete excavation of the burial in 2021 revealed fragments of two inde-

terminate long bones (Fig. 34).<sup>198</sup> The burial appears to belong to a single adult individual (L136\_CRAN\_A), though no articulations were preserved. The poor preservation of these human skeletal remains prevented assessment of the primary *versus* secondary nature of the deposition.

#### Age at death

This report defines age at death as the biological age, estimated from physiological changes in the skeleton and dentition.<sup>199</sup> The estimation of age at death was based on the dentition in the absence of other viable indicators (i.e., *os coxae*, *os pubis*). The Brothwell system based on molar attrition was used for individuals with fully developed permanent dentitions, and the Schour & Massler dental development diagram for non-adult individuals with developing deciduous and permanent dentitions.<sup>200</sup> The discrete individuals (articulated and semi-articulated individuals) range in age from a foetus at term/perinatal infant to an adult individual *c.* 35–39 years of age at death (Table 4). In addition to the discrete individuals, commingled remains were recovered from the

<sup>198</sup> Casa *et al.* in Fischer & Bürge 2021, 131–134.

<sup>199</sup> Scheuer & Black 2004.

<sup>200</sup> Schour & Massler 1941; Brothwell 1981.

<sup>197</sup> Dудay *et al.* 1990; Dудay 2009.

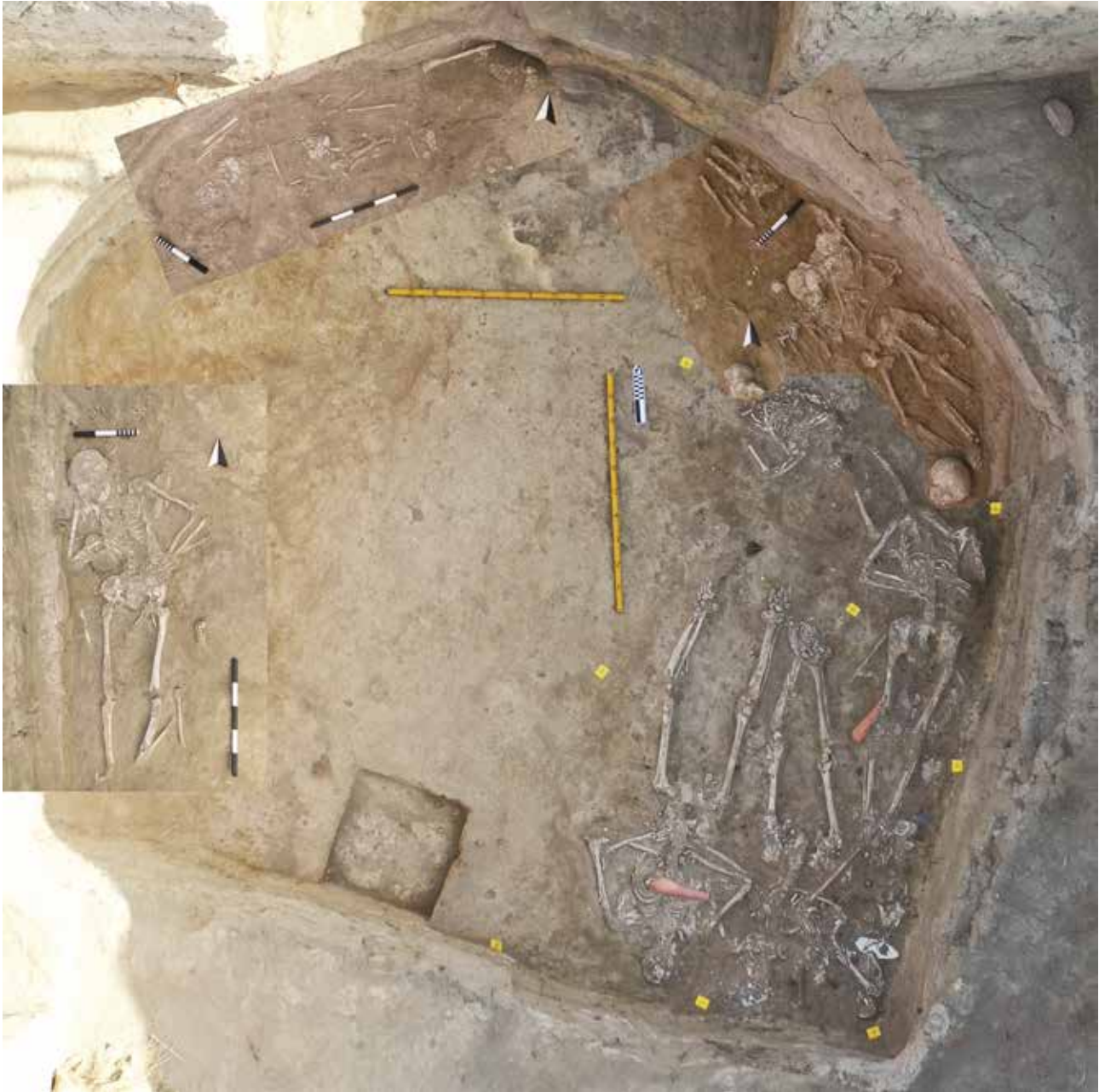


Fig. 33. Location of the discrete individuals within Tomb SS (photographs by P.M. Fischer and B. Casa).

tomb. Ongoing analyses of the commingled remains shows the presence of individuals ranging in age from birth to *c.* 35 years old at death.

### Sex

The assessment of sexually dimorphic features of the skull and pelvis were conducted following the procedures outlined

by Jane E. Buikstra and Douglas H. Ubelaker.<sup>201</sup> All the five adult individuals (Sk1–2, Sk4, Sk8–9) present observable sexually dimorphic features enabling sex estimation. Of these five adult individuals one is female, three are probable females, and one is a probable male (*Table 4*).

<sup>201</sup> Buikstra & Ubelaker 1994.

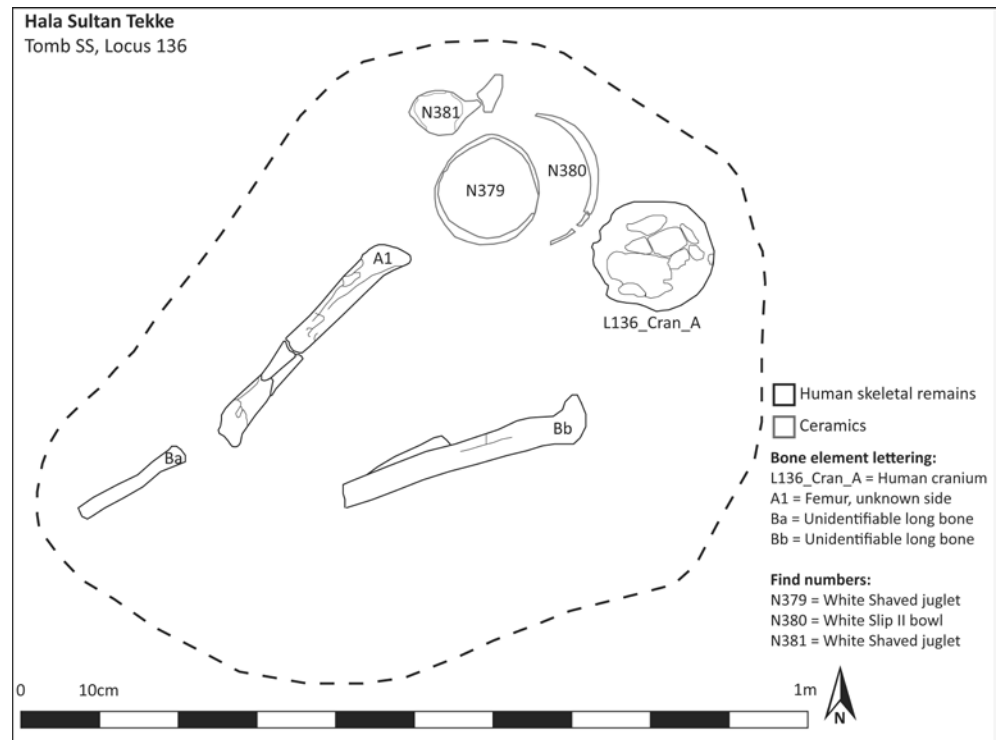


Fig. 34. Human skeletal remains and associated finds from burial in L136, to the north-east of Tomb SS. The human skeletal elements have been assigned with unique identifiers (drawing by B. Casa).

### Stature

Stature could be estimated where complete larger long bones, metacarpals and/or metatarsals were present. Long bone measurements were taken *in situ*, prior to bone element recovery, as the poor preservation of skeletal elements often caused bones to fragment upon lifting, even with supports. The estimation of stature from larger long bones was performed using the equations of Mildred Trotter and Torstein Sjøvold; stature estimation from metacarpals was completed using the method formulated by Lee Meadows and Richard L. Jantz.<sup>202</sup> Only two out of the five adult individuals presented complete-enough skeletal elements for stature estimation, including a probable male (Sk2) of approximately 170 cm in stature and a female (Sk9) of 166 cm in stature (Table 4).

### Dentition

The dentitions from Tomb SS display the typically poor overall preservation state of teeth, particularly of dental enamel. While this somewhat hinders assessment of dental pathologies, it was possible to identify the presence of enamel hypoplasia in at least one individual. Further, one individual (Sk4) displays two teeth with lesions of dental caries. A small lesion of dental caries was present on the occlusal surface of the max-

illary left second molar and two were present on the mandibular left second molar, one on the occlusal surface and one on the buccal aspect of the tooth at the cemento-enamel junction (Table 5).

Dental non-metric traits are heritable traits that are commonly recorded for use in bio-distance and evolutionary studies.<sup>203</sup> In terms of dental non-metric traits, three individuals exhibited Carabelli's trait on the maxillary first molars (L154 Sk06; L175 Sk08; L196 Sk10), one of which also possessed the trait on the deciduous second premolar (L196 Sk10). Carabelli's trait refers to an extra cusp of variable sizes on the mesio-lingual aspect of the upper molars. It is most prominent among European populations (75–85% of individuals) and least common among Pacific Islanders (35–45% of individuals).<sup>204</sup> Two individuals exhibited shovelling of both second maxillary incisors (L149 Sk03; L175 Sk08). Two individuals also displayed extra (fifth) cusps on both second mandibular molars (L149 Sk03; L154 Sk05). One individual dentition included a double-rooted mandibular canine (L149 Sk03). Lastly, one maxillary first incisor was found to have mild labial convexity (L170 Sk08) (Table 5).

<sup>202</sup> Trotter 1970; Sjøvold 1990; Meadows & Jantz 1992.

<sup>203</sup> Edgar 2017.

<sup>204</sup> Hillson 1996.

Table 5. Dental non-metric traits in Tomb SS articulated and semi-articulated individuals.

Non-metric trait	Mandibular/Maxillary	Tooth type	Side	Number of teeth displaying the trait	Sk-, and locus number
Carabelli's trait	Maxillary	M1	Right	2	L154 Sk06; L175 Sk08
			Left	3	L175 Sk08; L154 Sk05; L196 Sk10
		dm2	Left	1	L196 Sk10
Shovelling	Maxillary	I2	Right	2	L149 Sk03; L175 Sk08
	Maxillary	I2	Left	2	L149 Sk03; L175 Sk08
Extra root	Mandibular	C	Right	1	L149 Sk03
Extra (fifth) cusp	Mandibular	M2	Right	2	L149 Sk03; L154 Sk05
			Left	2	L149 Sk03; L154 Sk05
Labial convexity	Maxillary	I1	Right	1	L170 Sk08

### Summary and further research

Eleven discrete individuals have been recovered from Tomb SS so far, including five adults, and six non-adults, with the youngest individual a foetus at term/perinatal infant, and the oldest *c.* 35 years of age. Further, commingled remains indicate the presence of additional individuals, ranging in age between one year and 35–39 years old. Of the five discrete adult individuals one is female, three are probable females, and one is a probable male. Only two out of the five adult individuals presented complete enough skeletal elements for stature estimation, including a probable male of approximately 170 cm in stature, and a female of 166 cm in stature. Dental pathologies include linear enamel hypoplasia and caries. These results will be augmented by additional specialist analyses in the future, focusing on health status through dental histology, possible exposure to heavy metals (given the presence of metallurgical activities within the city limits) through synchrotron radiation enabled techniques, assessment of presence of external auditory exostoses as a proxy for aquatic activities, as well as further focused analyses throwing light on life within this important trading and metalworking city.

## Appendix 2. Integrated analytical and 3D geometry methods for the study of selected artefacts from Hala Sultan Tekke—preliminary results

By Valentina Vassallo, Silvia Florindi, Svetlana Gasanova & Sorin Hermon

This report presents the use of non-invasive methods for studying production modes of selected artefacts from the 2021 excavation season at Hala Sultan Tekke, and an overall description of their state of preservation. The methods include 3D shape analysis, spectroscopy, digital microscopy,

and multi-spectral imaging. Preliminary results demonstrate the effectiveness of such an approach to the study of complex archaeological artefacts.

### METHODS AND TOOLS FOR DATA COLLECTION AND ANALYSIS

#### Structured light 3D scanner

A structured light scanner was used for the 3D documentation of the selected objects with the primary objective to generate an as accurate as possible digital replica of the object's geometry. Texture information was deliberately excluded from the documentation, in order to obtain a 3D model with a clear surface, which facilitates its visual investigation.<sup>205</sup>

3D data were acquired using an Aicon 3D system smart-SCAN, equipped with a 5.0-megapixel camera, set with close-range lenses featuring a field of view of 60 mm, thus aiming at the highest possible recording of data, and post-processed with Optocat and Geomagic Wrap (Table 6).<sup>206</sup>

The digital acquisition through the structured light scanner had some limitations according to the shape and the material of the investigated objects. For instance, the 3D data acquisition of figurine N492 was more difficult compared to figurine N427 (Figs. 35–37) due to the shape of the figurine and the presence of elements that prevented complete data coverage. Therefore, some small areas, such as the inner parts of the ears' holes and under the arms, and small parts of the body (e.g., breasts), lack data and had to be artificially reconstructed by interpolating the holes in the 3D mesh.

Similarly, limitations in the 3D acquisition of the scarabs and the seals were experienced. For instance, the impossibility

<sup>205</sup> Polig *et al.* 2021.

<sup>206</sup> Georgopoulos *et al.* 2010; Bathow *et al.* 2010.

Table 6. Data collected during the post-processing phase of the artefacts documented with the structured light 3D scanner.

Item no.	Type of artefact	No. of range maps used	Average distance between scans (mm)	Resolution (mean distance between points) (mm)
N427	figurine	111	0.010	0.08
N492	figurine	115	0.016	0.06
N478	scarab	14	0.007	0.01
N486	scarab	22	0.007	0.01
N491	scarab	18	0.012	0.01
N470	seal	20	0.009	0.01
N493	seal	28	0.007	0.01
N531	seal	42	0.009	0.01
N528	seal	34	0.006	0.01

to completely digitally acquire the inner part of the cross-cut holes of these artefacts resulted in their partial reconstruction.

None reconstructed areas were taken into consideration for the 3D shape analysis since they do not represent the exact geometry of the objects.

### Photogrammetry

A photogrammetric technique was employed to document only one object, bovine figurine N439 (see also *Appendix 3a*). The primary interest with this technique was to have a lower resolution 3D model, to be used for visualization purposes, scientific and general public dissemination. The camera used for the photogrammetric campaign was a Canon EOS 80D equipped with a lens of 20 mm focal length. Three 360° rounds, consisting of 167 images, were carried out to cover the entire surface of the selected object. The data were post-processed with proprietary Agisoft Metashape software.<sup>207</sup>

### Digital microscopy and infrared reflectography

The surface of the artefacts was studied at high magnification with a Hirox KH8700 digital microscope. The multi-focus function was used to study the relief of non-flat areas and obtain data for the shape analysis. With this method, we checked the possible presence of material residues on the artefacts (e.g., traces of pigments), studied the surface morphology, described the material texture, and detected possible contamination or deposition on the artefacts' surface. The artefacts were photographed with an Osiris IRR at 1510 nm to examine the presence of infrared opaque materials on the surface of the artefacts (e.g., carbon black).

<sup>207</sup> Verhoeven 2011.

Table 7. Measurements of the figurines; H = height, W = width, Th = thickness, V = volume, Wt = weight.

	Maximum sizes (cm)				
	H	W	Th	V (cm <sup>3</sup> )	Wt (g)
N427	20.2	7.4	4.3	159.4	144.3
N492	21.3	6.9	4.4	185.8	173.1

Table 8. Measurements of the bovine vessel; H = height, W = width, Th = thickness, V = volume, Wt = weight.

	Maximum sizes (cm)				
	H	W	Th	V (cm <sup>3</sup> )	Wt (g)
N439	8.5	13.5	4.6	128.2	202.8

## ANALYSIS AND RESULTS

### Terracotta figurines (N427, N492, N439)

Two terracotta female figurines (N427, N492) presenting stylistic characteristics attributable to the Late Bronze Age “bird faced”-type of Base-ring ware<sup>208</sup> were recovered in Tomb RR (see also *Fig. 7* and main text) and underwent non-invasive analysis described above (*Figs. 35–37*). The two figurines belong to the same group as the two terracotta figurines from Tomb RR found in 2020.<sup>209</sup>

These artefacts are handmade, most probably partly solid, and produced by modelling the more fragile elements (arms, nose and ears) separately and then applying them to the main body of the figurine. This kind of production and its sequence is well described in literature after analysis of fragmented pieces and experimental archaeology tests<sup>210</sup> and confirmed by the current 3D analysis. The results of the analyses, the production and decoration techniques will be discussed in a forthcoming paper.

Microscopy observations of the surface of the figurines did not detect any traces of painted decoration. Thus, the figurines were likely unpainted. Some areas of the figurines have dark grey or blackish stains, which can be seen by the naked eye and become even more obvious with the IRR test. The uneven and non-systematic presence of this dark material on the surface of the figurines suggests that it is contamination from the surrounding burials (*Fig. 36c*).

Using scientific 3D visualization methods, rendering functions (e.g., MeshLab shaders),<sup>211</sup> light direction tools, and digital microscope surface analysis, it was possible to enhance

<sup>208</sup> Karageorghis 1993, 3–10; Knapp 2008; Alexandrou 2016.

<sup>209</sup> Fischer & Bürge 2021, 104, 108–109.

<sup>210</sup> Alexandrou 2016, 73–77.

<sup>211</sup> Cignoni *et al.* 2008.

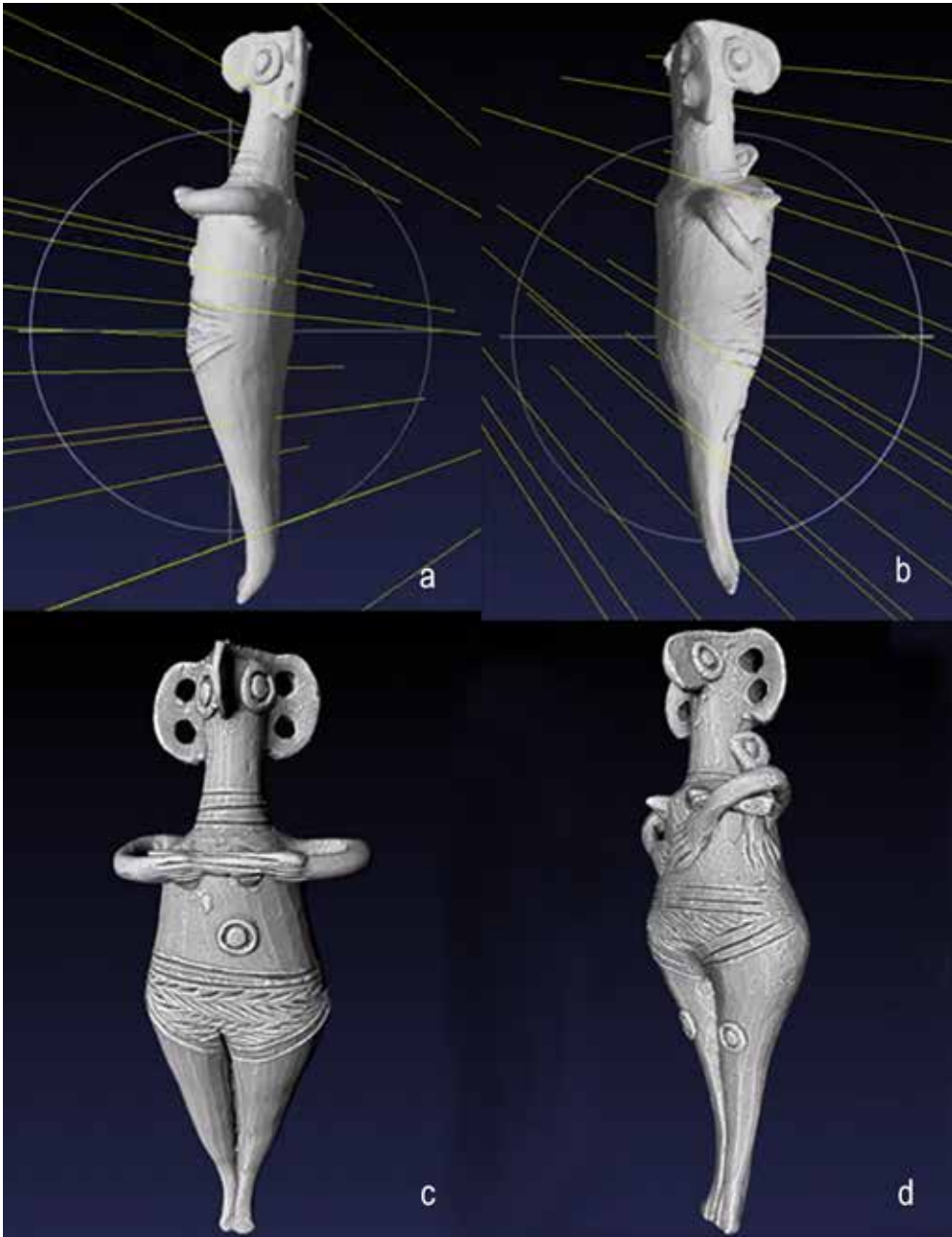


Fig. 35. 3D models' snapshots of figurines N427 (left top and bottom) and N492 (right top and bottom) with the visual enhancement of the working marks through MeshLab light direction tools (a–b) and “Radicance Scaling” filter (c–d) (image by V. Vassallo and S. Florindi).

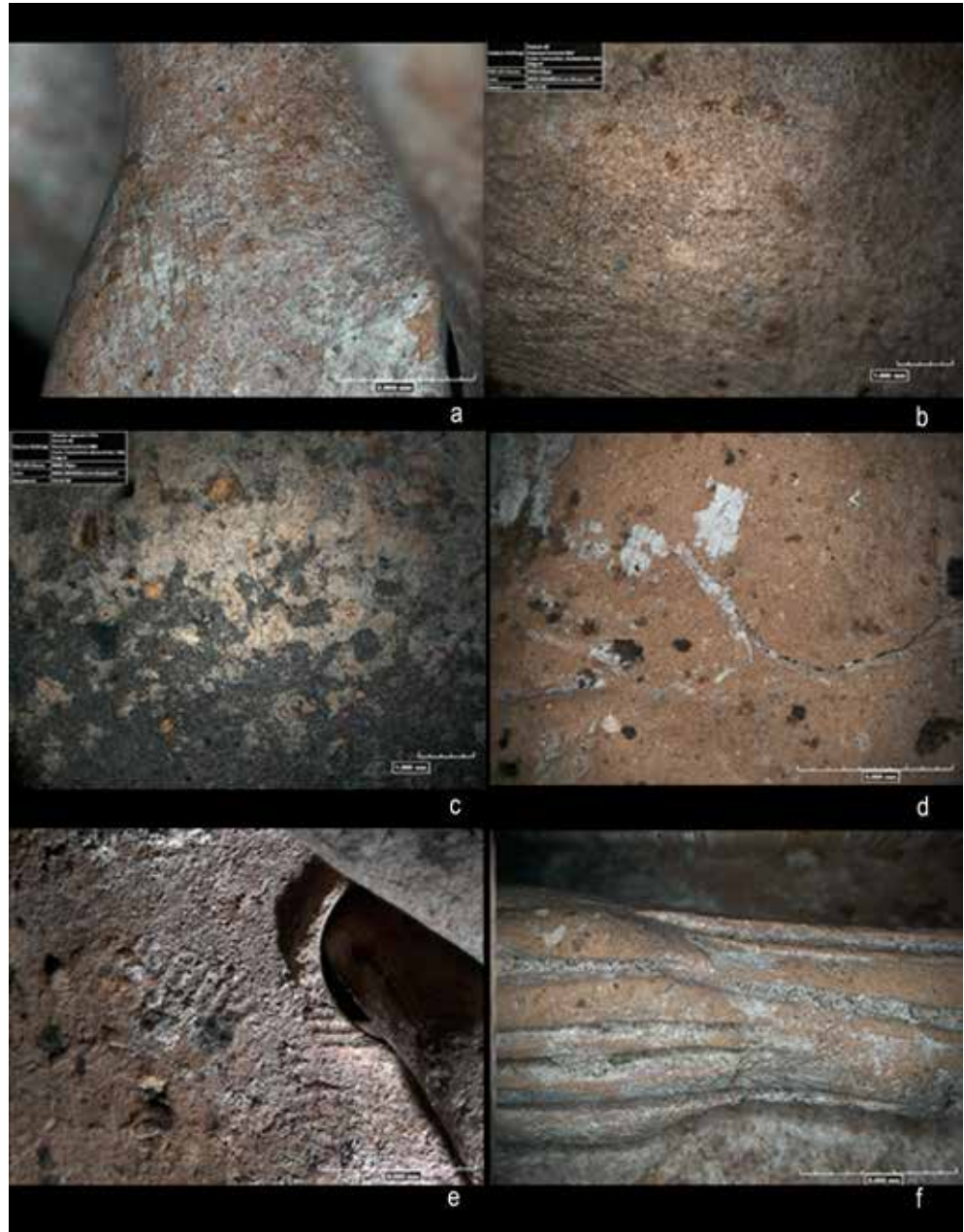
all the features related to the production of the figurines and perform accurate measurements (Fig. 35, Table 7).

Another terracotta figurine (N439) recovered from Tomb SS was analysed through non-invasive methods. The object represents a small vessel in the shape of a bovine with long horns, modelled upwards and inclining towards the front

(dimensions in Table 8).<sup>212</sup> The object is of Base-ring II ware with creamy white painted striped decoration (see main text and Appendix 3a).<sup>213</sup>

<sup>212</sup> For terminology and specific shapes, see Kourou 1997, 89–90. A more general terminology has been preferred for the description of the current item.

<sup>213</sup> Catling 1976.



*Fig. 36. Micrographs taken from various locations of the terracotta objects: (a) striations on the surface of figurine N427; (b) striations on the surface of figurine N492; (c) dark material on the surface of figurine N429 interpreted as soil contamination (d) ridge in the neck area of figurine N427 indicating the junction of two parts—neck and torso; (e) fingerprints on the clay body of figurine N427, the area of ears; (f) hands of figurine N427 with carved details (image by S. Gasanova).*

The photogrammetric data acquisition allowed the creation of a 3D textured digital replica of the artefact used for visualization purposes and that, together with microscopic investigation, also allowed the analysing of the artefact production process. The visualization of the non-textured 3D mesh has better enhanced the presence of several features, not particularly visible at first sight on the real object, confirming the importance of the 3D documentation and analysis. The 3D model is currently used for further functional analysis based on 3D virtual simulations

that will allow investigating the kinetics of the object as a liquid container.

#### Scarabs (N478, N486 and N491)

The three scarabs from the 2021 season were analysed by the non-invasive methods mentioned above (see also main text and *Fig. 9*). The microscopic investigation revealed that the white scarab N478 is made of a soft, opaque, chalk-like material usually termed composition (*Fig. 40a*).



Fig. 37. Details of figurine N492 showing lack of precision in its production (image by V. Vassallo and S. Florindi).

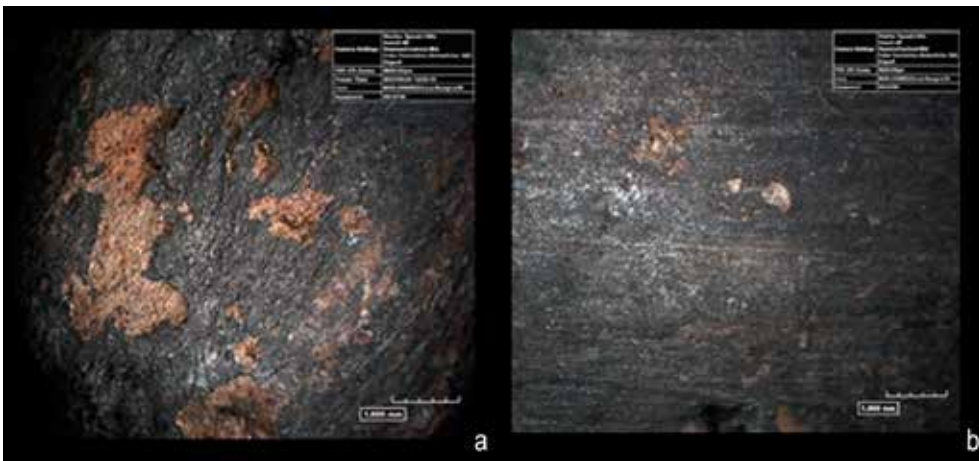


Fig. 38. Micrographs taken from various locations of the terracotta objects: (a) black layer and clay body of the bovine vessel N439; (b) striations on the surface of the bovine vessel N439 (image by S. Gasanova).

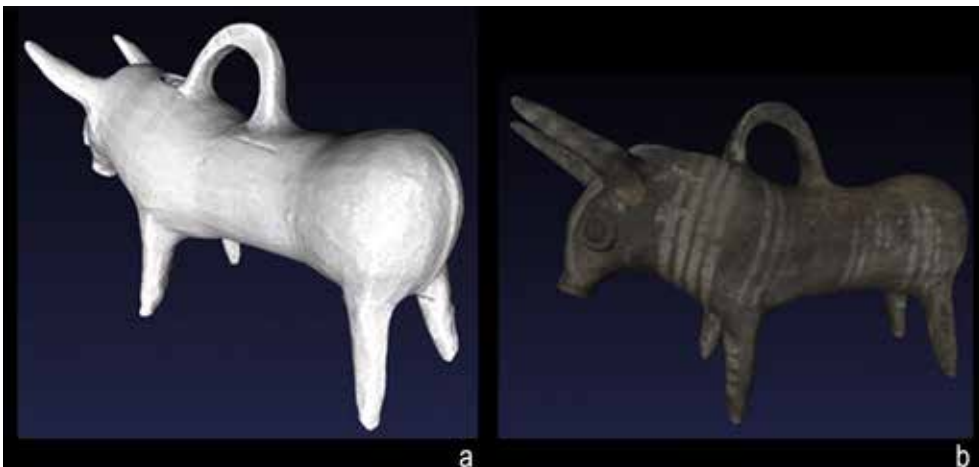


Fig. 39. 3D enhancement of the non-textured model's surface reveals the production marks of the artefact N439 and elements not particularly visible (image by V. Vassallo).



Fig. 40. Micrographs taken from the surface of the scarabs: (a) scarab N478 showing white material with fine particles; (b) scarab N491 showing white material with fine particles and (c) scarab N486 showing the thin black layer on top of the white base material. The bluish colour of the white base material is due to the specific light reflection (image by S. Gasanova).



Fig. 41. Application of MeshLab shaders on the scarabs' 3D models: (a) *dimple.gdp* on N478, (b) *lattice.gdp* on N486, and (c) *Radiance Scaling* on N491 (image by V. Vassallo and S. Florindi).

Table 9. Measurements of the scarabs; *L* = length, *W* = width, *H* = height, *d* = diameter of the hole, *Wt* = weight.

	Maximum sizes (cm)				
	L	W	H	d	Wt (g)
N486	1.5	1.1	0.7	0.2	0.7
N478	1.2	0.6	0.7	0.2	0.7
N491	1.5	1	0.7	0.2	1.3

The material of scarab N491 is similar to the magnesium-rich mineral enstatite. The surface of N491 is smooth and shiny (Fig. 40b), resembling the texture of glazed steatite. No traces of painted decoration were detected with microscopy observations on scarabs N478 and N491. The microscopic study of the black scarab N486 revealed that it is made of white material covered with a thin black layer (Fig. 40c). According to the literature, such a layer might be organic.<sup>214</sup>

The use of non-invasive 3D digital documentation and visualization was beneficial for the analysis of the scarabs. For

Table 10. Measurements of the seals; *L* = length, *W* = width, *Th* = thickness, *d* = diameter of the hole, *D* = diameter of the seal, *Wt* = weight.

	Maximum sizes (cm)					
	L	W	Th	d	D	Wt (g)
N470	1.9	1.3	0.9	0.4	-	5.9
N493	2.2	-	-	0.4	0.8	3.5
N531	1.7	-	-	0.4	0.7	1.4
N528	2	-	-	0.4	0.8	2.9

instance, the artefacts are very small, and it is particularly difficult to measure their features on the real object. This can be remedied thanks to the 3D digital measurement functions tools (Table 9). This element allows hypothesizing about the tools that might be used for their production.

Moreover, the artefacts are extremely delicate and fragile. As a result, handling and pressing onto plasticine to acquire an impression of the incisions might become a destructive procedure. The 3D digital model of these artefacts is the safest solution to allow their close study, without handling or damaging the originals. Moreover, the possibility of applying 3D digital filters (e.g., MeshLab shaders) on the 3D models

<sup>214</sup> Lucas & Harris 1962, 155–156, 172–174; Tite & Bimson 1989.



Fig. 42. Micrographs taken from the surface of seals: (a) carved decorative elements on seal N493; (b) carved decorative element on seal N470 with residues of contamination; (c) carved decorative element on seal N531 with residues of contamination and (d) carved decorative elements of seal N528 with macroscopic residues of contamination (image by S. Gasanova).

helped enhance the engravings' shape for their archaeological and historical interpretation (Fig. 41).

### Seals (N470, N493, N528 and N531)

Four seals from the 2021 season of excavation were also analysed through digital non-invasive methods (see main text and Fig. 9). Three are cylinder seals of haematite and possibly chlorite, whereas N470 is a rectangular stamp seal of steatite or serpentine. Micrographs showing decorative carved elements of the seals are presented in Figs. 42a–d.

Through the 3D model, by using an unwrapping procedure on MeshLab and the application of several shaders, it is possible to enhance the features of the engraved scenes on the seals for a better interpretation (Figs. 43a–d). This digital procedure, beyond better showing the depiction, is beneficial as it avoids the contact of the seals' surface with plasticine in order to obtain the positive impression, and thus helps to preserve the artefacts (Table 10).

This preliminary report shows the methodology applied in the combined use of non-invasive methods—3D scanning, photogrammetry, digital microscopy and infrared imaging for the preliminary characterization of the shape and materials of selected finds from Hala Sultan Tekke. By means of the aforementioned methods, in a forthcoming study we will provide more and insightful data on production modes (carving tools, surface treatment, and materials), state of preservation (presence of contamination and damage), and uses of the artefacts (the way the objects were handled, and what purpose they served).



Fig. 43. 3D enhanced visualization of the seals: (a) front and rear view of seal N470 using radiance scaling shader; (b) unwrapped visualization enhanced with lattice.gdp shader of the scene engraved on seal N493; (c) unwrapped visualization enhanced with radiance scaling shader of the scene engraved on seal N528; (d) unwrapped visualization enhanced with lattice.gdp shader of the scene engraved on seal N531 (image by V. Vassallo and S. Florindi).

## Appendix 3. Notes on selected find groups from the excavations in 2020 and 2021

### 3A. A BOVINE VESSEL FROM TOMB SS

By Lucía Avial Chicharro

The essentially complete bovine-shaped hollow vessel with a basket handle (N439 from L151, Fig. 28 and plan Fig. 18; dimensions in Table 8; see also main text) was found just above the human burials. The vessel has two holes: one larger on the nape and the other in the muzzle. This type of vessel is often termed rhyton<sup>215</sup> or askos<sup>216</sup>—a somewhat problematic terminology, since it is borrowed from Aegean vessel types<sup>217</sup> and connected to specific Aegean practices.<sup>218</sup> The vessel is of Base-ring II ware which is characterized by a very hard-fired fabric of brown colour (Munsell 7.5YR 5/3 to 5/4) with a grey (7.5YR 5/1) to dark grey (7.5YR 4/1) core. The visible section shows a small number of very fine voids, a large number of very fine to medium fine white, a medium number of very fine dark grey, a small number of coarse light yellow and a small number of fine to medium fine non-plastic inclusions. The surface is

<sup>215</sup> E.g., recently Steel 2020.

<sup>216</sup> Kourou 1997.

<sup>217</sup> For Aegean rhyta see Koehl 2006.

<sup>218</sup> Similarly, Koehl 2013; see also main report.

covered by a thin, matt, very dark (2.5Y 3/1) to dark bluish-grey (GLEY 2 4/5PB) slip and has been burnished with a hard tool. The white painted decoration consists of bundles of four strokes applied with a brush on all parts of the vessel.<sup>219</sup>

The earliest production of zoomorphic representations in general, and in specific bovine figurines, occurs in association with the introduction of cattle in Cyprus at the beginning of the Early Bronze Age, i.e. the mid-3rd millennium BC.<sup>220</sup> The great majority of zoomorphic vessels of Base-ring ware depicts bovines<sup>221</sup> which are attested from the beginning of the LC II period on,<sup>222</sup> i.e., roughly the mid- or second half of the 15th century BC,<sup>223</sup> to the final period of production of Base-ring ware at the end of LC IIC.<sup>224</sup> Outside Cyprus they have been found mainly in the Levant and, in very small numbers, in the Aegean (e.g., Rhodes) and Egypt.<sup>225</sup> They often have incised<sup>226</sup> and/or painted decoration and, if hollow, one or more openings. However, the number and position of the openings and the presence/absence and placement of the handle differs (see *Table 11*), which has implications for the function and use of these objects: our vessel was filled with a liquid through the hole on the nape and was poured out through the muzzle.

Among the more than 250 Base-ring ware bovine vessels from Cyprus, approximately 60% come from funerary contexts, 25% from domestic areas and 15% are of unknown con-

text.<sup>227</sup> The fact that until recently none of these vessels has been found in a sanctuary, led to the suggestion that these items had no religious use.<sup>228</sup> This can be questioned, since of the 27 bovine vessels from Hala Sultan Tekke (*Table 11*), only two come from tombs, whereas six have been found in ritual pits in the cemetery of the site. The others are from domestic or industrial contexts, i.e., CQ1–4 and Areas 22 and 8 (East and West), or had an unknown location.

The importance of cattle in animal husbandry and economy is reflected in ritual, cult and sacrifice, as indicated on the frequent depiction of these animals.<sup>229</sup> The find context of our vessel and that of numerous other bovine vessels point to an important role in mortuary practice, possibly also as an expression of wealth and social prestige.<sup>230</sup> These vessels may have been used during funerary rituals, perhaps for libations<sup>231</sup> but may also have served as pouring containers in communal drinking practices.<sup>232</sup> The distinctive shape and the relatively small capacity of most of these vessels imply that they contained a valuable liquid. As pointed out in the main report, Tomb SS functioned not only for burials but also as a place for rituals of drinking in order to commemorate the deceased. Perhaps, our bovine vessel was deposited as an offering item together with numerous pottery vessels after its use in ritual performance.

*Table 11. Base-ring ware bovine vessels/figurines from Hala Sultan Tekke.*

Find no.	Area	Context	Type of context	Stratum; dating of context	Part; degree of completeness	Comments	Reference
N336	CQ1	R67	Domestic, industrial	Stratum 3; LC IIC	Almost complete	Protome or spout of a jug	Bürge 2018, fig. 4.2:1
L673-2	CQ1	R76	Domestic, cooking	Stratum 2; LC IIA2 to IIC	Hollow hind part with two legs and tail	Probably part of a vessel; brown painted decoration	Bürge 2018, fig. 4.2:7
L673-13	CQ1	R76	Domestic, cooking	Stratum 2; LC IIA2 to IIC	Leg	–	Bürge 2018, fig. 4.2:10
N397	CQ1	R75	Domestic	Stratum 2; LC IIA2 to IIC	Head	–	Fischer & Bürge 2019, fig. 8:2
L843-7	CQ1	R71	Domestic, industrial?	Stratum 2; LC IIA2 to IIC	Hind part	–	Fischer & Bürge 2019, p. 298

<sup>219</sup> See, e.g., Steel 2020, 5; see also main report.

<sup>220</sup> Webb & Frankel 2001, 71; Webb 2017, 60. However, domesticated oxen have been found in the faunal record of the Aceramic Neolithic but did not survive into later phases until its re-introduction in the Bronze Age, see Simmons 1998.

<sup>221</sup> Knox 2012, 172.

<sup>222</sup> The earliest relatively secure contexts include Maroni in Cyprus, Tombs 5 and 7, see Johnson 1980, nos. 49, 58, pls. XIII, XV.

<sup>223</sup> See *Table 1* in the main report.

<sup>224</sup> However, numerous, mostly incomplete, items have been found in LC IIIA and IIIB contexts, see also *Table 11* and Dikaios 1969/1971, 686, 705, pls. 131.32–33, 164.7. They may be considered as residual finds.

<sup>225</sup> Nys 2001, 96, 98–99.

<sup>226</sup> Incised decorations are usually connected to Base-ring I vessels.

<sup>227</sup> Nys 2001, 95 indicates 60.3% and 23.7% for funerary and domestic contexts, respectively; see similar statistics in Knox 2012, 173, table 10.

<sup>228</sup> E.g., Nys 2001, 99–100.

<sup>229</sup> Webb 2017.

<sup>230</sup> Webb & Frankel 2001, 72.

<sup>231</sup> Webb 2017, 65.

<sup>232</sup> Knox 2012, 173, 215.

Table 11 continued.

Find no.	Area	Context	Type of context	Stratum; dating of context	Part; degree of completeness	Comments	Reference
L347-1	CQ2	R37	Domestic	Stratum 2; LC IIA2 to IIC	Horn	–	Bürge 2018, fig. 4.3:4
L332-1	CQ2	R31	Domestic, cooking	Stratum 2; LC IIIA early	Head	–	Bürge 2018, fig. 4.3:6
L305-1	CQ2	R35	Function unclear (possibly partly ritual)	Stratum 2; LC IIA2 to IIC	Horn	Base-ring II	Bürge 2018, fig. 4.3:5
L499-4	CQ3	R51	Domestic	Stratum 2; LC IIA2 to IIC	Front part	–	Fischer & Bürge 2016, 41
L549-1	CQ3	Trench 23D	Domestic	Stratum 2; LC IIA2 to IIC	Head	–	Fischer & Bürge 2016, 46
L706-2	CQ4	Open space east of Room 87 and west of W136	Domestic	Stratum 1; LC IIIA	Head	Base-ring II	Fischer & Bürge 2020, 88
N17	Area A	Well C	Ritual (?)	LC IIC to IIIA	Complete	Base-ring I, three holes in belly	Fischer & Bürge 2015, fig. 28
N94	Area A	Offering pit Z6	Ritual	LC IIC to IIIA	Complete	Has handle	Fischer & Bürge 2018b, 49, fig 15.11
L77-2	Area A	Offering pit AA2	Ritual	LC IIC to IIIA	Left front leg and parts of the head and body of one (or more?) figurine	Base-ring II	Fischer & Bürge 2018b, 52
N107	Area A	Offering pit AA5	Ritual	LC IIC to IIIA	Head	Base-ring II	Fischer & Bürge 2018b, 52
L85-3	Area A	Offering pit AA5	Ritual	LC IIC to IIIA	Leg and parts of the body	Base-ring II	Fischer & Bürge 2018b, 52
L49-1	Area A	Well Y 1	Ritual	LC IIC to IIIA	Horn	Base-ring II	Fischer & Bürge 2018b, 45
L96-14	Area A	Tomb LL	Funerary	LC IIC to IIIA	Fragment	–	Fischer & Bürge 2018b, 57
N439	Area A	Tomb SS	Funerary	LC IIC to IIIA	Complete	Base-ring II	The item presently discussed
A 1248	Unknown	Unknown	Function unclear	Unknown, probably LC IIC to IIIA	Complete (?)	Decorated with groups of vertical parallel lines	Gjerstad 1926, 188, animal-shaped vase, no. 6; Åström 1965, 118
1953.1148a	Unknown	Surface	Function unclear	Unknown, probably LC IIC to IIIA	Head fragment	Painted decoration	Åström 1972b, 192
no id. no.	Unknown	Pit in Trench 3	Function unclear	LCIIB–LCIIIA1	Fragment	–	Åström 1976, 112
6213	Area 22	Room 15	Domestic	LCIIIA1	Leg fragment	Difficult to distinguish between vessel or figurine	Öbrink 1979, 25, fig. 131
1346	Area 8 East	Unknown	Function unclear, probably domestic	Unknown, probably LC IIC to IIIA	Leg fragment	Painted decoration	Nys 2001, cat. no. 47
1607	Area 8 West	South end of east entrance of Room 26A or western part of Room 23	Function unclear, probably domestic	Unknown, probably LC IIC to IIIA	Possibly hind part	–	Nys 2001, cat. no. 48
1807 L3B	Area 8 West	Mixed deposit on a floor	Function unclear, probably domestic	Unknown, probably LC IIC to IIIA	Leg fragment	Probably from a bovine vessel	Nys 2001, cat. no. 49
no id. no.	Area 8 West	Room 37A L5	Function unclear, probably domestic	LC IIC	Leg fragment	Probably from a bovine vessel	Nys 2001, cat. no. 50

### 3B.A SPINNING KIT OF IVORY FROM TOMB RR AND A RELATED OBJECT FROM TOMB SS

By Elena Peri

Among the ivory objects from Tomb RR are two rods (N522, N537), two dome-shaped pierced objects (N523, N533) and three very thin and flat pierced discs (N532, N534, N535; see all objects in *Fig. 8* in the main report).

The shaft N522, which is crowned by a sculpted head with incisions, is broken but complete (length 21.2 cm, average diameter 1.1 cm, diameter of head 1.6 cm; weight 36 g). The head is attached to the rod by an ivory rivet (diameter 0.5 cm). The shaft N537, of which one end is sculpted (the head is missing), is also broken but complete (length 21.6 cm, average diameter 1.0 cm; weight 22 g).

The dome-shaped pierced object N523 is intact (diameter 2.6 cm, diameter of hole 0.36 cm, thickness 0.5 cm; weight 3 g). N533 is also an intact dome-shaped object (diameter 2.2 cm, diameter of hole 0.3 cm, thickness 0.65 cm; weight 3 g).

The three thin flat discs comprise one larger and two very small examples. The larger, N532, is broken but complete (diameter 3.0 cm, diameter of hole 0.3 cm, thickness 0.2 cm; weight <1 g). The latter two, N534 and N535, are also broken but complete (diameter 1.4/1.2 cm, diameter of hole 0.4 cm, thickness 0.2 cm; weight <1 g).

Tomb SS produced N382, the sculpted and incised head belonging to a rod which is missing. It is almost identical with N522 from Tomb RR (length 3.7 cm, diameter 2.2 cm, diameter of hole 0.9 cm; weight 7 g).

Ivory is generally considered as a luxury import to Cyprus, either as raw material or finished objects.<sup>233</sup> During the Late Bronze Age, Egypt and the Levant had a long tradition related to the production and export of elephant and hippopotamus ivory.<sup>234</sup> Our objects are of elephant ivory.<sup>235</sup> Egypt seems to have had a prominent role in the commerce of elephant ivory even if this animal was extinct there at least by Dynastic times,<sup>236</sup> and therefore the remainder of Africa and Asia served as suppliers of elephant ivory.<sup>237</sup>

Ivory rods are commonly interpreted as tools for the production of textiles, i.e., spindles and distaffs, or kohl sticks;<sup>238</sup> other interpretations, such as sceptres, pins, or cosmetic box

fastening systems, have been proposed.<sup>239</sup> Because of the considerable lengths of our rods and their association to the spindle whorls N523 and N533 from the same context,<sup>240</sup> we suggest an identification as spindles or distaffs. Spindles and distaffs can be difficult to distinguish from each other because of their similar size and shape: while the spindle is a shaft used in association with a spindle whorl to spin the fibre,<sup>241</sup> the distaff is a tapered shaft characterized by the presence of a knob for collecting and holding the fibres that need to be spun.<sup>242</sup> It is also possible that these shafts could have been used for multiple purposes.<sup>243</sup> In the case of our objects, the knobbed shafts N382 and N522 could have been used to hold fibres. Hence, they may be interpreted as distaffs, whereas N537 may have functioned as spindle. The light weights of the associated spindle whorls suggest that they could have been used to spin delicate and short fibres.<sup>244</sup>

The flat disc N532 has a close parallel from the Iron Age Tomb ZR XIX in Achziv, Israel. There, an ivory disc with the same dimensions as N532 was found inserted into a shaft and has therefore been interpreted as a spindle whorl.<sup>245</sup> More complex is the interpretation of the small flat discs N534 and N535. Objects of less than 2 cm in diameter are usually not considered as spindle whorls but as beads.<sup>246</sup> However, since these objects were found with the others spinning tools it is possible that also N534 and N535 could be related to textile production but their exact function needs further evidence.

To conclude, the contextual association of the distaff N522 (and the similar shape of distaff N537) and the spindle N537 with the spindle whorls and related objects as N534 and N535 not only points to their function as textile production tools but also suggests the presence of a possible textile production set/spinning kit. The fact that these objects have been found in a funerary context point to their use in the daily life of the deceased. These objects may also provide social-cultural information.<sup>247</sup> For instance, the position of the whorl on the spindle (i.e., high or low) influences the spinning technique<sup>248</sup> which often is specific to certain regions and cultures. In Bronze Age Cyprus mainly low-whorl spindles seem to have been used.<sup>249</sup> In the case of our ivory shafts, where no whorl is inserted, we cannot be entirely sure about their specific use, even less so about the position of a possible spindle, although

<sup>233</sup> Krzyszkowska & Morkot 2000, 323.

<sup>234</sup> Feldman 2013, 252–253; Pfälzner 2013, 126.

<sup>235</sup> See discussion and further references in Fischer *et al.* 2015, 218–223.

<sup>236</sup> Krzyszkowska & Morkot 2000, 320.

<sup>237</sup> Asia became the major exporter of ivory during Roman time but traces of Asian ivory in Egypt go back to the Late Bronze Age; Krzyszkowska 1988, 226–227; Krzyszkowska & Morkot 2000, 322–323.

<sup>238</sup> Kohl sticks are quite short (9–10 cm) and with a wide drop-shaped head which was moistened and used to apply make up around the eyes, see Lucas 1948, 101; Patch 2006, 218.

<sup>239</sup> Sauvage 2014, 184; Crewe 1998, 15.

<sup>240</sup> Sauvage 2014, 205.

<sup>241</sup> Barber 1991, 42; Sauvage 2014, 205.

<sup>242</sup> Barber 1991, 69; Sauvage 2014, 194; Sauvage & Smith 2016, 196.

<sup>243</sup> Sauvage 2014, 205.

<sup>244</sup> Barber 1991, 52.

<sup>245</sup> Dayagi-Mendels 2002, 67–68; Sauvage 2014, 210–211, fig. 9.15.

<sup>246</sup> Smith 2002, 291.

<sup>247</sup> Sauvage 2014, 219.

<sup>248</sup> Crewe 1998, 5.

<sup>249</sup> Frankel & Webb 1996, 191; Crewe 1998, 9.

parallels suggest a high position of the whorl on this type of shaft, which is more frequent in the Levant.<sup>250</sup>

### 3C. THE BEADS FROM THE 2020 AND 2021 SEASONS OF EXCAVATIONS

By Brigid Clark

During the 2020 and 2021 seasons at Hala Sultan Tekke, a minimum of approximately 149 beads (corresponding to 21 find numbers from nine loci of which eight are from Tomb RR and one from Tomb SS) were excavated, not including the gold finds of N467 (a single gold bead) and N514 (a necklace of gold beads), which are presented in the main report. This assemblage is typical of ornamentation patterns expressed in Late Bronze Age Cypriot mortuary contexts (see the catalogue of beads in *Table 12*).

Additional beads have been found in previous excavation seasons in Tomb RR, notably associated with skeleton Sk29.<sup>251</sup> More beads from the city's cemetery came from Tomb LL (cylindrical faience bead N132) and Tomb X (30 carnelian beads L48-16A and paste beads L48-16B), as well as various beads from miscellaneous offering pits.<sup>252</sup> Beads have also been found in settlement contexts, including 60 beads from CQ1 and CQ2 uncovered throughout the 2010–2017 seasons.<sup>253</sup>

The most common forms of beads present in this assemblage are grooved barrel (*Table 12*, cat. nos. 4, 6, 10, 15–16) and globular (cat. nos. 6, 8–13, 15–17) shapes. The typological diversity, specifically of the carnelian beads (including

grooved barrel, globular, lentoid elliptical/rounded), as well as the various faience and ivory types (including segmented, circular discs, cylindrical, spherical and multitubular)<sup>254</sup> may be indicative of multiple exchange networks operating between the island and production zones elsewhere. Our assemblage can be separated into three categories depending on the material of which they were made: stone, siliceous materials, and ivory. The majority of the beads from the 2020 and 2021 seasons are composed of faience or carnelian, with only four examples of ivory (cat. nos. 1 and 20). Of the current 149 beads, 42.9% are faience (64 beads), 54.3% are carnelian (81 beads), and only 2.6% are ivory (4 beads).

Beads of various materials are well-known finds at almost every Levantine site, e.g., at the Late Bronze Palmaḥim cemetery,<sup>255</sup> and the Late Bronze temple at Tel Sera.<sup>256</sup> Globular beads in particular are ubiquitous in Bronze Age contexts throughout the Levant, Aegean, and Syro-Palestinian coast, as well as 18th Dynasty contexts in Egypt such as Amarna.<sup>257</sup> Excavations of the 14th-century BC Uluburun wreck confirmed the abundance of beads of various materials in transit, including glass, faience, Baltic amber, quartz, eggshell, bone, agate and carnelian.<sup>258</sup> Thousands of beads were uncovered within the cargo of this ship both as concreted masses within transport jars and within other contexts, likely present as personal belongings of crew or passengers aboard the ship.<sup>259</sup> As regards the sample studied here, further analysis is necessary to determine the mechanism of trade which brought this varied assemblage of beads to Hala Sultan Tekke.

*Table 12. Catalogue of beads from Tombs RR and SS, 2020–2021; D = diameter, H = height, L = length, W = width, Th = thickness, Wt = weight; all measurements in cm/g.*

Cat. no.	Find no.	Findspot	Material	Shape	Type (based on Beck 1973)	D	H	Other measurements	State of preservation	Remarks
1	N392	Tomb RR, L107	Ivory	Cylindrical, disc	Beck I.A.1.a (circular disc bead)	1.5	0.8	D hole 0.3	Broken	At least 3 beads, possibly more
2	N461	Tomb RR, L168	Faience	Spherical and cylindrical	Beck I.C.1.a	0.93	0.7	D hole 0.25	–	2 beads, 1 blue
3	N463	Tomb RR, L145	Faience	Depressed spherical	Beck I.C.1.a	0.6	0.6	D hole 0.2	–	–
4	N464	Tomb RR, L145	Faience	Lentoid, fluted	Beck XXIII.A.1.a (grooved barrel)	0.64	–	L 0.83, D hole 0.2	Average	Black colour

<sup>250</sup> Sauvage 2014, 221.

<sup>251</sup> Fischer & Bürge 2020, 94.

<sup>252</sup> E.g. Fischer & Bürge 2016, 47; 2017, 194, fig. 12:7; 2018a: 49, 52, 57.

<sup>253</sup> Fischer & Bürge 2018b, 463–466.

<sup>254</sup> The typology used in this study is Beck 1973. The referenced shapes include grooved barrel (XXIII.A.1.a), globular (I.B-C.1.a-b), lentoid elliptical/rounded (IV.D.1.a or IV.C.1.a), segmented (XVII.A.1.a), circular discs (I.A.1.a), cylindrical (I.2.b), spherical (I.C.1.a) and multitubular (XVII.A.2.a).

<sup>255</sup> Yannai *et al.* 2013.

<sup>256</sup> Reade *et al.* 2017.

<sup>257</sup> Frankfort & Pendlebury 1933, pl. L, no. XXXI.

<sup>258</sup> Pulak 1998, 203–206; Ingram 2005, 3.

<sup>259</sup> Ingram 2005, 3.

Table 12 continued.

Cat. no.	Find no.	Findspot	Material	Shape	Type (based on Beck 1973)	D	H	Other measurements	State of preservation	Remarks
5	N468	Tomb RR, L145	Faience	Various, including lentoid, cylindrical/fluted, cylindrical/plain	Beck XXIII.A.3.a (oblate); Beck D.1.a (longitudinal ellipsoid); Beck VII (tubular); Beck XIX.A.9 (multifaceted bead)	0.6–0.8	–	L 0.5–1.5, D hole 0.12–0.37; Wt: 6 (total)	–	See <i>Fig. 10</i> ; 16 beads total; found as part of necklace, along with stamp seal (N470) and scarab (N486)
6	N472	Tomb RR, L197	Faience, carnelian	Lentoid, spherical, cylindrical, fluted	Beck I.B-C.1.a-b (globular); Beck XXIII.A.1.a (grooved barrel); Beck XVII.A.1.a (segmented)	0.57–0.71	0.38–0.89	Max. L 0.97, D hole 0.09–0.37	Intact, with a few broken	16 beads total (9 faience and 7 carnelian)
7	N479	Tomb RR, L107	Faience	Large bead	–	–	–	L > 2	Fragmented	–
8	N480	Tomb RR, L107	Faience, carnelian	Spherical/globular	Beck I.B-C.1.a-b	0.3–0.6	–	–	–	5 beads total (3 faience and 2 carnelian)
9	N481	Tomb RR, L107	Faience, carnelian	Globular	Beck I.B-C.1.a-b	0.4–0.6	–	L 0.3–0.8	–	2 complete carnelian beads and 1 broken faience
10	N484	Tomb RR, L183	Faience, carnelian	Lentoid/fluted and spherical	Beck I.B-C.1.a-b (globular); Beck XXIII.A.1.a (grooved barrel)	0.5–0.7	0.7	L 0.9	–	2 beads
11	N489	Tomb RR, L145	Faience	Spherical	Beck I.B-C.1.a-b (globular)	0.2–0.5	–	–	2 intact, 1 broken	3 beads
12	N499	Tomb SS, L149	Faience	Spherical/cylindrical	Beck I.B-C.1.a-b (globular)	0.45–0.6	0.2–0.72	D hole 1.0–1.9	Intact, slightly worn	3 beads
13	N511	Tomb RR, L144	Faience	Spherical	Beck I.B-C.1.a-b (globular)	0.95	0.88	D hole 0.27	Very fragmented	2 beads
14	N519	Tomb RR, L105	Carnelian	Lentoid	Beck IV.C.1.a (lenticular rounded bead)	1.65	0.7	L 1.9, D hole 0.2–0.3, Wt 3.6	Intact	See <i>Fig. 10</i> ; pierced form both ends, with piercing hardly meeting. See Caubet & Yon 2006.
15	N538	Tomb RR, L107	Carnelian, faience	Cylindrical (carnelians) and cylindrical fluted (faience)	Beck I.B-C.1.a-b (globular); Beck XXIII.A.1.a (grooved barrel)	0.5–0.7	0.3–1.4	Wt carnelian total 8, faience total 4	–	46 total (29 carnelian and 17 faience beads); near Sk76 and found together with cylinder seal N531
16	N238	Tomb RR, L107	Carnelian, faience	Cylindrical, ellipsoid with fluted decoration, globular to elongated	Beck I.B-C.1.a-b (globular); Beck XXIII.A.1.a (grooved barrel)	–	–	–	–	See <i>Fig. 10</i> ; 25 beads total (14 carnelian and 11 faience beads)
17	N244	Tomb RR, L107	Carnelian, faience	Carnelian bead cylindrical (irregular), faience beads ellipsoid with fluted decoration	Beck I.B-C.1.a-b (globular)	0.63–0.7	0.4–0.7	D hole 0.1–0.15, Wt < 1	Intact	1–2 beads?

Table 12 continued.

Cat. no.	Find no.	Findspot	Material	Shape	Type (based on Beck 1973)	D	H	Other measurements	State of preservation	Remarks
18	N263	Tomb RR, L106	Faience	Cylindrical with incised/etched decoration	Beck I.2.b (cylindrical)	0.8	0.8	D hole 0.4, Wt < 1	One side containing ancient breaks	–
19	N282	Tomb RR, L107	Carnelian, faience	Carnelian beads roughly cylindrical (irregular) or globular; faience bead ellipsoid with fluted decoration	–	–	–	–	Intact, with a few broken	In total 14(?) beads (7 carnelian, 9 faience)
20	N366	Tomb RR, L106	Ivory	Unclear	–	–	–	–	Very fragmented	–
21	N368	Tomb RR, L106	Faience	Quadruple spacer bead composed of four cylindrical beads joined together	Beck XVII.A.2.a (multitubular bead)	–	L 1.8 W 1.7 Th 0.4	D hole 0.1, Wt < 1	Minimally broken, two parts	–

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